



Institute
and Faculty
of Actuaries

Longevity Capacity: Approaching the Limit?

Khurram Khan, Pension Insurance Corporation
Tim Smith, Munich Re

10 November 2014



Longevity capacity: Route map

- Two perspectives
- PIC: Background
- PIC: Motivations
- MRe: Background
- MRe: Motivations
- PIC: The capacity question
- PIC perspective: Transactions
- PIC perception: Factors affecting capacity
- PIC: Exposure-build up
- PIC: Longevity Catalysts
- PIC: Solvency II
- PIC: Innovations
- MRe: Transactions
- MRe perception: Factors affecting future capacity
- MRe: Longevity Catalysts
- MRe: Solvency II
- MRe: Exposure build-up
- Summary
- Q&A

28 November 2014

2

Two perspectives



- Insurance Company
- Regulated by PRA / FCA
- Bulk annuities
- Around £15bn AUM
- Started 2006 / 07

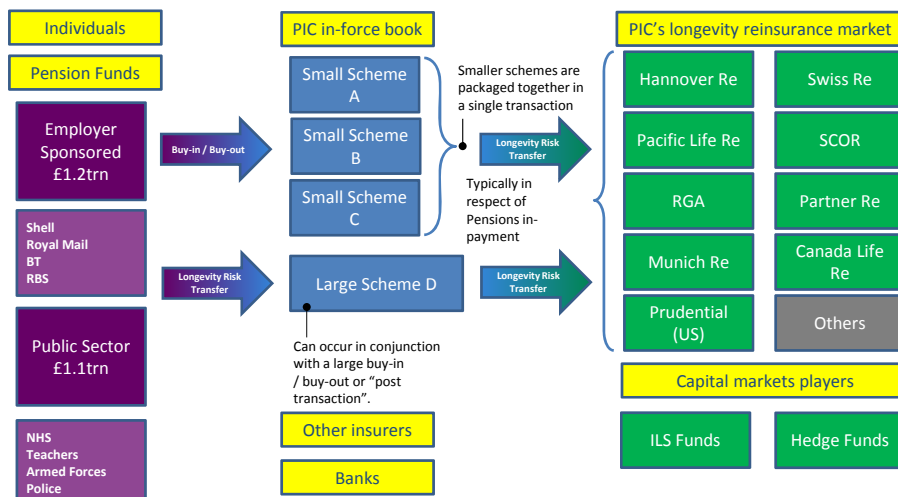


- Reinsurance Company
- Regulated by BaFin in Germany
- Multiple products
- Over €200bn AUM
- Founded 1880

28 November 2014

3

PIC: Background



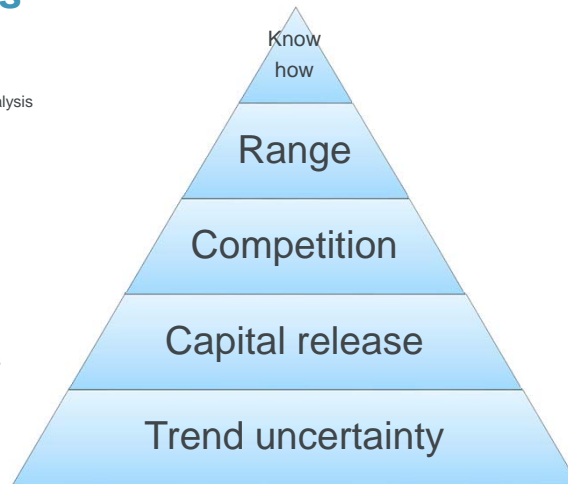
PIC has successfully transferred the longevity risk in respect of around £7bn of liabilities relating to 27 separate schemes to date.

28 November 2014

4

PIC: Motivations

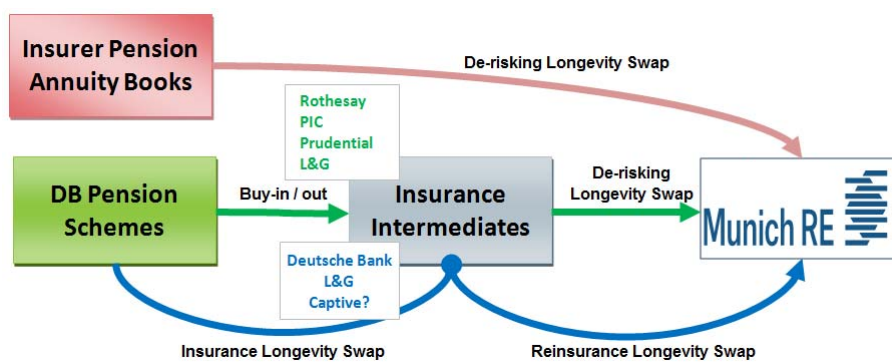
- Trend risk:
 - Uncertainty in best-estimate
 - Immune to extra information / analysis
- Capital:
 - Risk based measures
 - Uncertainty in capital
- Competition:
 - Amongst reinsurers
 - back-to-back vs. in-force book
- Natural range of prices:
 - Differing reinsurer capital models
 - Differing reinsurer motivations
- Leveraging experience:
 - Longevity risk relating to £7bn
 - Covering 27 separate schemes



28 November 2014

5

Munich Re: Background



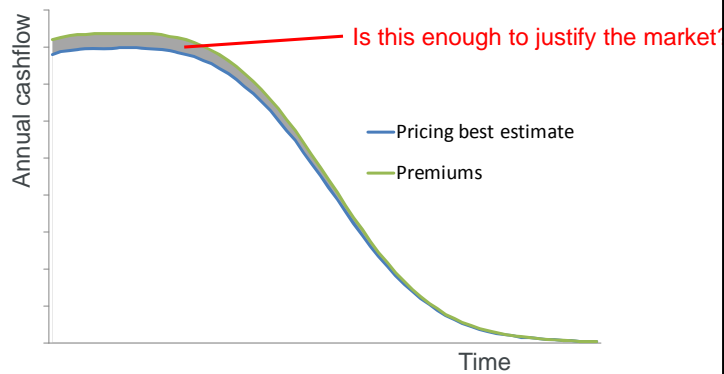
A number of potential sources, and a huge pool of risk

28 November 2014

6

Munich Re: Motivations

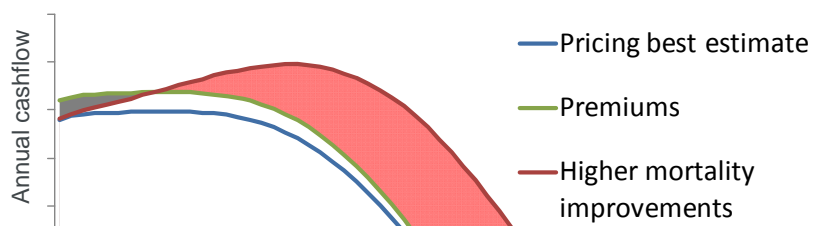
- Expertise
 - Our business is assessing mortality risk
- Support existing clients
- Profit



28 November 2014

7

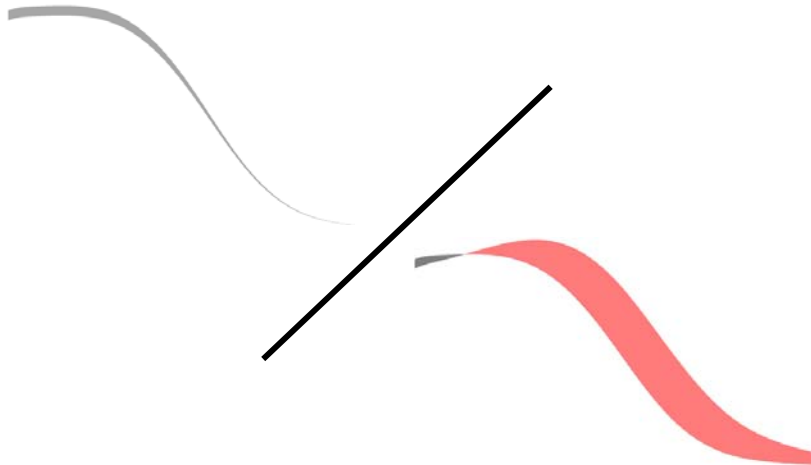
Munich Re: Motivations



28 November 2014

8

Munich Re: Motivations



28 November 2014

9

Munich Re: Motivations

Reduce total risk:

- Diversification
 - Reducing volatility across the Group
- Hedging
 - Achieving negatively correlated returns

...and both of these will have a corresponding capital benefit

28 November 2014

10

PIC: The capacity question

The issue of capacity is not a binary one.....

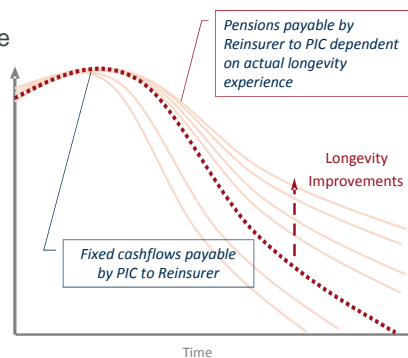


28 November 2014

11

PIC perspective: Transactions

- How do transactions come about?
 - In-force book
 - Back-to-back
- What exactly is a longevity insurance price?
 - Price specified as fixed leg assumptions
- Key non-price issues
 - Termination (Events and values)
 - Inflation handling
 - Collateral
 - Basis Review
- Syndication



28 November 2014

12

PIC perception: Factors affecting current capacity



- | | |
|--|--|
| <ul style="list-style-type: none"> • Capacity scarce • Little or no competition • Seller's market • Deal Type B <ul style="list-style-type: none"> – Back-to-back deal – In-payment plus deferred lives – Smaller size (<£500m) – No meaningful experience data – White collar – Complex benefits – Wide spouse definition – No existing legal agreement | <ul style="list-style-type: none"> • Lots of capacity • Lots of competition • Buyer's market • Deal Type A <ul style="list-style-type: none"> – In-force book deal – In-payment lives only – Large size (>£500m) – Rich and plentiful experience data – Blue collar – Simple benefits – Legally married spouse definition – Existing legal agreement |
|--|--|

28 November 2014

13

PIC perception: Factors affecting future capacity



- Impact of 2014 Budget
- Exposure Build up
- Solvency II
- Innovations

28 November 2014

14

PIC: Exposure build up

- Things happen.
- Exposure build up governed by “Basis review”.
- Process
 - Could go to Independent expert
 - As yet largely untested
- Shift in improvements
 - Defined benefit data sets
 - Updated projection methodologies
 - Granularity of trend
- Actual pandemic with lose / lose.
- Longevity catalysts

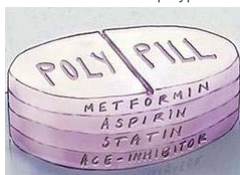
28 November 2014

15

Longevity Catalysts

What future events are we aware of today whose occurrence will be coupled with a universal increase in expectations around mortality improvements?

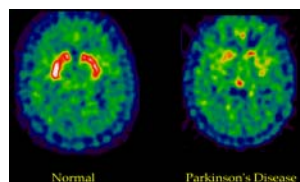
Cardiovascular polypill



Universal Influenza vaccine



Bowel cancer screening



Stem cell therapy for Parkinson's



Genetic Screening

28 November 2014

16

PIC: Solvency II

- Uncertainty
- The risk margin
- Credit for negative correlations
- IMAP in the UK
- European regulators internal model approval
 - Concentrate on pandemic risk
 - internal models are idiosyncratic
- Standard formula
- Standard formula with add-on
- Some reinsurers unaffected



28 November 2014

17

PIC: Innovations

- Deferred members!
 - An appeal to reinsurers
 - It can be done and it has been done
 - There is plenty of demand
 - Over age [x]
 - New retirees over next [n] years
- Asset deals
- Out-of-the-money
- Beyond a certain term
- Longevity + inflation
- Greater contract standardisation



28 November 2014

18

Munich Re: Transactions

- Key challenge is deciding where to quote
 - Inforce vs Back to back (plus likelihood of transaction)
 - Longevity only vs buy-in/out
 - Size
 - Scheme characteristics
 - Data
 - Existing counterparty
- Key non-price features
 - Termination (events and values)
 - Inflation handling
 - Collateral
 - Basis review

Market has become very active in the last 18 months

28 November 2014

19

Munich Re perception: Factors affecting future capacity

- Longevity catalysts
 - Longevity shocks
 - Reality of the hedge
- Solvency II
- Exposure build-up
- Competition
 - Reinsurers and others entering/leaving market
 - Capital market involvement

28 November 2014

20

Munich Re: Longevity catalysts

- Changes in future longevity expectations will always 'shock' the books
 - Size of longevity transaction
 - Trend movements will affect all deals – and trend is the main risk
 - Information will come in chunks
- Reality of hedge
 - Lose-lose situations
 - Pandemic risks not hedged

Experience could harden prices as reinsurers 'feel' the pain

28 November 2014

21

Munich Re: Solvency II

	mortality	longevity	disability	lapse	expenses	revision	CAT
mortality	1						
longevity	-0.25	1					
disability	0.5	0	1				
lapse	0	0.25	0	1			
expenses	0.25	0.25	0.5	0.5	1		
revision	0	0.25	0	0	0.25	1	
CAT	0	0	0	0	0	0	1

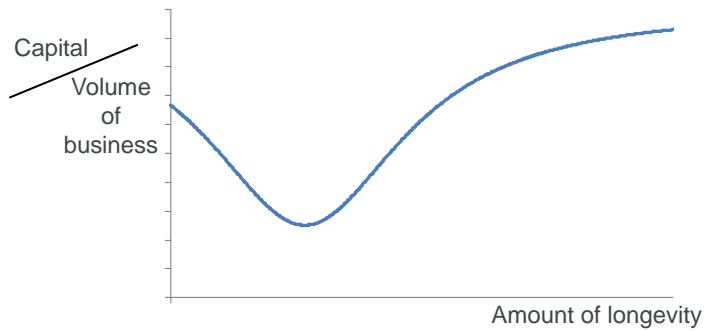
(Re)insurers with both longevity and mortality already steered by SII compliant models?

28 November 2014

22

Munich Re: Exposure build-up

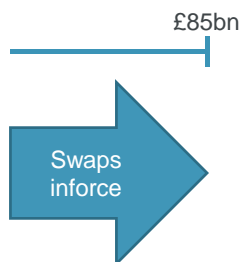
- What is the total capacity in the reinsurance market?
 - Clearly this is price driven
 - Capital benefits depend on existing risk exposure



28 November 2014

23

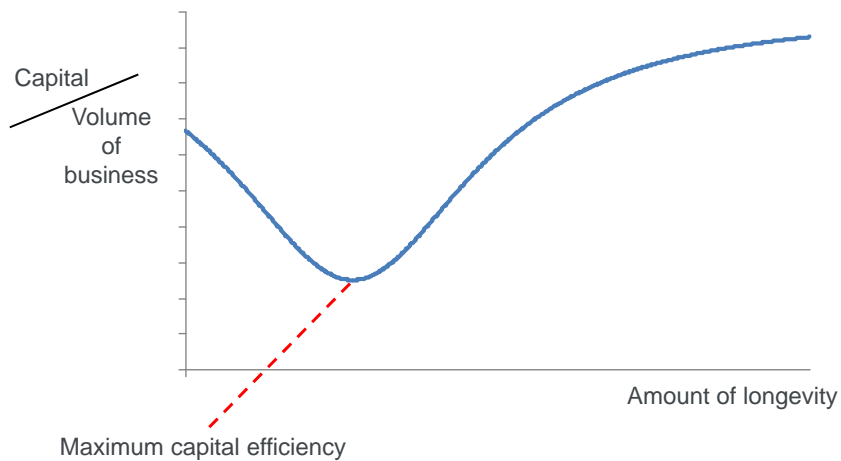
Munich Re: Exposure build-up



28 November 2014

24

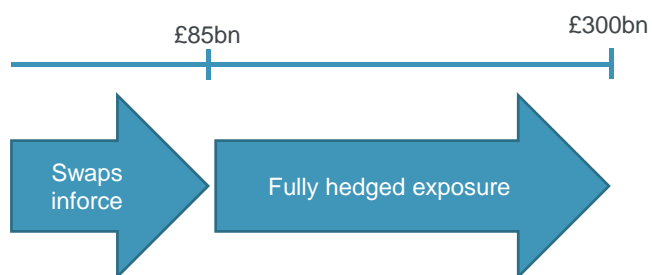
Munich Re: Exposure build-up



28 November 2014

25

Munich Re: Exposure build-up

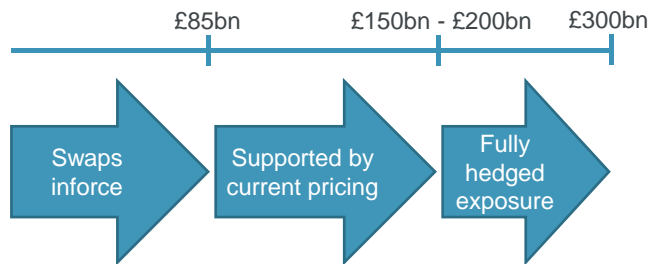


But...
current price for longevity risk
and mortality risk is not equal

28 November 2014

26

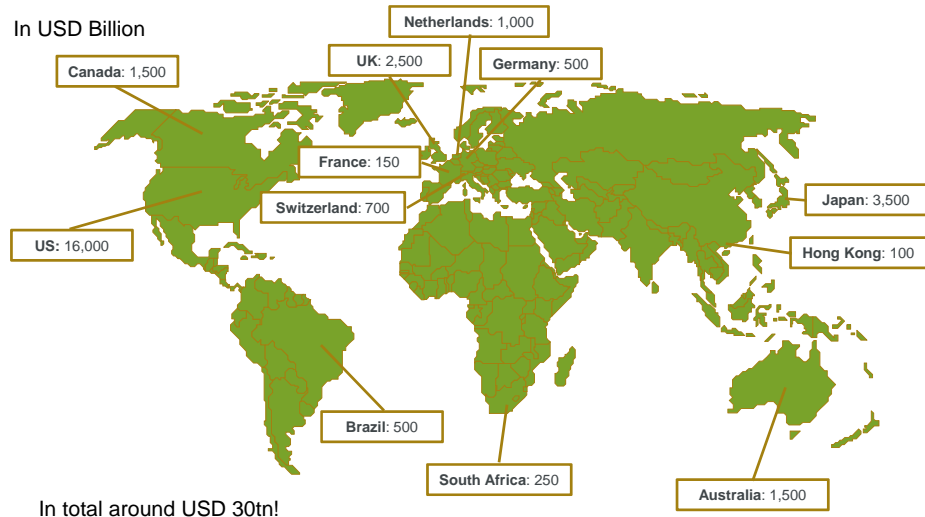
Munich Re: Exposure build-up



28 November 2014

27

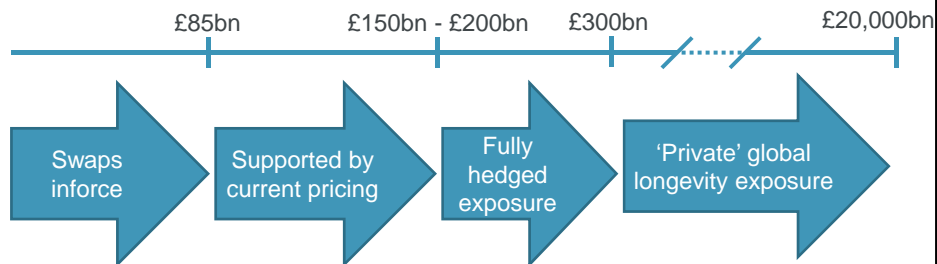
Global Longevity exposure



28 November 2014

28

Munich Re: Exposure build-up



28 November 2014

29

Munich Re: Future competition

- Other reinsurers
- Primary insurers
 - Retention of risk
 - Seeking risk where mortality heavy
 - Non-life insurers
- Private equity
- Capital markets

28 November 2014

30

Capital markets

- Typical investor preferences and pension scheme needs are not naturally aligned:
 - Price (currently)
 - Term of investment shorter than liability run-off
 - Limited loss vs full protection
 - Single risk isolated
 - Inflation included / excluded
 - Spouse existence risk
 - Population mortality vs bespoke (i.e. isolate trend risk and bring liquidity)

28 November 2014

31

Summary

PIC perspective

Short term

- Strong demand from buyers of longevity protection
- Segmented supply

Medium term

- Taking up the Deferred lives challenge?
- Impact of 2014 Budget
- Impact of Solvency II

Longer term

- Exposure build-up
- Other Market innovations



Munich Re Perspective

Short term

- Hedged position of reinsurers has increased significantly in recent years
- Still traditional capacity at current price

Medium / long term

- Exposure build-up may cause prices to harden
- There are a number of potential risk-seekers, but none who are likely to play a serious part while prices remain where they are



28 November 2014

32



Questions



Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.