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Longevity de-risking
Perspective of a Global Reinsurer

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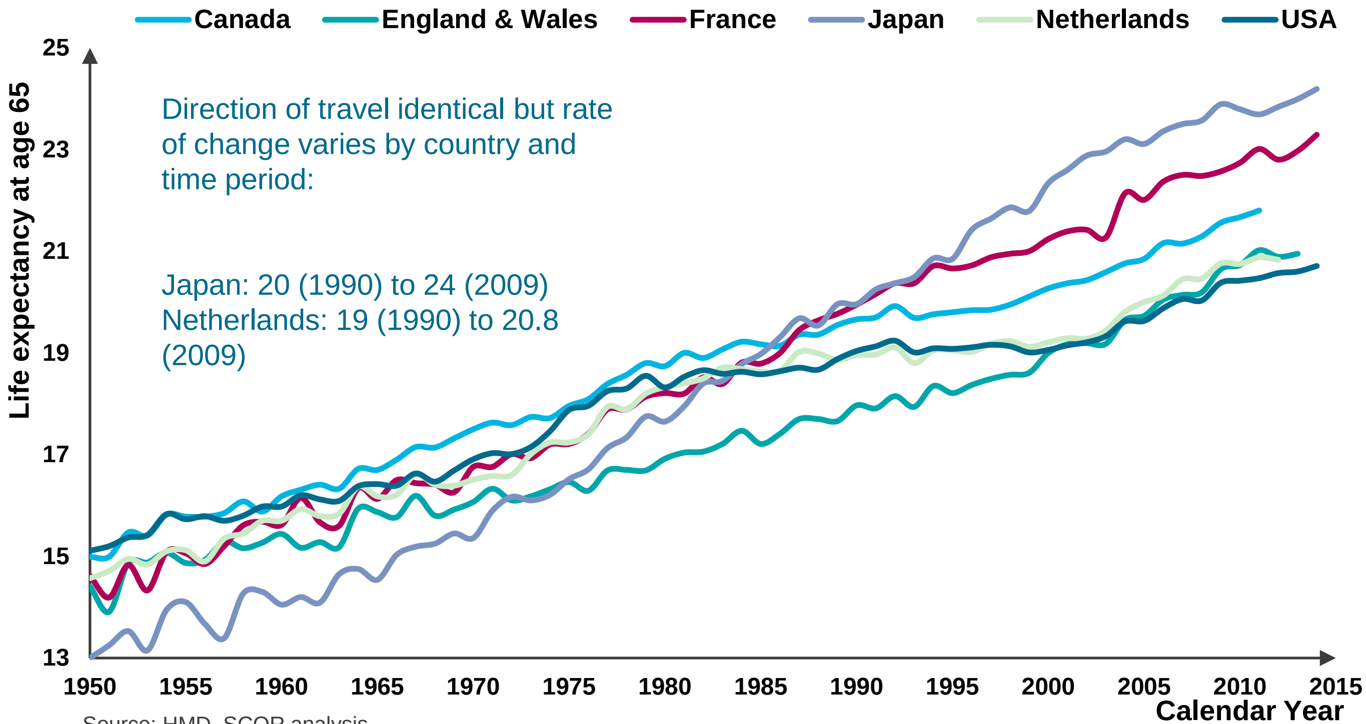
SCOR
The Art & Science of Risk

Longevity risk: difficult to predict; uncorrelated to financial markets

Example: Female life expectancy at age 65



Source: HMD, SCOR analysis

- **Upward trend** is a long-term feature and there is little dispute in its continuation
- However, there is uncertainty regarding the pace of change over time and by country ➔ **LONGEVITY RISK**

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Longevity de-risking – Perspective of a Global Reinsurer

AGENDA

1 **Reinsurers' interest in longevity**

2 The global potential

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Demand and supply

Buyers

Who hedges longevity?	Motivation?
Pension funds	• **Volatility on P&L**: Longevity risk is **“marked to market”** in some jurisdictions • Large losses could have a **material adverse impact on company financing and operations** • Managing longevity risk is **not a core strategic activity for companies**
Insurers	• It may be more **capital-efficient** for some insurers to pay to reduce exposure to longevity • Annuity business is **no longer core** to commercial strategy

Sellers

Global reinsurers’ perspective

- ✓ Structured to accept large diversified risks
- ✓ Capitalised to avoid “costs of distress”
- ✓ “Management distraction” does not apply – biometric risk is core business
- ✓ Capital-efficient home for longevity risk – balances against existing mortality risk
- ✓ **Fits SCOR’s business model well**

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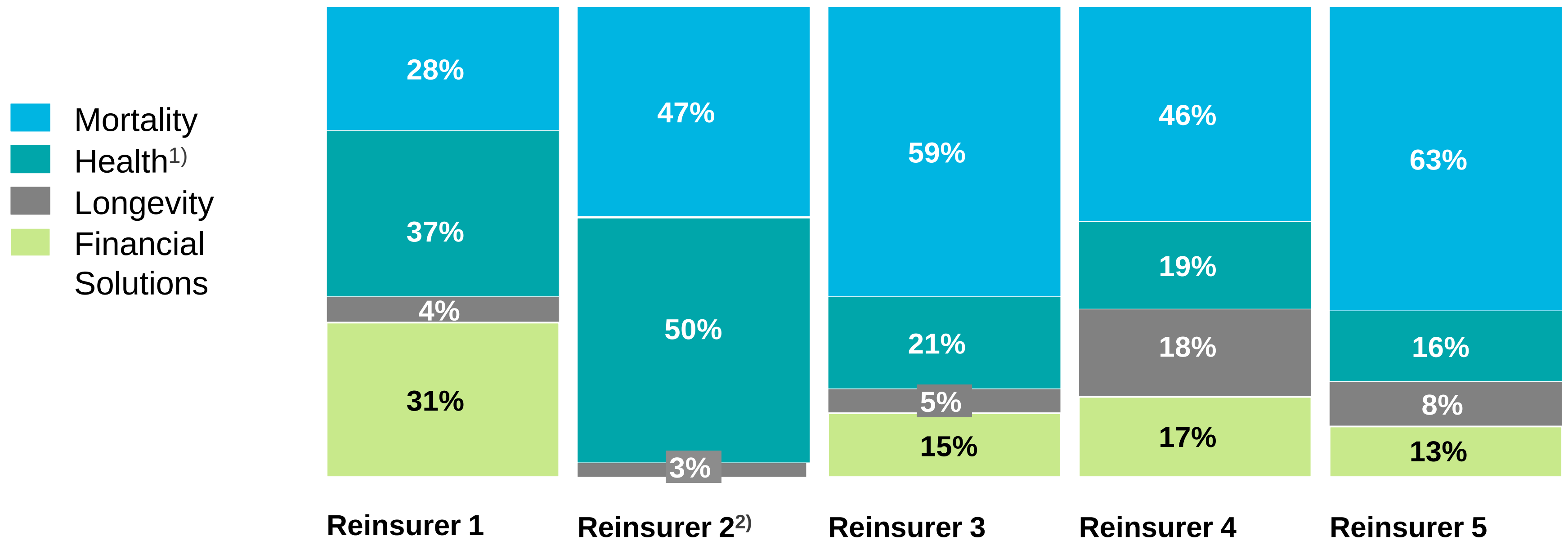
Sellers - Longevity currently a small part of top 5 reinsurers' portfolios

Life reinsurance business, estimated split by 2015 premium



- Longevity business share is small but growing fast
- US mortality business is the largest component, making North American longevity most attractive

CAVEAT: Based on financial disclosures and internal estimates; scopes & definitions may vary amongst reinsurers
Notes:1) Health includes medical, long term care, disability and critical illness
2) Finsol not separately disclosed, included within Health and Mortality

Will capital market supply disturb reinsurers?

Barriers to capital markets involvement

- Investors prefer index-based solutions, while risk hedgers tended to favour portfolio specific
- Typically, shorter duration covers, which don't match well with long duration longevity
- Mortality/longevity offset keeps reinsurance pricing competitive so no significant premium for indemnity vs index deals that retain basis risk
- Regulatory capital credit uncertain for typical structures

Possible breakthroughs for capital markets

- Deals that package mortality and longevity together
- Solutions for countries where markets aren't as deep or data is unavailable, thereby reducing the efficacy of indemnity deals

In the long run

- Eventually deeper capital markets *may* have a price advantage
- (Re)insurers may both use and compete with additional sources of capital
- If liquidity is ever established then duration may not be so important

Overall, only a handful of capital market deals have completed and the main investors in those have been reinsurers

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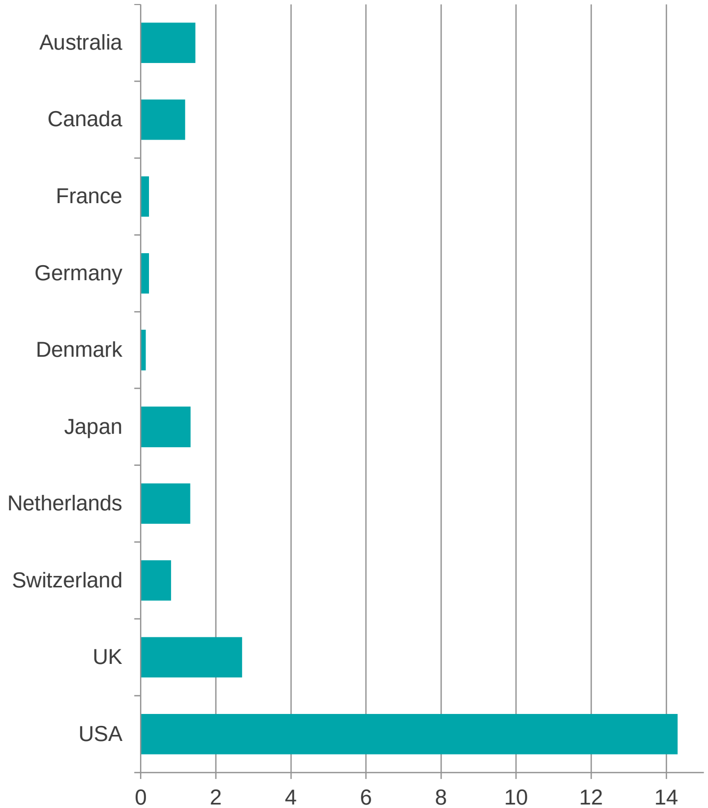
Global issue

"Yes, we have an early retirement program.
We withhold two dollars from each pay-
check to buy you a lottery ticket."

Future global potential could be huge

Pension Scheme Assets[1]

(Source: OECD, 31/12/15 in $ trillion)



- Many countries have not had compulsion or culture to purchase annuities with pension assets but, in recent years, countries such as Australia debating the status quo
- However, defined benefit pension plans do exist in many countries, for which corporates are already providing pension promises
- A low interest rate environment puts greater focus on longevity risk for all stakeholders
- There are other factors that are likely to determine if and when a market for longevity risk transfer may form….

1) Excludes investments channelled through non pension fund vehicles (e.g. for Canada the figure doubles if all retirement vehicles are included and for Denmark would increase 5 fold)

Market formation

Conditions needed

1. Regulatory & accounting environment, for corporate pension schemes and insurers, including:
   - Definition and realistic level of mortality and interest rate tables
   - Solvency regimes
   - Local GAAP requirements and disclosures

   Where this leads to recognition of true cost and volatility, stakeholders are incentivised to act

2. Availability and quality of longitudinal mortality data

3. Presence of “early adopters” among risk carriers (“momentum”)

Currently active countries in longevity risk transfer

- Proportional covers dominate the market
- Large portfolios with specific mortality data
- Impaired annuities market remains active

- Proportional covers at large and small end
- Market in infancy, but lots of interest

- Non-proportional largely preferred up to now
- Interest shifting to proportional covers

- Proportional covers transacted to date

Evaluation of standard mortality tables

Classification	Expected Longevity Risk	Pension Plans	Annuity Providers
Serious	10-20%	**Brazil** (US 1983IAM), **China** (CL2000-2003), **Switzerland** (EVK2005)	**Brazil** (US Annuity 2000), **China** (CL2000-2003)
Significant	5-10%	**Canada** (UP94-ScaleAA), **Japan** (EPI2005), **US** (RP2000-ScaleAA)	
Moderate	2-5%	**Chile** (RV2009), **Spain** (PERM/F C 2000)	**Brazil** (BR-EMS 2010), **Canada** (GAM94-CIA), **Chile** (RV2009), **Spain** (PERM/F C 2000) **US** (GAM94-ScaleAA)
Monitor	<2%; specific issues to address	**Canada** (CPM), **France** (TGH/F 2005), **Israel**, **Mexico** (EMSSA 1997), **Spain** (PERM/F P 2000) **Switzerland** (BVG 2010, VZ 2010), **US** (RP2000-ScaleBB)	**France** (TGH/F 2005), **Israel**, **Mexico** (EMSSA 2009), **Japan** (SMT 2007), **Spain** (PERM/F P 2000)
OK	little to no expected shortfall	**Netherlands** (AG-Prognosetael 2010), **UK** (SAPS1-CMI), **UK** (SAPS2-CMI), **US** (RP2014-MP2014)	**Germany** (DAV 2004 R), **Netherlands** (AG-Prognosetael 2010), **Switzerland** (ERM/F 2000), **UK** (PCMA/PCFA 2000-CMI)

Source: OECD (Dec 2014)

Summary

- Longevity is a good fit for many reinsurers
- Long risk duration and other characteristics favour insurers and reinsurers ahead of capital markets
- With an ageing demographic long term global potential is huge
- Regulation and accounting treatment are key catalysts to facilitate market activity
- UK market dominates risk transfer activity but activity and interest in a few other countries, including Canada, has begun