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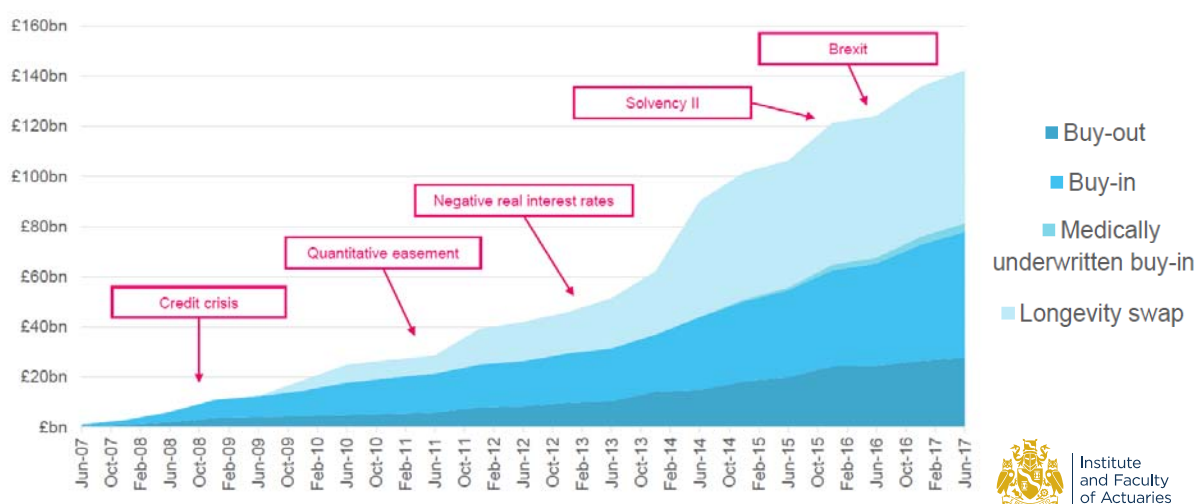
Developments in Longevity Swaps

Andrew Murphy

Pacific Life Re

23 November 2017

Risk transfer market – the first 10 years *(Source: Hymans)*



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2

Longevity transaction structures and developments

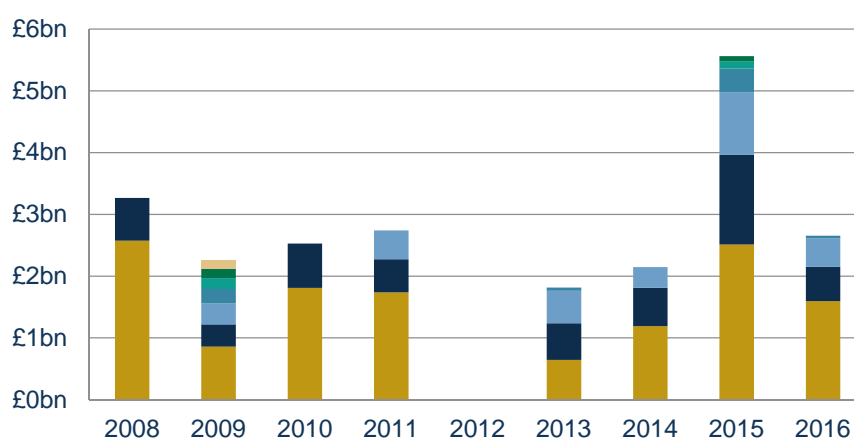


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3

Pacific Life Re Longevity Reinsurance



Deal sizes and annual volumes both volatile



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Small scheme longevity reinsurance

Simplification

Deferred pensioner de-risking



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Small scheme longevity reinsurance

Providing access to smaller pension schemes and
reinsurance of smaller bulk annuity transactions

Pacific Life Re motivation and decision process

Opportunities

- Volatility/idiosyncratic risk
- Access to same pricing as larger schemes
- Potential to provide a more regular flow of longevity business

Challenges

- Pricing lots of potential small scheme quotations (and pricing without experience)
- Operational issues
- Negotiating bespoke contracts for each transaction
- Longevity swaps potentially seen as a barrier to further de-risking



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Small scheme pricing

Assumption	2017 view	2007 view
Base mortality	Socio-economic tables derived from credible data sets	Insured annuity tables
Improvements	Individual reinsurer approach or CMI model	Cohort improvements
Demographics	Member Communication or Tracing exercise	Standard tables based on ONS data



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Future de-risking

- Important for small schemes
- Key focus in recent swaps - increasing inclusion of process to facilitate novation
- Issues to overcome:
 - Credit rating or security of replacement insurer
 - Counterparty exposure of insurer to reinsurer or vice-versa
- Contract simplicity makes novation easier



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9

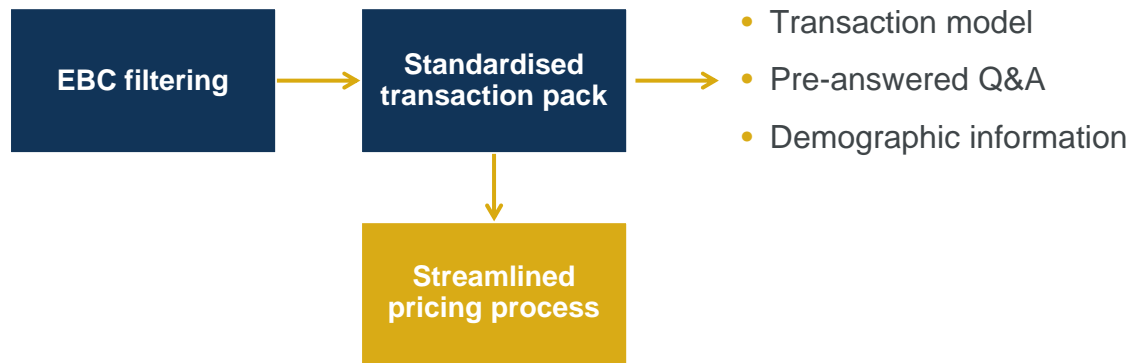


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Simplification

Simplifications to quotation processes, benefits and legal documents

Quotation processes



Data errors

Wide scope of data errors (e.g. gender, DoB, benefit amounts) introduces up-front negotiation requirements and future transaction uncertainty

Simplified data error process

- Lock-down benefits = no need for re-pricing
- Demographic errors can be mechanistically adjusted
- Use due diligence to check for systematic problems with data

Pacific Life Re experience

- Absolute number and amount has been small
- Net change has been trivial

Implementation and ongoing management

Standardised benefit structure

- Choose broad range of usual benefits applicable to multiple schemes

Implementation

- Implement several small schemes together
- Standardised internal model implemented on one simplified mortality basis
- Single common bordereaux across all small schemes with one cedant

Ongoing management

- Align processes and annual events – e.g. date cleanses / commutations
- MI monitoring to understand risk being written

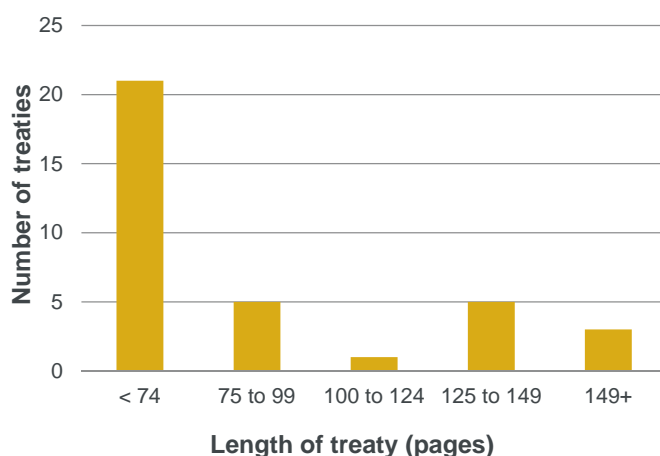


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Legal documentation



- Standardised contract with minimal changes
- Focus on key commercial points
- Emphasis on clarity and brevity



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14



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Deferred pensioner de-risking

Including deferred pensioners in transactions

De-risking journey

- Deferred members make up around half of the total pension scheme membership
- Trustees and sponsors may not wish to wait until all of the deferred members retire in order to de-risk
- Insurers already offer buy-ins and buy-outs including deferred lives

Member status	Membership
Active members	13%
Deferred members	47%
Pensioner members	40%
Total	100%

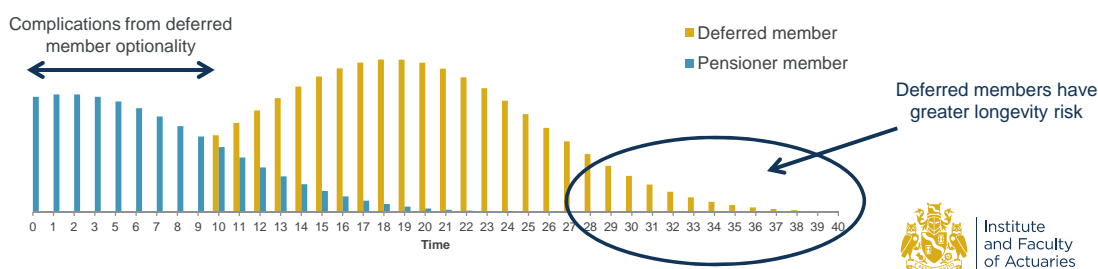
Source: PPF/ The Pensions Regulator Purple Book



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Reinsurance for deferred lives

- More reinsurer appetite for deferred lives?
- Capacity offered where deferred members represent smaller element of transaction
- Including deferred lives introduces structuring/tracing complications
- Insurers need reinsurance support because of high relative capital associated with deferred lives

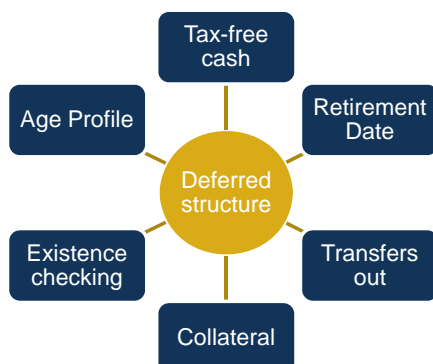


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17

Deferred structuring

- Reinsurance of deferred lives requires a different approach to structuring in a number of areas:



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Structuring – Age Profile

- Deferred members have inherently more longevity risk
- Future longevity improvement assumptions will have a greater reliance on the long-term trend assumption
- Reinsurer socio-economic models may not be calibrated to younger lives as little experience at younger ages
- Structuring options include:
 - Restricting the age profile to the older deferred lives
 - Restricting the proportion of deferred liabilities in the transaction



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19

Structuring – Member options

Member options

- Tax-free cash at retirement
- Trivial commutations
- Early Retirement
- Late Retirement
- Exchanging spouse pension
- Pension Increase Exchange

Mitigation

- Assume a fixed percentage of pension is exchanged for tax-free cash
- Fix the retirement date for all members to be their Normal Retirement Date
- Assume no pension is exchanged for additional spouse pension



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20

Structuring – Transfers out

- Deferred members retain the option to transfer out (or surrender their insurance policy if buyout) - so need to allow for commutation of member's benefits
- Approach to determining the partial termination of the member's benefit could potentially consider a number of information sources including:



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21

Structuring – Collateral

- In between mortality basis reviews, a collateral formula is often used to determine the mark-to-experience exposure on a contract.
- This formula based approach won't work as well with deferred lives:
 - Difficulties with tracing deferred lives; and
 - Impact of transfers-out (residual population less likely to be alive).
- Consider using a projection approach – compare projection of floating payments vs. fixed vector and adjust for transfers-out?



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Structuring – Existence Checking

- Depending on the structure used for the deferred member longevity swap, cashflows could be notionally exchanged before members actually receive payments from the underlying scheme.
- A robust existence checking procedure is therefore needed
- Existence checking can take a variety of forms, from electronic tracing to a DWP search.
- Where the transaction is part of a buy-in then there may be restrictions on the level of tracing that can be conducted
- If a life is untraceable, an agreement on the date at which the floating leg cashflows cease needs to be agreed



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23

Summary

- **Small scheme longevity reinsurance** – appetite is there but need to standardise the process and make as operationally efficient as possible.
- **Simplification** – focus on the key terms and features
- **Deferred pensioner de-risking** – issues to discuss and overcome to make attractive for reinsurers



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24

Questions

Comments

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