University of Aberdeen Superannuation and Life Assurance Scheme

Member presentation – Longevity / Life expectancy
6 June 2017

Jonathan Seed, Scheme Actuary
A pension scheme has two key numbers associated with it:

- The value of its ‘assets’ – the ‘money’ the scheme holds
- And the value of its ‘liabilities’ – how much money the scheme needs, in order to pay all the pensions that have been promised
Last year – we talked about assets, and how they are invested
Assets – a recap from last year

• The Trustees invest the Scheme assets in a mix of asset types, as set out in a formal Scheme document (the ‘Statement of Investment Principles’)

• The assets are expected to grow over time, to help meet the cost of paying out pensions

• The University pays the ‘shortfall’ if one arises

• Looking into the future, the return on assets is difficult to predict
This year – let’s talk about liabilities
This year we’re going to talk about the liability side

• Liabilities

→ The amount of money that a pension scheme needs to hold to pay benefits in full to ALL members

• This is actually easier to predict than the future return on assets

• We know with some degree of confidence how much pension has been promised (accrued) to date

• We know roughly when people will retire

• So we can look to the future and (with the help of some assumptions) work out what the Scheme expects to pay out over time
What are the scheme benefits?
Scheme benefits

• The Scheme promises to pay each member the following:

  ➔ **A pension for life** of $\frac{1}{80}$ of final salary for each year of pensionable service up to 1 August 2011 plus $\frac{1}{80}$ of revalued average salary for each year of service from 1 August 2011

  ➔ **A cash sum at retirement** of 3 times this amount

• So the two key factors for estimating the benefits that will be paid are:

  ➔ What will inflation / salary increases be between now and the member’s retirement?

  ➔ How long will the member be paid this pension for? i.e. How long will they live?
Scheme benefits – what do they look like?

The Graph shows projected annual benefit outgo from the Scheme

- **Annual outgo** is projected to increase from £5m to £7.5m in early 2030s and then slowly tail off
- **Total future outgo** is estimated to be approximately £300m
- **Existing assets** of circa £150m plus future returns plus deficit contributions expected to be sufficient to meet all outgo

The main factors affecting the level of benefit outgo are inflation and life expectancy
Longevity

“the length or duration of life”

Commonly called ‘life expectancy’
Meet Jeanne Calment

Making Sense of Pensions
Mortality assumptions

The further we project into the future, the less certain we are about life expectancy.
NEWSFLASH – people are living for longer

Source – LGPS Scheme Annual Report 2015
Is the tide turning?

Deaths in England & Wales

Source – Office for National Statistics
What might cause lower than expected lifespans?

- Resource scarcity
- Obesity
- Smoking
- Superbugs
What might cause higher than expected lifespans?

- Government intervention
- Medical innovation
- Genome mapping
- Regenerative medicine
- Superdrugs
- Serendipity
Thank you – any questions?
The risk of paying “for life”

"In life, one sometimes makes bad deals,"

Making Sense of Pensions
Factors affecting lifespan, in order of importance

<table>
<thead>
<tr>
<th>Factor</th>
<th>Influence on life expectancy</th>
<th>Usefulness as a proxy variable in pensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Very high</td>
<td>Very high</td>
</tr>
<tr>
<td>Gender</td>
<td>Very high</td>
<td>Very high</td>
</tr>
<tr>
<td>Medical history</td>
<td>Very high</td>
<td>Very low</td>
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<tr>
<td>Genetics</td>
<td>High</td>
<td>Very low</td>
</tr>
<tr>
<td>Smoking status</td>
<td>High</td>
<td>Very low</td>
</tr>
<tr>
<td>Diet</td>
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<td>Very low</td>
</tr>
<tr>
<td>Obesity</td>
<td>High</td>
<td>Very low</td>
</tr>
<tr>
<td>Occupation</td>
<td>High</td>
<td>Moderate</td>
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<tr>
<td>Alcohol consumption</td>
<td>Moderate</td>
<td>Very low</td>
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<tr>
<td>Regular exercise</td>
<td>Moderate</td>
<td>Very low</td>
</tr>
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<tr>
<td>Exposure to stress</td>
<td>Moderate</td>
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<tr>
<td>Wealth</td>
<td>Moderate</td>
<td>Very low</td>
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<tr>
<td>Marital status</td>
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<td>Moderate</td>
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<tr>
<td>Education</td>
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<td>Low</td>
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<td>Medical underwriting</td>
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<td>Very low</td>
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<tr>
<td>Family medical history</td>
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<td>Very low</td>
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<tr>
<td>Geographical location</td>
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<td>Low</td>
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<tr>
<td>Postcode</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Benefit amount</td>
<td>Low</td>
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