

# INSTITUTE AND FACULTY OF ACTUARIES

## EXAMINERS' REPORT

April 2017

### Subject CA3 – Communications

#### Introduction

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus.

For the CA3 communications examination the examination is designed to examine the communication of an actuarial concept to a non actuarial audience. Sufficient technical detail on the scenario is provided in the question so that candidates from all backgrounds are able to answer the question.

One approach to a solution is reproduced in this report; other valid approaches were given appropriate credit.

Luke Hatter  
Chairman of the Board of Examiners  
July 2017

**A. General comments on the *aims of this subject and how it is marked***

1. Subject CA3 – Communications consists of two parts as follows:  
  
Part A – Written communication  
Part B – Oral communication
2. The overall objective is to draft communications intended for a non-actuarial person who is usually assumed to have some business knowledge. While it is recognised that some clients, such as Finance Directors or a Trustee Board Chairmen, might be actuaries, many clients will not be.
3. The communication needs to be of a standard that it would be acceptable as a first draft. It is important that the recipient would both understand the communication and be satisfied with the response. The marking schedules include details of the marks awarded for including the necessary content. Marks may also be lost for including irrelevant content or details that candidates have specifically been asked to exclude from their solution. Further details are provided in this report.

**B. Comments on *student performance in this diet of the examination***

**PART A – Written communication**

**Scenario: Letter to a pensioner explaining a change in pension**

**PART B – Oral communication**

**Scenario: Longevity Swaps**

Overall candidates sitting this exam performed less well in the written question than in the presentation question. Further details on student performance for each question are provided in the sections below.

**C. Pass Mark**

The Pass Mark for this exam was 60.

## PART A – Written communication

### Scenario: Letter to a pensioner explaining a change in pension

A possible answer is given below. This is not intended to be a model solution. In practice, a wide number of solutions were acceptable and candidates would have achieved good pass standards without having the same level of detail as the answer below.

Candidates were asked to draft a letter to a pensioner who had asked for clarification on a recent letter that he'd received regarding a change in his pension.

Candidates were given clear instructions on what the letter should include:

- *some background information on why we are making these changes;*
- *details of Mr Smith's pension when he retired, both before and after the change was made. This is so he can understand why the change is necessary.*
- *you need to explain why having a different breakdown of his total pension into the state pension component and scheme pension component impacts the calculation;*
- *you should provide sufficient information to assist him in understanding how he can have a negative interest component but positive back-payments overall.*

In addition candidates were told that:

- *"A graph may help to explain how there have been periods of overpayment and periods of underpayment in the past"; and*
- *"...this new letter should be a stand-alone document so he doesn't need to refer to the previous letter".*

All the information required to answer the question was provided in the question paper.

The main points that the Examiners were looking for and some common problems encountered were as follows:

1. Most candidates produced scripts that looked like a letter suitable for a pensioner. Scripts gained marks for having a clear introduction clearly explaining what the letter would cover. Poorer letters didn't have a clear introduction.
2. There was little evidence of candidates running out of time and therefore not completing their answer.
3. Most scripts were of an appropriate length and included most of the content that had been requested.
4. Candidates were asked to include a graph in their letter to explain how there had been periods of over and under-payments in the past. The differences between the total pension paid and the correct total pension were small. Poorer candidates included graphs where the differences could not be seen, or included only a few years. Good graphs clearly demonstrated the over and under-payments and included appropriate commentary that was backed up by what could be seen on the graph.

5. Some candidates included far too much numerical detail in their letter for example, tables of figures showing interest and back-payments for each year.
6. The relevant figures that applied to the pensioner were provided in the question. It was unnecessary for candidates to make up theoretical examples to illustrate how a split of pension could affect the calculation of the pension increases and this would have been confusing for the pensioner.
7. It was fine for candidates to include a brief apology in their letter but some scripts were unnecessarily apologetic. Poorer candidates included an excessive amount of negative language in their response with numerous references to errors, miscalculations, the pension being incorrect since outset etc. This member was receiving a small increase in pension and a similarly small lump sum to cover back-payments and interest. Being unnecessarily apologetic and using negative language detracted from the main task of providing a clear explanation for these changes.
8. Most scripts included satisfactory spelling, grammar and punctuation.

## SOLUTION

### DE Pension Scheme

< date>

Dear Mr Smith

#### DE Pension Scheme ("The Scheme") – Pension payroll number 56565

Thank you for your letter of 7 April requesting clarification of the changes to your pension. I apologise if our previous correspondence was unclear.

Firstly, I can confirm the figures previously provided are correct. You are due an increase to your annual pension of £101.78 from 1 June 2017. In addition you will receive a one-off payment of £100.55 representing back-payments and interest.

I will explain below:

1. Some background on the changes we are making
2. Details of your pension when you retired
3. How pension increases are calculated and the impact on your pension; and
4. Why the interest element of your back-payments is negative

#### 1. Background

Your pension consists of two parts – the scheme part and the part that replaces the state pension. The State has recently requested that all pension schemes reconcile the state pension part with the details that they hold. Where this shows a difference the Scheme has received legal advice that pensions must be amended and any underpayments rectified. In line with the Scheme's rules, interest must be charged on any under/overpayments.

#### 2. Pension on retirement

You retired from The Scheme on 1 May 2004 with an annual pension of £2,850. The table below shows how this was split into the two parts, together with revised figures based on information recently received from State.

Annual Pension at retirement (£)	Existing	Revised
State part	950	150
Scheme part	1,900	2,700
Total Pension	2,850	2,850

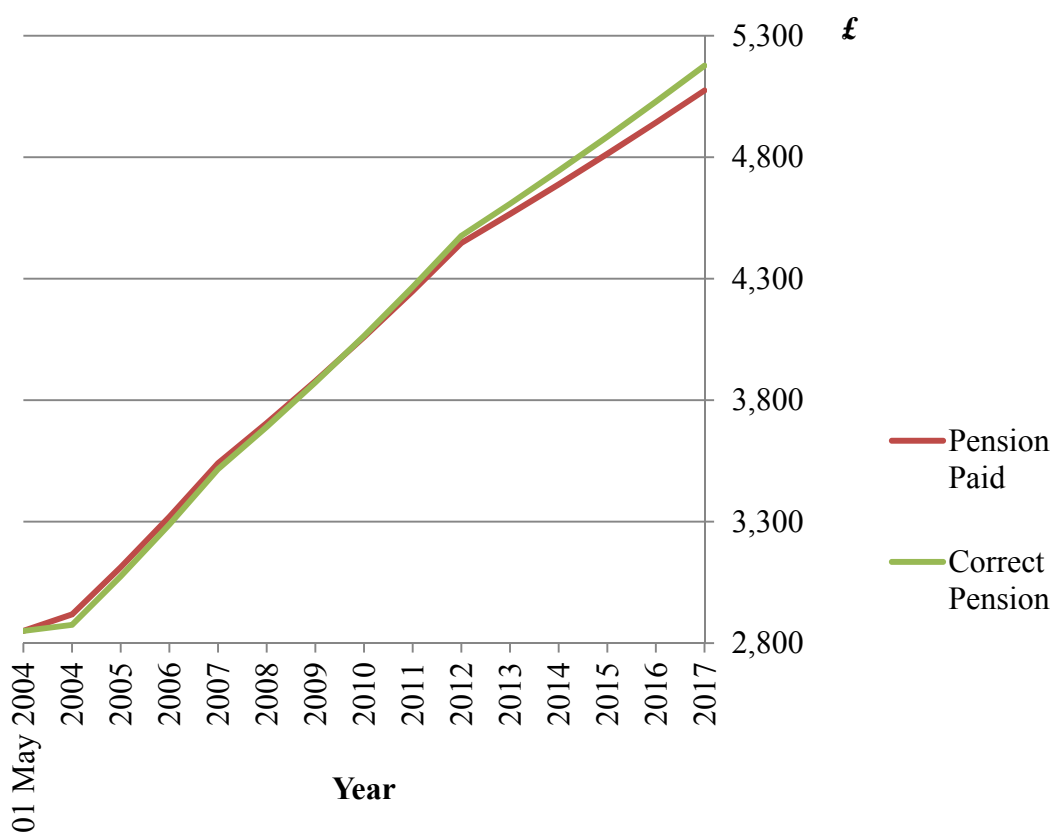
As you can see although the total pension you received on retirement was correct the breakdown into the different components was not.

### 3. Increases to pensions

The Scheme increases pensions annually on 1 June. There are two main differences in the way the increases apply to the different parts of your pension:

1. Increases to the State part are at a lower rate than increases granted to the Scheme part; and
2. The first increase after you retire is based on the period since you retired for the Scheme part, but a full year's increase is granted on the State part.

The graph below shows the annual pension paid since you retired in May 2004, compared with the pension that should have been paid.



Although the differences are small, it can be seen that the pension paid was:

- too high for 2004–2009; and
- too low from 2012 onwards.

The first pension increase was granted at 1 June 2004. The increase to the Scheme part only reflected 1 month whereas the increase to the State part was a whole year's increase. Your revised pension has a larger Scheme part. This means that the increase initially given in June 2004 was too high. However, the Scheme part attracts bigger yearly increases than the State part. This means that the annual increases to your pension from 2005 onwards were too low.

#### **4. Back-payments and interest**

Under the Scheme Rules, when rectifying any changes, it must award interest for any amounts that have been underpaid and charge interest on any overpayments. Overall you have been underpaid £148.44 not taking into account any interest.

The graph shows that the overpayments of your pension occurred first. This has resulted in the interest due on the overpayments being greater than the interest due on the underpayments (which were more recent). This is why you owe the Scheme £47.89 in interest.

The combined effect of back-payments and interest means that the scheme owes you £100.55 (148.44 – 47.89), which will be paid to you on 1 June 2017.

#### **5. Summary**

Your annual pension will be increased by £101.78 from 1 June 2017 to £5,176.74. You will also receive an additional one-off back-payment of £100.55.

If I can be of any further help please let me know.

Yours sincerely

Name  
DE Pension Scheme Administrators

**[622 words excluding heading and sign off]**

## MARKING SCHEDULE

OBJECTIVE	MARKS
<p><b><u>Length of answer</u></b></p> <p>The number of words should be calculated counting all words after the address, heading, salutation etc. up to the sign-off.</p> <p>550–650 words (4)</p> <p>500–549, 651–700 words (2)</p> <p>&lt;500 or &gt; 700 words (0)</p> <p><b>Total for length of answer</b></p>	4
<p><b><u>Format of answer – Letter</u></b></p> <p>Clear from DE Pension Scheme (1)</p> <p>Suitable title for letter – should follow similar format to letter of 22 March 2017 (1)</p> <p>Date of letter (1)</p> <p><b>Total for letter</b></p> <p>(Copying format and title of letter of 22 March 2017 in question paper (which is sensible approach to adopt) scores full 3 marks.)</p>	3
<p><b><u>Language used</u></b></p> <p>1 mark for each bullet point, unless stated otherwise</p> <p>Overall language (up to 3 marks)</p> <ul style="list-style-type: none"> <li>understandable to the Pensioner</li> <li>a professional tone should be adopted (scripts should avoid comments which “talk down” to the Pensioner)</li> </ul> <p>Jargon (up to 5 marks)</p> <p>Award five marks and then deduct marks where the script uses jargon that may be confusing for the Pensioner. Jargon includes unnecessary technical terms where a simpler term exists, terms and/or abbreviations which are unexplained and so unclear. Superfluous accuracy in the quoted figures counts as jargon. Irrelevant information or complicated detail, for example including formulae showing how pension increases are calculated; being unnecessarily apologetic should be treated as Jargon.</p> <p>Grammar, spelling and punctuation (up to 4 marks)</p> <p>Award four marks and deduct marks for errors. Minor errors (e.g. “typos” potentially arising as a result of using a keyboard where the candidate should be given the benefit of the doubt) should be ignored. Only deduct marks where the error compromises the professionalism of the document or may require sections to be redrafted.</p> <p><b>Total for language used</b></p>	12



OBJECTIVE	MARKS
<p><b><u>Planning and presentation (some marks inc in technical content section)</u></b></p> <p>Grouping of ideas <span style="float: right;"><b>(up to 4 marks)</b></span></p> <ul style="list-style-type: none"> <li>Points should follow a logical order so messages are clear and don't need to re-read to understand</li> </ul> <p>(4 marks if clear when read once. If you need to go back and read several times then this is less clear and lower marks should be awarded.)</p> <p>Appropriate short headings on each section <span style="float: right;"><b>(up to 2 marks)</b></span></p> <ul style="list-style-type: none"> <li>One mark for each appropriate heading up to 2 marks in total. Long headings or headings that don't succinctly describe what follows do not get a mark.</li> </ul> <p>Sentences kept brief <span style="float: right;"><b>(up to 3 marks)</b></span></p> <ul style="list-style-type: none"> <li>Three marks for a script with short sentences. Marks can be deducted for overly long sentence where this makes the message unnecessarily complicated. The principle is that a sentence containing more than one message or too many sub-clauses is too long (or, if spoken, a sentence that needs repeated breaks to articulate is too long). A guideline of a sentence that is too long is one that is over 35 words.</li> </ul> <p><b>Total for planning and presentation</b></p>	<b>9</b>
<p><b><u>Content (including some formatting &amp; planning and presentation marks)</u></b></p> <p><b>1. Introduction <span style="float: right;">(Max 7 – see breakdown below)</span></b></p> <ul style="list-style-type: none"> <li>Confirmation that you are replying to his letter of 7 April <span style="float: right;"><b>(1)</b></span></li> <li>Confirmation that figures provided in previous letter are correct <span style="float: right;"><b>(1)</b></span></li> <li>Re-cap of the amount of the pension adjustment from 1 June 2017 (£101.78 p.a.)* <span style="float: right;"><b>(1)</b></span></li> <li>Re-cap that back-payments and interest totalling £100.55 will also be paid at 1 June 2017 <span style="float: right;"><b>(1)</b></span></li> <li> <ul style="list-style-type: none"> <li>Some details of what letter is going to cover <span style="float: right;"><b>(1)</b></span></li> <li>Details should be easy to read – bullets or numbering that then follows points covered works well <span style="float: right;"><b>(1)</b></span></li> <li>Check paragraphs that follow have headings that tie into what letter says will be covered <span style="float: right;"><b>(1)</b></span></li> </ul> </li> </ul> <p><i>(Marks on using short succinct headings are in Planning section above.)</i></p> <p><b>2. Background <span style="float: right;">(Max 8 – see breakdown below)</span></b></p> <ul style="list-style-type: none"> <li>Clear pension is made up of 2 parts Scheme part and State part <span style="float: right;"><b>(2)</b></span></li> <li>Information that State requires a reconciliation between its figures and schemes figures <span style="float: right;"><b>(1)</b></span> <ul style="list-style-type: none"> <li>Clear DE Scheme must amend pensions where figures are different <span style="float: right;"><b>(2)</b></span></li> <li>Amendment must be for pension going forwards <span style="float: right;"><b>(1)</b></span></li> <li>Any underpayments (including interest) must be paid <span style="float: right;"><b>(2)</b></span></li> </ul> </li> </ul>	

OBJECTIVE	MARKS
<p><b>3. Details of Pension when retired (Max 6 – see breakdown below)</b></p> <ul style="list-style-type: none"> <li>• Clear on date of breakdown – 1 May 2004 (1) There should be a clear breakdown into the State part, Scheme part and it must be clear that the total pension is unchanged. (up to 3 marks)</li> <li>- <i>Table similar to solution scores full</i> (3)</li> <li>- <i>Information provided in sentences but can clearly compare figures</i> (2)</li> <li>- <i>If info is there but difficult to compare split and total</i> (1)</li> <li>• Clear statement changing split of pension doesn't affect total pension (2)</li> </ul>	
<p><b>4. How increases to pensions are calculated (Max 19 – see breakdown below)</b></p> <ul style="list-style-type: none"> <li>• Increases are granted on 1 June each year (1)</li> <li>• 2 key differences in way increases are calculated (1)</li> <li>• Lower rate granted on State part than Scheme part (2)</li> <li>• <u>General info</u> on increases in first year after retirement calculated differently (1) <ul style="list-style-type: none"> <li>- Scheme part gets part year increase (1)</li> <li>- State part always gets full year increase (1)</li> </ul> </li> <li>• Students have been asked to include a graph – e.g. a graph showing total pension for each year since retirement or alternative appropriate graph <ul style="list-style-type: none"> <li>- Graph similar to solution (3)</li> <li>- Couple of appropriate comments on graph (2)</li> </ul> </li> <li>• <u>Member specific info</u> on first increase on 1 June 2004 for member (1) <ul style="list-style-type: none"> <li>- First increase based on 1 month for scheme, whole year for State (2)</li> <li>- Revised pension has smaller State part, bigger Scheme element hence from the first increase Mr Smith was being overpaid (2)</li> <li>- Bigger increases on Scheme element since 2004 means overall increase because in later years he was underpaid (2)</li> </ul> </li> </ul>	
<p><b>5. Back-payments and interest (Max 8 – see breakdown below)</b></p> <ul style="list-style-type: none"> <li>• Clear Scheme requirement that interest must be charged on under / overpayments (2) <i>(As pensioner has periods of both under and overpayments expect both to be mentioned in interest commentary.)</i></li> <li>• Pensioner must understand why interest is negative – i.e. amounts are similar (1) but overpayments occurred before underpayments hence interest over a longer period (2)</li> <li>• Clear that back-payments including interest will be paid as a single amount with 1 June 2017 pension payment (1)</li> <li>• Clear how the overall amount of £100.55 is calculated (148.44 – 47.89) (2) <i>(Important that overall amount is stated in letter as this is the amount the pensioner will receive.)</i></li> </ul>	
<p><b>6. Summary, close to letter (Max 4 – see breakdown below)</b></p> <ul style="list-style-type: none"> <li>• Final statement providing 2 key figures (1)</li> <li>• Offer of further help, or similar close (1)</li> <li>• <b>Very clear messages</b> (2)</li> </ul>	

OBJECTIVE	MARKS
<b>Total for content</b>	<b>52</b>
<b><u>Meeting of objectives</u></b>	
The Pensioner is likely to understand the answer.	<b>10</b>
The Pensioner is likely to be satisfied with the answer.	<b>10</b>
<b>Total for meeting objectives</b>	<b>20</b>
<b>TOTAL MARKS</b>	<b>100</b>

**Marks are awarded up to the maximum shown in brackets.**

*\* It can be argued that Mr Smith is receiving an increase to his pension at 1 June 2017 of the standard scheme increase and the additional increase representing the correction of the spilt into the two components i.e.  $5,176.74 - 4,942.48 = £234.26$  p.a. Appropriate credit was given to candidates who used these figures in their response.*

## **PART B – Oral communication**

### **Scenario: Longevity Swap**

A possible set of slides to accompany a candidate's presentation is given below. This is not intended to be a model set of slides. In practice, a wide number of sets of slides were acceptable and candidates would have achieved good pass standards without having the same level of detail as the slides below.

Candidates were asked to give a presentation introducing longevity swaps to a finance director (FD) of XYZ Insurance.

Candidates were given clear instructions from their manager on what the presentation should include:

- *“a brief explanation of longevity risk.*
- *...show how life expectancy has increased in the past, possibly with a chart.*
- *an outline of how a longevity swap works.*
- *a brief explanation of how the swap would protect the insurance company from longevity risk*
- *...illustrate the cashflows on a chart comparing current expectations with an alternative scenario.”*

Candidates were provided with further instructions:

- *“Please ask Reena (FD) to contact me if she wants any more information on this topic....”*

Candidates were provided with all the information that they needed to answer the question.

The main points that the Examiners were looking for and some common problems encountered were as follows:

1. Candidates were asked to deliver a presentation lasting no longer than 10 minutes. Most candidates delivered presentations that were within an appropriate time frame.
2. Most presentations had an appropriate first slide with a clear title, date and name of presenter.
3. Most presentations had an agenda. On better presentations, the agenda linked directly to the titles and content of the following slides. On weaker presentations, too much time was spent on the agenda giving rise to a laboured start, which tended to disengage the audience.
4. There was a great variation in the quality of the format of slides. Good presentations had slides that clearly backed up the information that was being provided to the audience in a manner that they could understand.
5. Some candidates put full-length narrative sentences on the slides. This was not appropriate to the slide format and tended to make slides over-busy. This also distracted the audience from listening to the presenter.
6. Some candidates included slides with far too much information on them for example, bar charts with figures on each section of the bar. This level of detail was unnecessary and detracted from

explaining the high level concepts. Better candidates included slides that contained simple appropriate diagrams or graphs which the candidate then explained clearly.

7. As the audience for this presentation was the finance director from a client it was expected that candidates should be reasonably formal. Some candidates were too informal in their language.
8. Some candidates included far too much information on the factors that were expected to affect life expectancy.
9. Better candidates completed their presentation with a brief summary of the key points from their presentation and provided the opportunity to ask questions.

Candidates were not asked to provide a script to accompany the presentation.

## **SOLUTION**

### **Slide 1**

# Longevity Swaps

An introduction for XYZ Insurance

12 February 2017

Rob Holland  
ABC Reinsurance

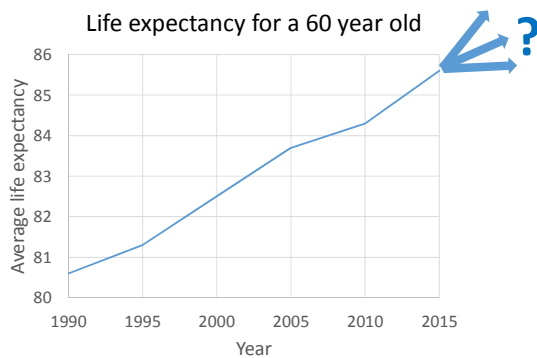
### **Slide 2**

## Agenda

- What is longevity risk?
- Longevity swap
  - What is a longevity swap?
  - How do payments work?
  - Illustrated examples
- Summary and questions

Slide 3

## What is Longevity Risk?



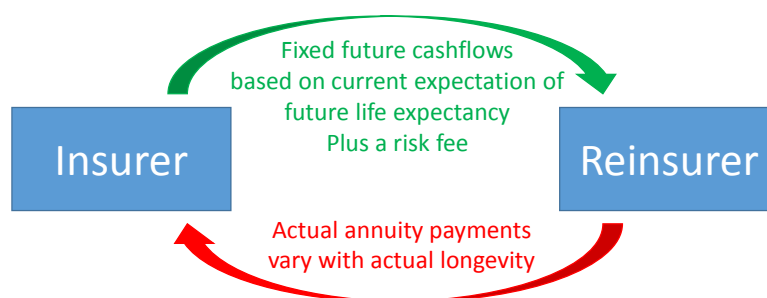
- Future changes in life expectancy uncertain
- Annuity providers make assumptions about future life expectancy
- Higher life expectancy = more annuity payments

Annuity providers exposed to longevity risk:  
Risk that life expectancy rises faster than expected

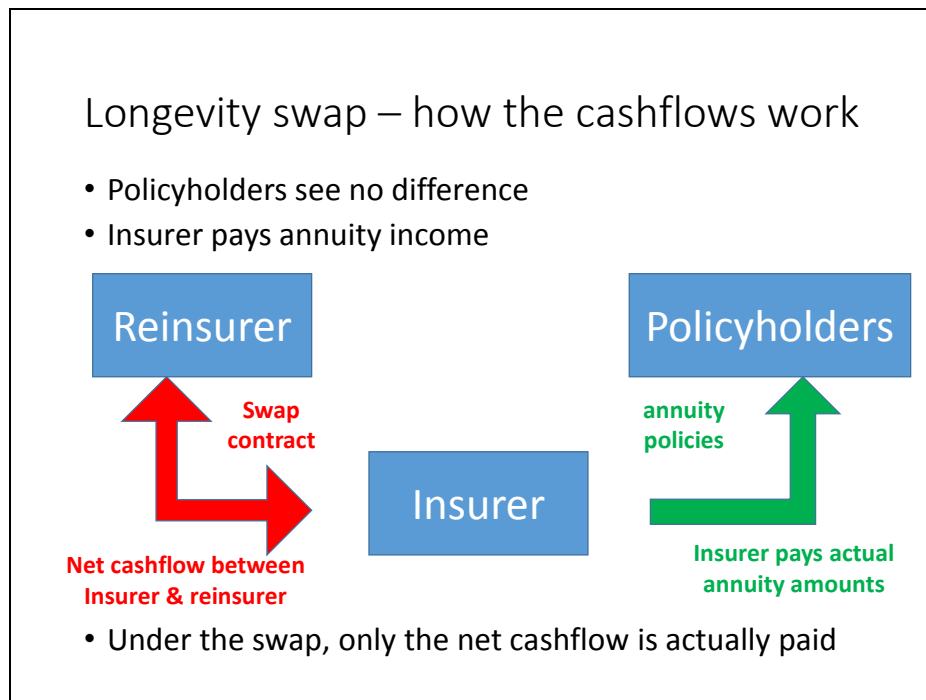
Slide 4

## What is a longevity swap?

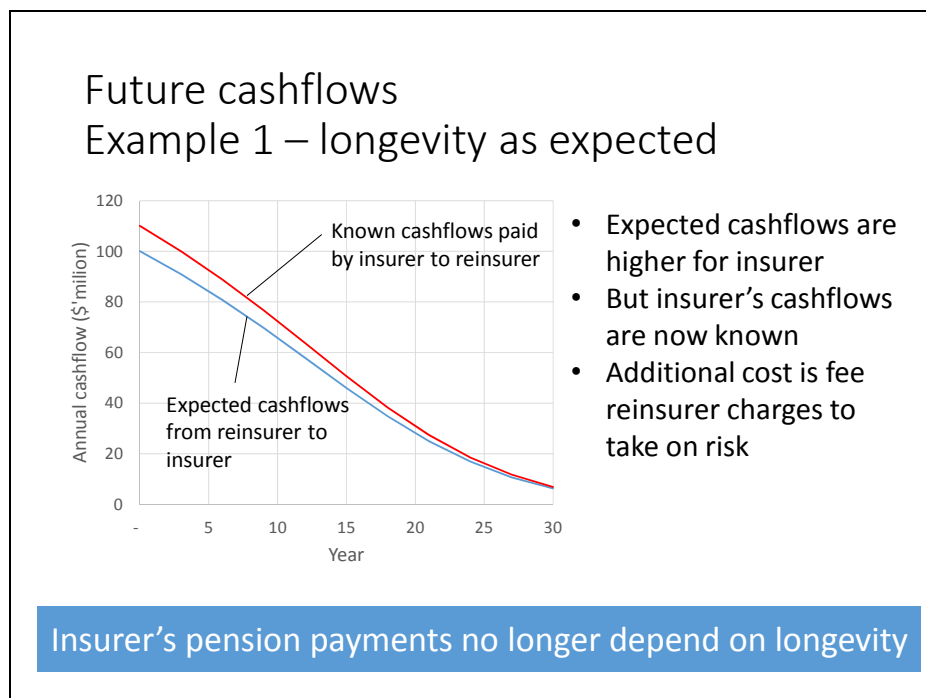
- Protection from increasing life expectancy
- Fixes future cashflows for the insurer



Slide 5



Slide 6

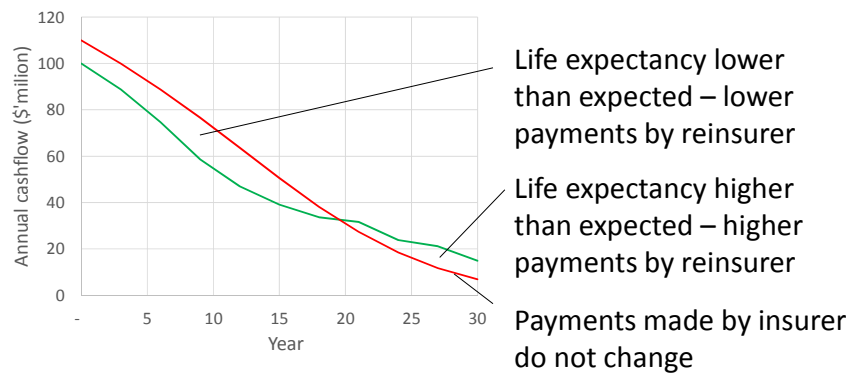




Slide 7

Future cashflows

Example 2 – longevity differs to expectations



Insurer is protected against any changes in life expectancy

Slide 8

Summary

- Insurers with annuities exposed to risk policyholders live longer than expected
- Future changes in life expectancy are uncertain
- Longevity swaps fix future annuity payments for insurer
- Reinsurer charges a fee but pays the cost if policyholders live longer
- Should we illustrate for XYZ Insurance?
  - If you would like a bespoke quotation please contact Kate Williams

**Slide 9**

# Questions?

Rob Holland

[paul@abcre.com](mailto:paul@abcre.com)

01234 567890

Kate Williams

[kate@abcre.com](mailto:kate@abcre.com)

01234567123

## MARKING SCHEDULE

MARKS FOR	MAXIMUM FOR SECTION
<p>Introduction (voice &amp; slide)</p> <ul style="list-style-type: none"> <li>• Purpose</li> <li>• Relevant slide</li> <li>• Agenda / what will cover</li> </ul>	3
<p>Voice (2 for each bullet)</p> <ul style="list-style-type: none"> <li>• Audible, clear</li> <li>• Suitable speed</li> <li>• Not monotone</li> <li>• Pause / take time</li> <li>• Emphasise key points</li> </ul>	10
<p>Slide format (2 for each bullet)</p> <ul style="list-style-type: none"> <li>• Not too busy</li> <li>• No full sentences</li> <li>• Interesting / Back-up what is being said</li> <li>• Any graphs labelled</li> <li>• Clear, not too small</li> </ul>	10
<p>Content (Max 36 – restrict to 29)</p> <p>Life expectancy changes in the past:</p> <ul style="list-style-type: none"> <li>• Clear chart showing past changes in life expectancy (2)</li> <li>• Explanation of what the chart shows – life expectancy for a 60 year old in each calendar year, average over male and female, should not mention “cohort life expectancy” (2)</li> <li>• Candidates should mention one or two drivers of life expectancy – it is not necessary to give lots of drivers (2)</li> <li>• Link uncertainty of future life expectancy to longevity risk – explain that annuity writers are exposed to longevity risk. (2)</li> </ul> <p>Concept of a longevity swap</p> <ul style="list-style-type: none"> <li>• Transfers the risk of annuitants living longer than the insurance company expects onto a third party, usually a reinsurer (2)</li> <li>• Insurance company pays a fixed set of cashflows... (2)</li> <li>• ...based on current expectation of life expectancy in the future (2)</li> <li>• ...plus a risk fee (2)</li> <li>• Reinsurance company pays actual annuity payments, which will vary with actual mortality experience of the annuitants (3)</li> </ul> <p>Illustration of cashflows:</p> <ul style="list-style-type: none"> <li>• Clear chart showing the expected cashflows at the start of the swap, explaining clearly what each party expects to pay (3)</li> <li>• Illustration of the alternative floating leg on chart... (2)</li> <li>• ...explaining that the line illustrates heavier mortality early on and lighter mortality later (3)</li> <li>• ...but that the insurer's payments have not changed (2)</li> <li>• Candidates should only include relevant information (up to 6)</li> </ul> <p>(Total marks shown as available in this section are higher than the maximum of 29 marks that can be awarded. This is to reflect the different emphasis that</p>	

<b>MARKS FOR</b>	<b>MAXIMUM FOR SECTION</b>
students may place on the relevant points. Good students adequately covering the required content should be able to obtain the maximum of 29 marks on this section.)	<b>29</b>
Body language • Eye contact (4) • Movement & gestures (4)	<b>8</b>
Language / jargon (voice & slide) • Appropriate language (3) • No jargon (4) • Grammar / spelling reasonable (3)	<b>10</b>
Close (voice & slide) • Summarise main points made (5) • Invite questions (1) • Clear close (1)	<b>7</b>
Time taken: 10.5–11.5 mins 1 8–10.5 mins 3 7–8 mins 2 6–7 mins 1 < 5 mins 0 >11.5 mins 0	<b>3</b>
Client understands the main points with good understanding: • Life expectancy has been rising, but the rate of increase in the future is uncertain • Longevity swaps transfer the risk that annuitants live longer than expected from the insurer to the reinsurer • The insurer pays a fixed set of cashflows that does not depend on mortality • The reinsurer pays a set of cashflows that vary with the mortality of the annuitants • Examples used are clear <b>PLUS</b> • High-level explanations • Coherent story • Logical order	<b>10</b>
Audience engaged / interested • Answers audience's likely questions • Evidently geared for their needs	<b>10</b>
<b>TOTAL MARKS</b>	<b>100</b>

Marks should be awarded up to the maximum shown in brackets depending on the clarity of the explanation.

## **END OF EXAMINERS' REPORT**