

Longevity 16:

Sixteenth International Longevity Risk and Capital Market Solutions Conference

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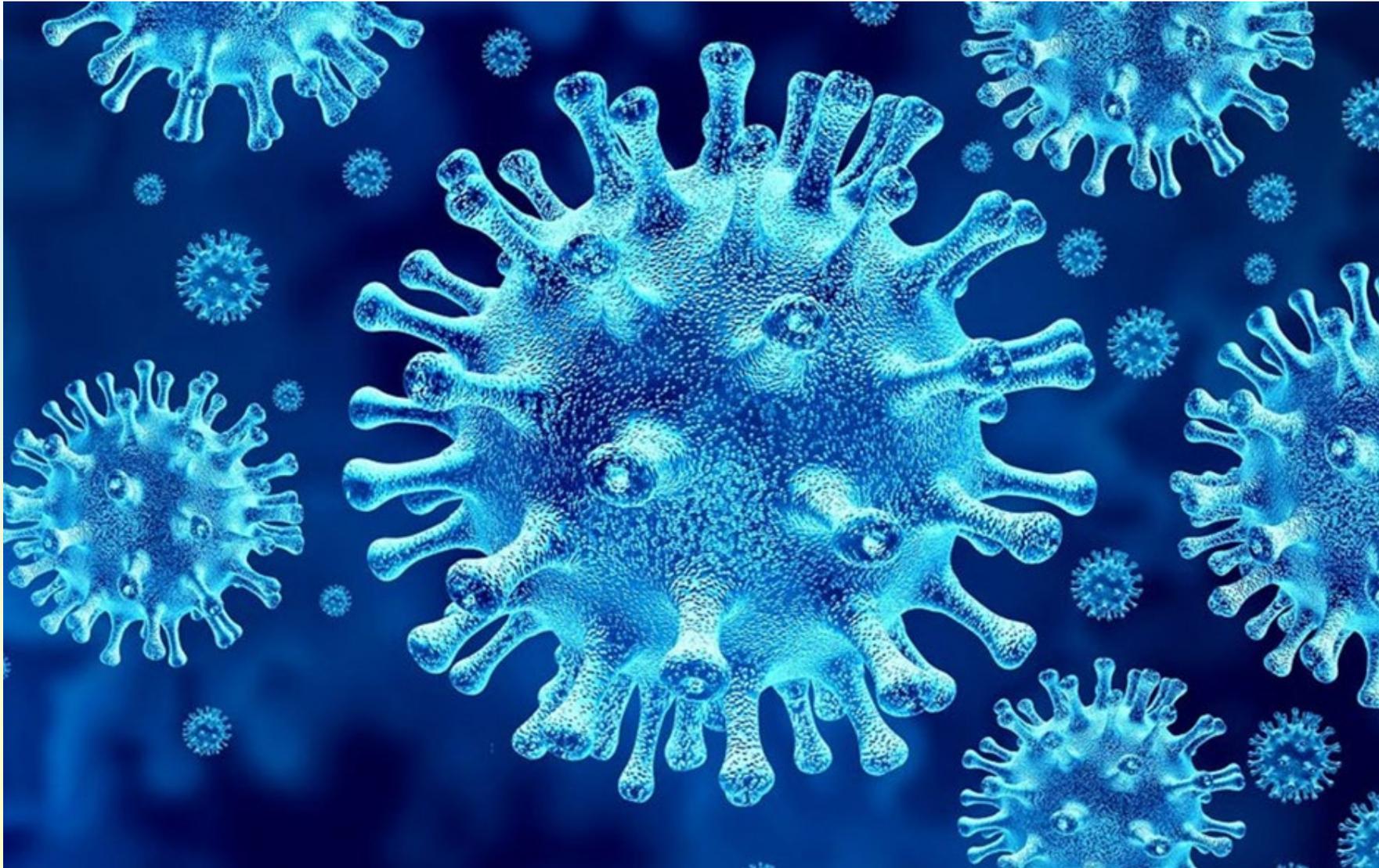
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13-14 August 2021

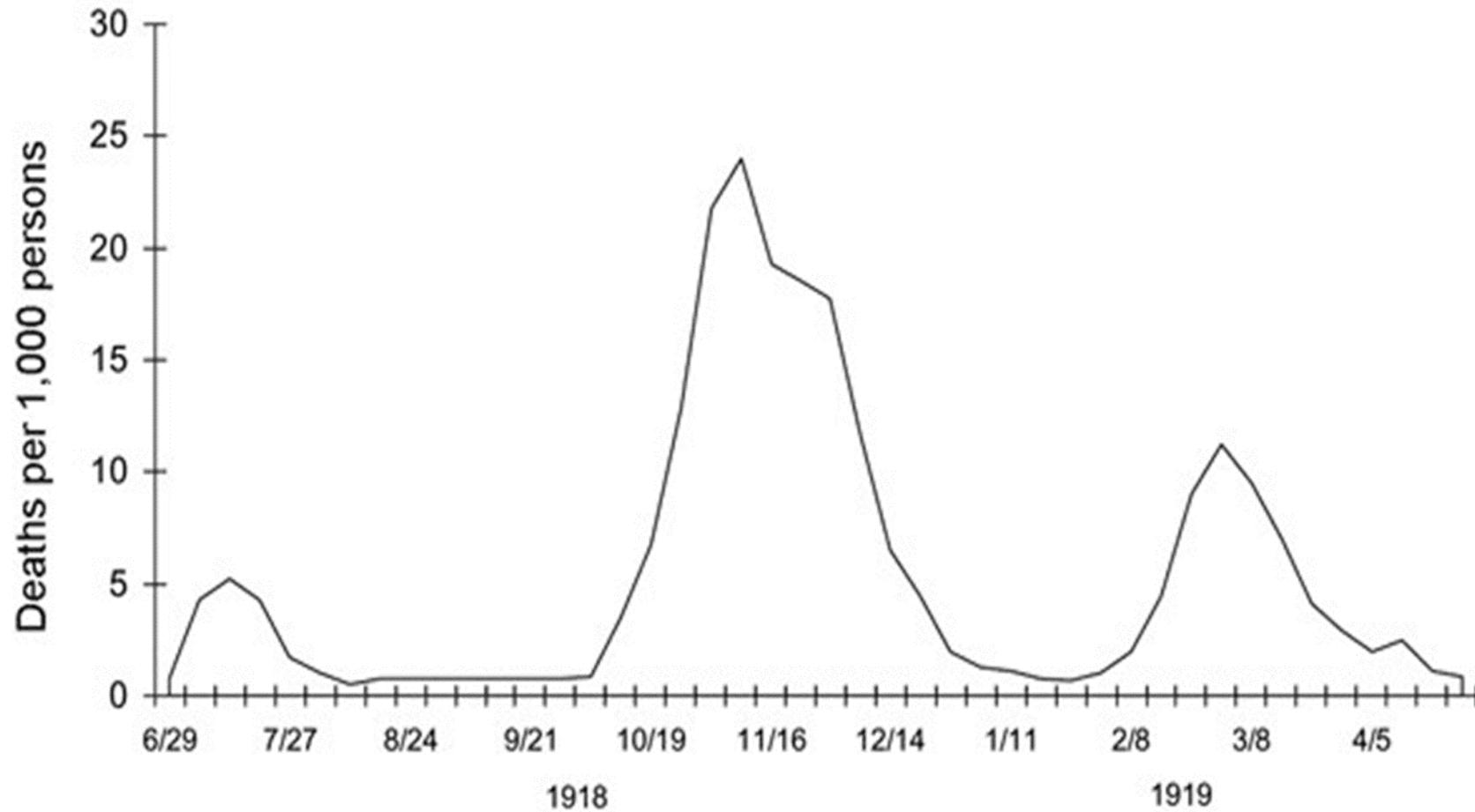
Previous conferences

- Longevity 1: London 2005
- Longevity 2: Chicago 2006
- Longevity 3: Taipei 2007
- Longevity 4: Amsterdam 2008
- Longevity 5: New York 2009
- Longevity 6: Sydney 2010
- Longevity 7: Frankfurt 2011
- Longevity 8: Waterloo 2012
- Longevity 9: Beijing 2013
- Longevity 10: Santiago 2014
- Longevity 11: Lyon 2015
- Longevity 12: Chicago 2016
- Longevity 13: Taipei 2017
- Longevity 14: Amsterdam 2018
- Longevity 15: Washington 2019

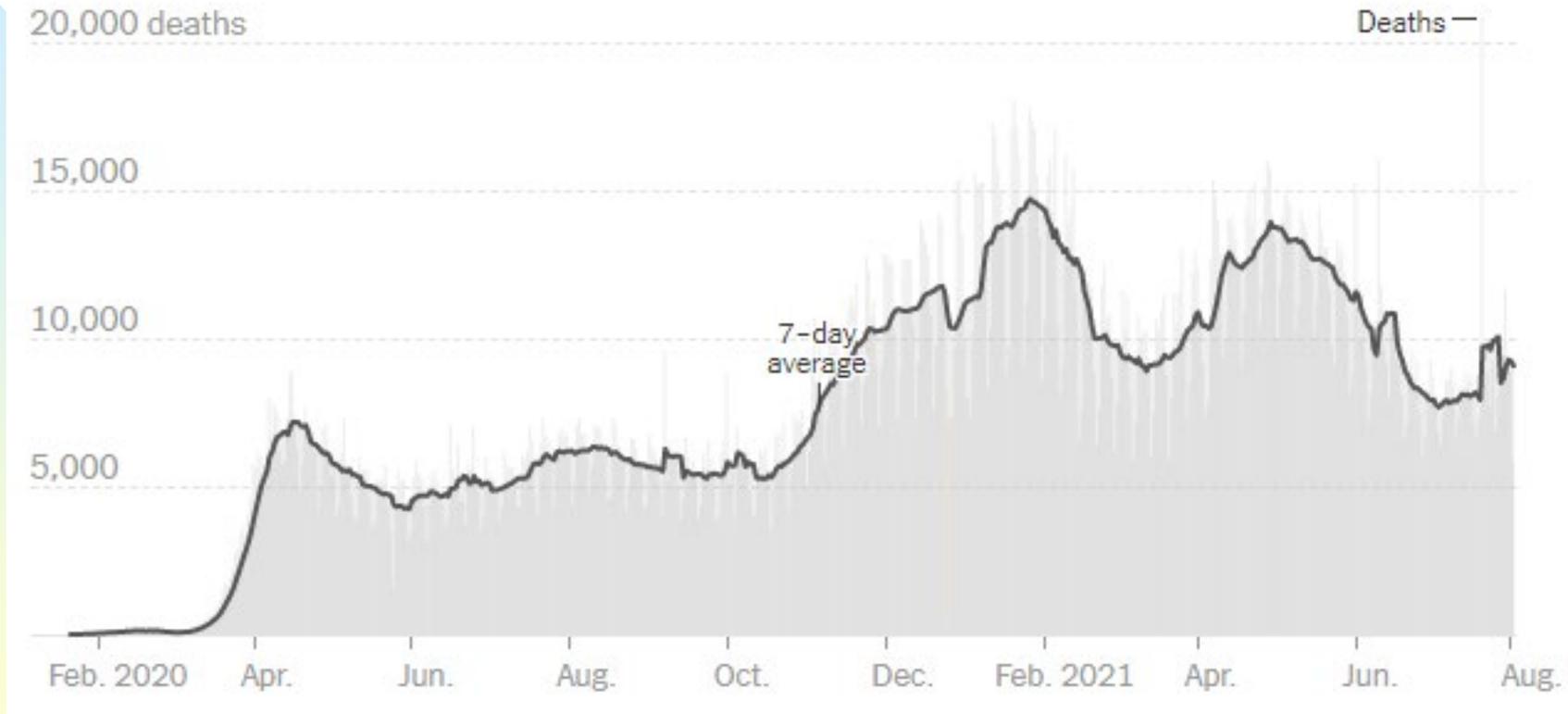
The unwelcome guest



Spanish flu - June 1918 to May 1919



Coronavirus - Jan 2020 to Aug 2021



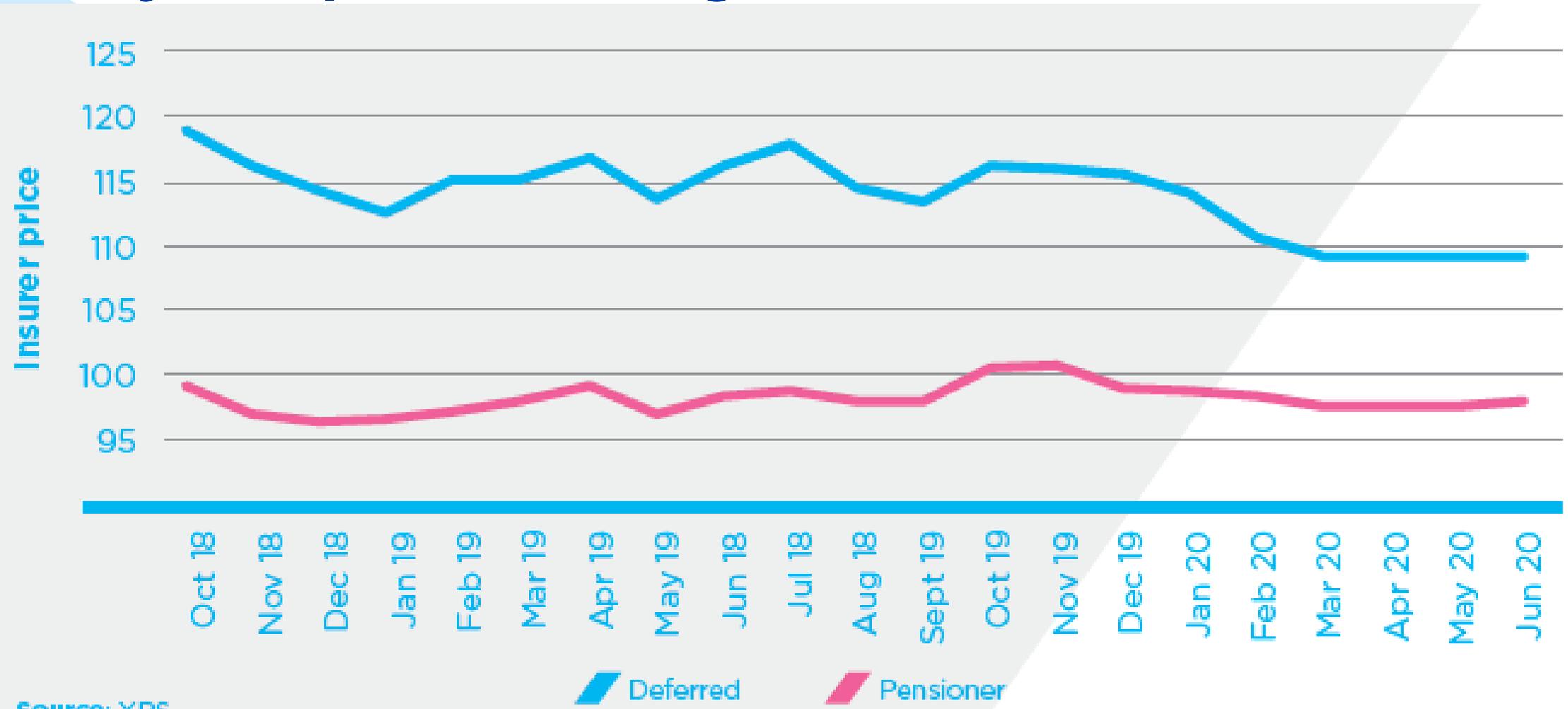
Developments in 2020-21

- £32bn buy-outs + buy-ins in UK pension funds in 2020
 - Cf 42bn in 2019
- Main players:
 - Legal & General (24%), Rothesay (22%), Pension Insurance Corp (PIC) and Aviva (both 19%)
 - £180bn since 2006
- £24bn of longevity swaps in 2020
 - Cf 12bn in 2019
 - £110bn since 2007

Developments in 2020-21

- US buy-outs + buy-ins 2012-2020
 - 3,080 buy-outs deals valued at \$164bn
 - 22 buy-in deals valued at \$22bn
- Total Prudential US PRT transactions since 2011
 - 166 transactions valued at \$70bn
- Total Prudential international reinsurance transactions since 2011
 - 58 transactions valued at \$96bn

Buy-out prices falling in UK



Source: XPS

Developments in 2020-21

- Average UK pension fund now 100% funded, making de-risking deals more affordable
- Prudential Retirement executed a \$6bn reinsurance transaction with Rothesay Life
- PIC agreed a £1.6bn buy-in with the Merchant Navy Officers' Pension Fund, taking over an existing longevity swap
 - example of the novation of a swap to an annuity
- Aviva and PIC completed £1bn buy-in with Co-op PS
 - using a pre-agreed 'umbrella contract'
- Old British Steel PS agreed £2bn buy-in with PIC
 - with a buy-out expected in 2021.

Developments in 2020-21

- UK longevity swaps:
 - Lloyds Bank PS: £10bn longevity swap with Pacific Life Re – 2nd largest
 - WTW: £1bn longevity swap with Munich Re.
 - UBS (UK) PS: £1.4bn longevity swap with Zurich Assurance with ‘pass through’ of longevity risk to Canada Life Re
 - Prudential (UK) PS: £3.7bn longevity swap with Pacific Life Re
 - Barclays Bank PS: £5bn longevity swap transaction with Reinsurance Group of America. Aon advised
 - BBC PS: £3bn with Zurich Life and Canada Life Re
 - Unnamed PS: £6bn longevity swap with Zurich Assurance with ‘pass through’ of longevity risk to Prudential Financial – 4th largest
- Main reasons for increased activity:
 - Increased affordability due to lower mortality improvements and increased competition from insurers

Developments in 2020-21

- International developments:
- NN Life: €13.5bn longevity swap with Canada Life, Munich Re and Swiss Re
 - Led to lower required capital and strengthened capital position, with a 25% increase in Solvency II ratio, and lower future operating capital generation of €90m
- Australian annuity provider Challenger launched guaranteed floating rate lifetime annuity
 - with payments linked to Reserve Bank of Australia (RBA) cash rate, so that annuitants would gain from any increase in interest rates

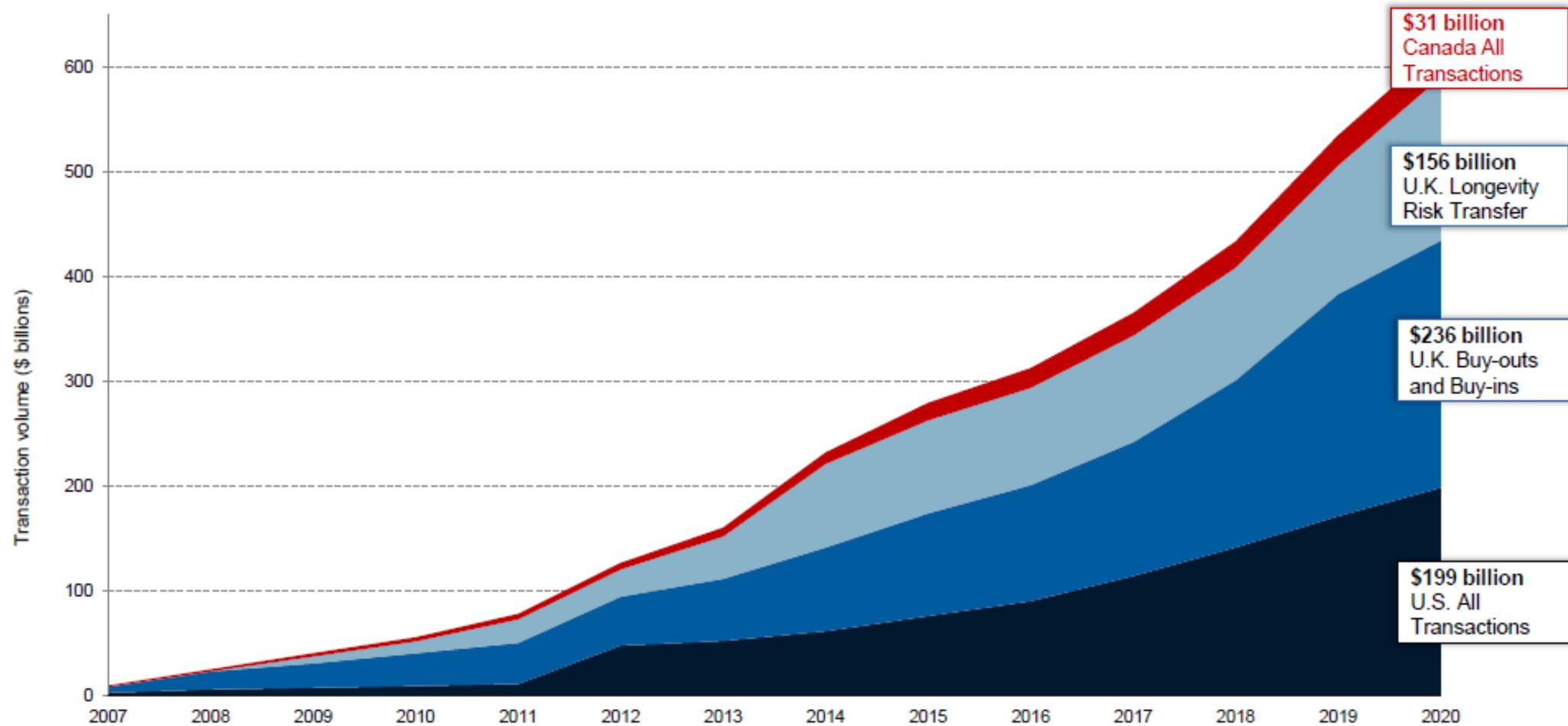
Innovation I: Tail-risk protection (or longevity bull call spread)

- Five publicly announced deals to date:
 - All involving Dutch insurers, but could apply elsewhere
 - Two involved Aegon:
 - one in 2012 was executed by Deutsche Bank
 - another in 2013 by Société Générale
 - Two involved Delta Lloyd and RGA Re in 2014 and 2015
 - Most recent occurred in December 2017 between NN Life and Hannover Re

Innovation II: Re-insurance sidecars

- Financial structure established to allow external investors to take on the risk and benefit from the return of specific books of re-insurance business
- It is typically set up by:
 - existing re-insurers that are looking to either partner with another source of capital
 - an entity to enable re-insurers to accept capital from third-party investors
- Athene/Voya: \$19bn annuities (Dec 2017)
- RGA Re and RenaissanceRe set up Langhorne Re to target in-force annuities (Jan 2018)
- PGGM/ Munich Re set up Leo Re (Feb 2018)

Since 2007, there have been more than \$620 billion in pension risk transfer transactions in the US, UK and Canada alone



Data in USD billions. Cumulative totals. Sources: LIMRA, Hyman Robertson, LCP and Prudential analysis as of December 31, 2020.

Looking ahead

- UK forecasts (Club Vita):
 - £700bn by the end of 2031, resulting in £1trn of DB pension scheme risk – around 50% of the total – being insured by then
- Kessler (Prudential): Longevity risk transfer demand shows no signs of slowing
- Club Vita: Capital markets can plug any gaps in longevity reinsurance or risk transfer capacity, with index-based longevity hedging likely to become the focus
- But capacity constraints:
 - New external capital
 - Human resources, e.g., skilled lawyers
 - Limited availability of illiquid assets to back the liabilities
 - e.g., ground rents, education loans and infrastructure assets

What needs to happen at L16

- Continuing with our strategy of bringing together practitioners, academics, regulators and policy makers from a variety of relevant disciplines
- Extending our community to include pension plan sponsors with significant longevity risk asset exposure from different countries
- Also raising awareness of longevity risk generally

What needs to happen at L16

- Key themes of Longevity 16:
 - mortality trends and forecasts
 - longevity risk and inequalities
 - longevity hedging solutions
 - sustainability of pension systems

- Special issue of **Journal of Demographic Economics**

Longevity 16

The Sixteenth International Longevity Risk and Capital Markets Solutions Conference,
Copenhagen, 13-14 August 2021

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The Art & Science of Risk

Hosts



Many thanks to Ida Listh and Marilyn Parris-Bell, conference organisers

Future conferences

- Longevity 17 will be in Toronto in 2022
- Longevity 18 will be in Singapore in 2023