LONGEVITY 13

Taipei, Taiwan 2017

One size does not fit all:
*the importance of granular mortality data
in pricing longevity solutions*

- Douglas Anderson
- 22 September 2017

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The global regulator's view …

BANK FOR INTERNATIONAL SETTLEMENTS

December 2013

Ageing populations pose serious social policy and regulatory/supervisory challenges in many countries. Longevity risk - the risk of paying out on pensions and annuities for longer than anticipated - is significant when measured from a financial perspective. *Longevity risk transfer markets: market structure, growth drivers and impediments, and potential risks* is a forward-looking report released by the Joint Forum on longevity risk transfer (LRT) markets. It makes the following recommendations to policymakers and supervisors:

1. **Communicate and cooperate:** Supervisors should communicate and cooperate on LRT internationally and cross-sectorally in order to reduce the potential for regulatory arbitrage.
2. **Understand longevity risk exposures:** Supervisors should seek to ensure that holders of longevity risk under their supervision have the appropriate knowledge, skills, expertise and information to manage it.
3. **Assess relevant policies:** To inform their policy towards LRT markets, policymakers should review their explicit and implicit policies with regard to where longevity risk should reside. They should also be aware that social policies may have consequences for both longevity risk management practices and the functioning of LRT markets.
4. **Review longevity risk rules and regulations:** Policymakers should review rules and regulations pertaining to the measurement, management and disclosure of longevity risk with the objective of establishing or maintaining appropriately high qualitative and quantitative standards, including provisions and capital requirements for expected and unexpected increases in life expectancy.
5. **Ensure adequate risk-bearing capacity:** Policymakers should consider ensuring that institutions taking on longevity risk, including pension fund sponsors, are able to withstand unexpected, as well as expected, increases in life expectancy.
6. **Monitor market developments:** Policymakers should closely monitor the LRT taking place between corporates, banks, (re)insurers and the financial markets, including the amount and nature of the longevity risk transferred, and the interconnectedness this gives rise to.
7. **Pay attention to tail risk:** Supervisors should take into account that longevity swaps may expose the banking sector to longevity tail risk, possibly leading to risk transfer chain breakdowns.
8. **Collect adequate data:** Policymakers should support and foster the compilation and dissemination of more granular and up-to-date longevity and mortality data that are relevant for the valuations of pension and life insurance liabilities.

http://www.bis.org/publ/joint34.pdf

*"**8. Collect adequate data:** to develop public confidence in the traded longevity market by providing products and services which are designed to reduce risk, enhance transparency and improve operational efficiency."*

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VITALSTATISTICS

Tracking over 2.5 million UK pensioners

equivalent to 1 in 4 DB pensioners

Relationships with 220 large pension schemes

with over £300 billion of liabilities

Over 1m death records

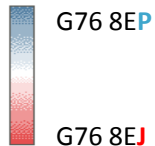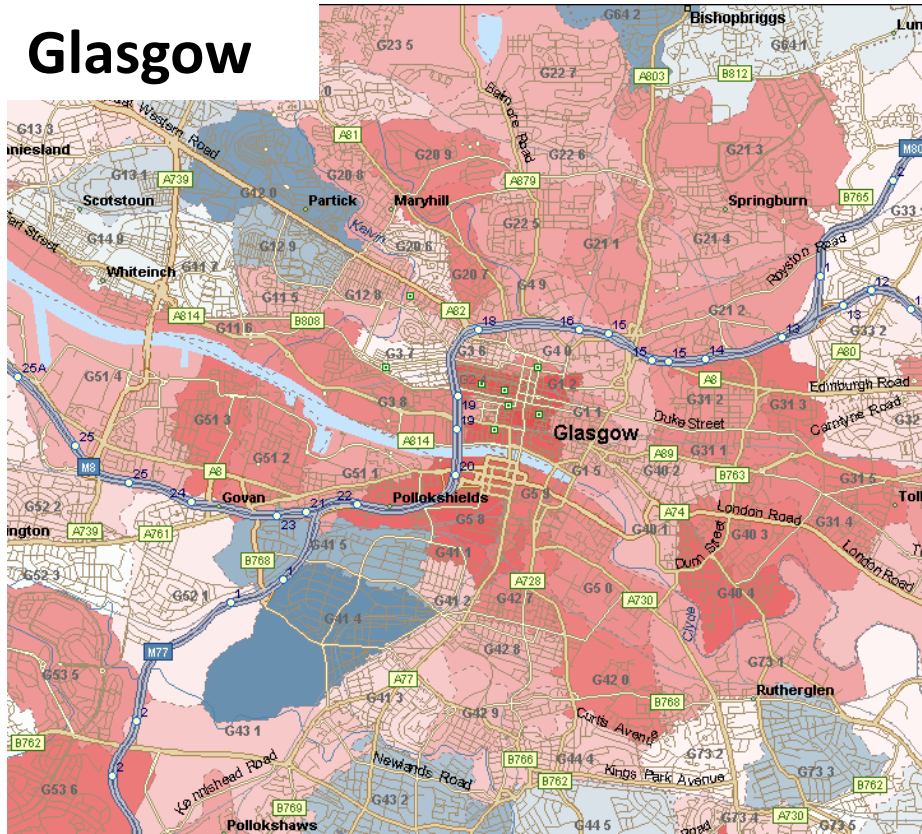stretching back 20 years

Supporting 7 out of 10 longevity reinsurers
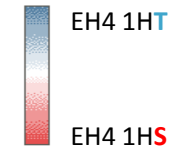
"Richest", most flexible & most relevant data

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1. Baseline examples

Micro-region effects

Glasgow

Edinburgh

High life expectancy

Mid life expectancy

Low life expectancy

G76 8E**P**

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EH4 1H**T**

EH4 1H**S**
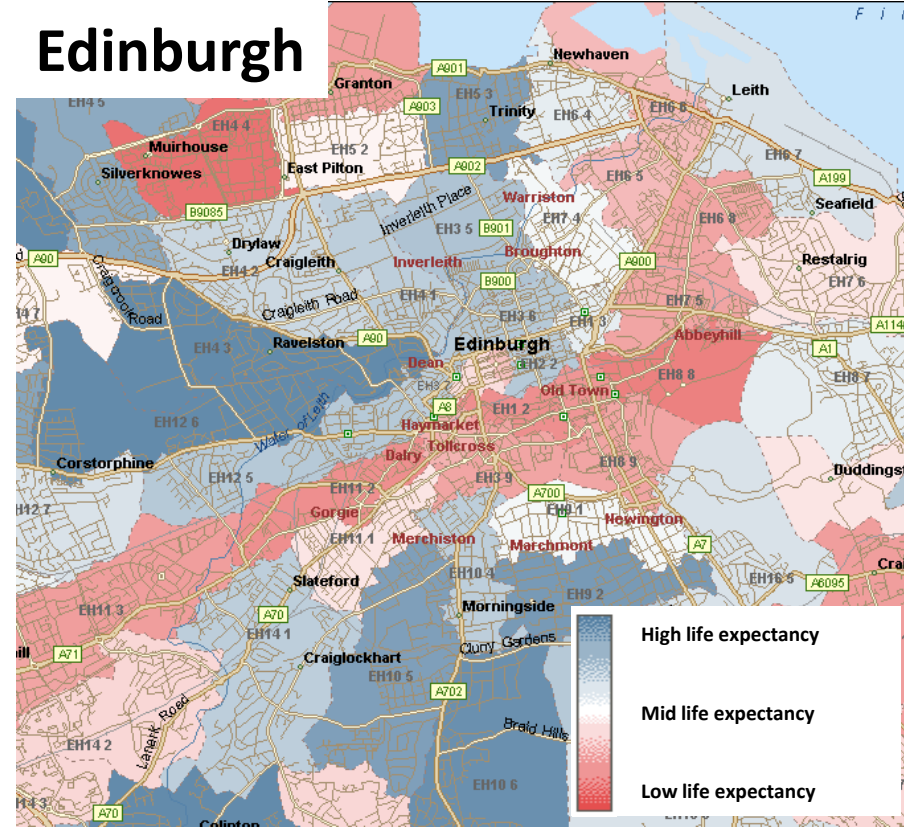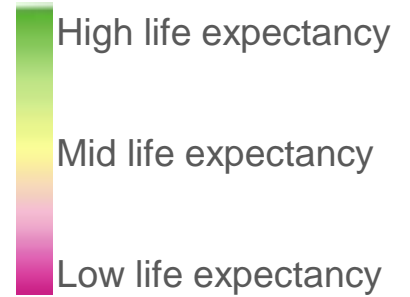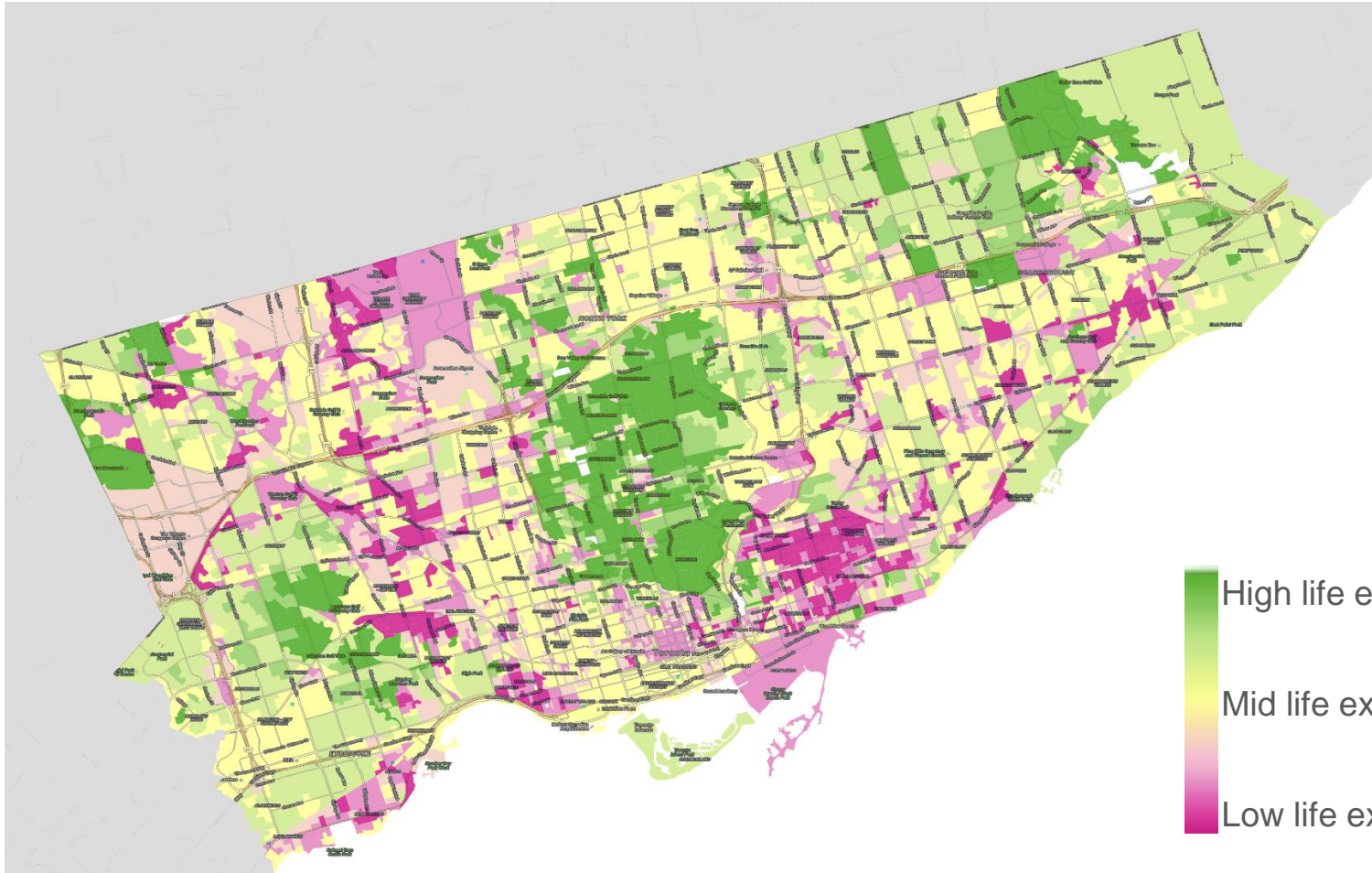
Source: Club Vita research based on VitaBank as at 2 October 2008

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Similar variation in Toronto

Toronto – males

High life expectancy

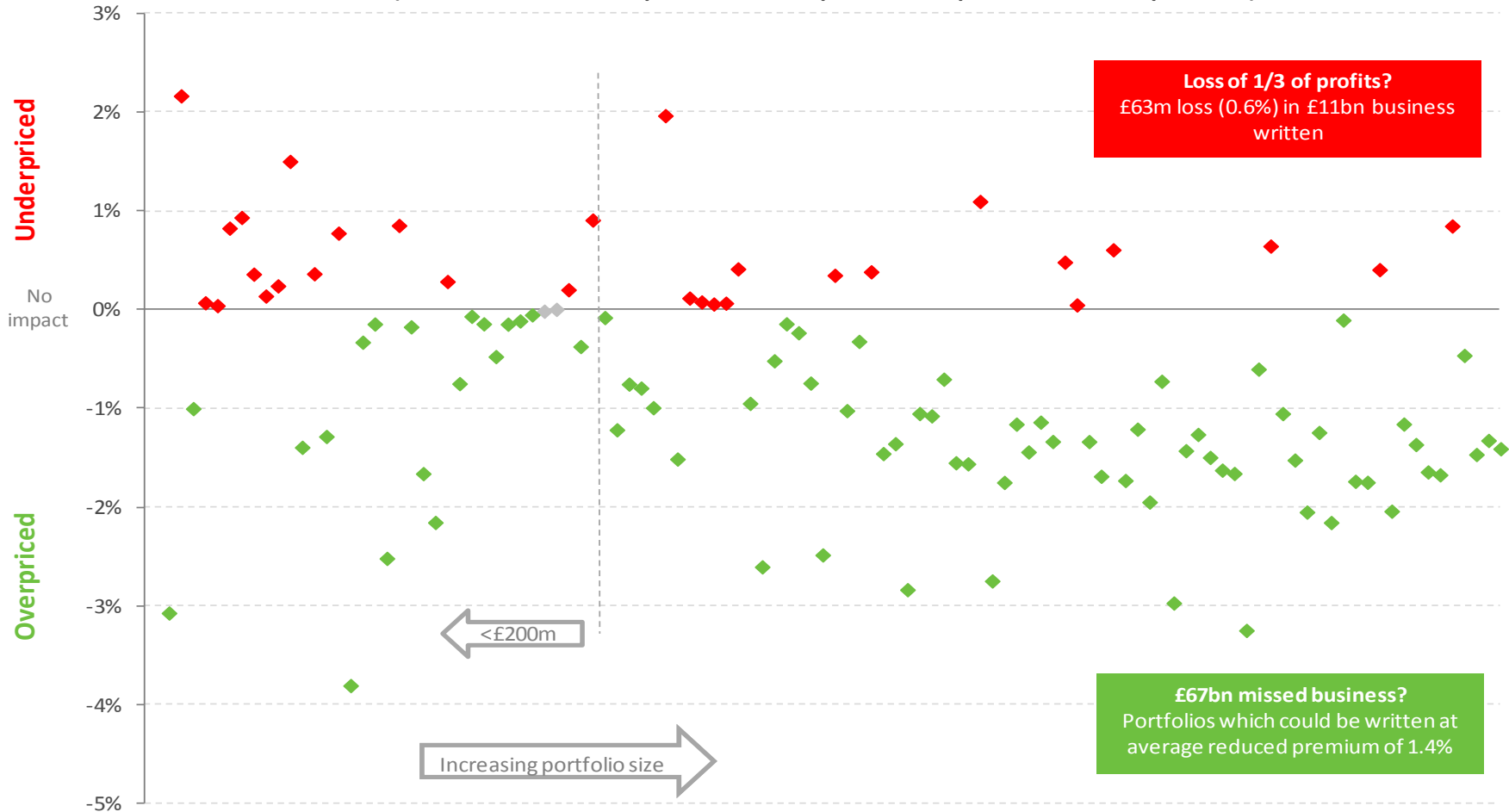Mid life expectancy

Low life expectancy

Introducing final salaries

Changes portfolio valuation by +/-2%

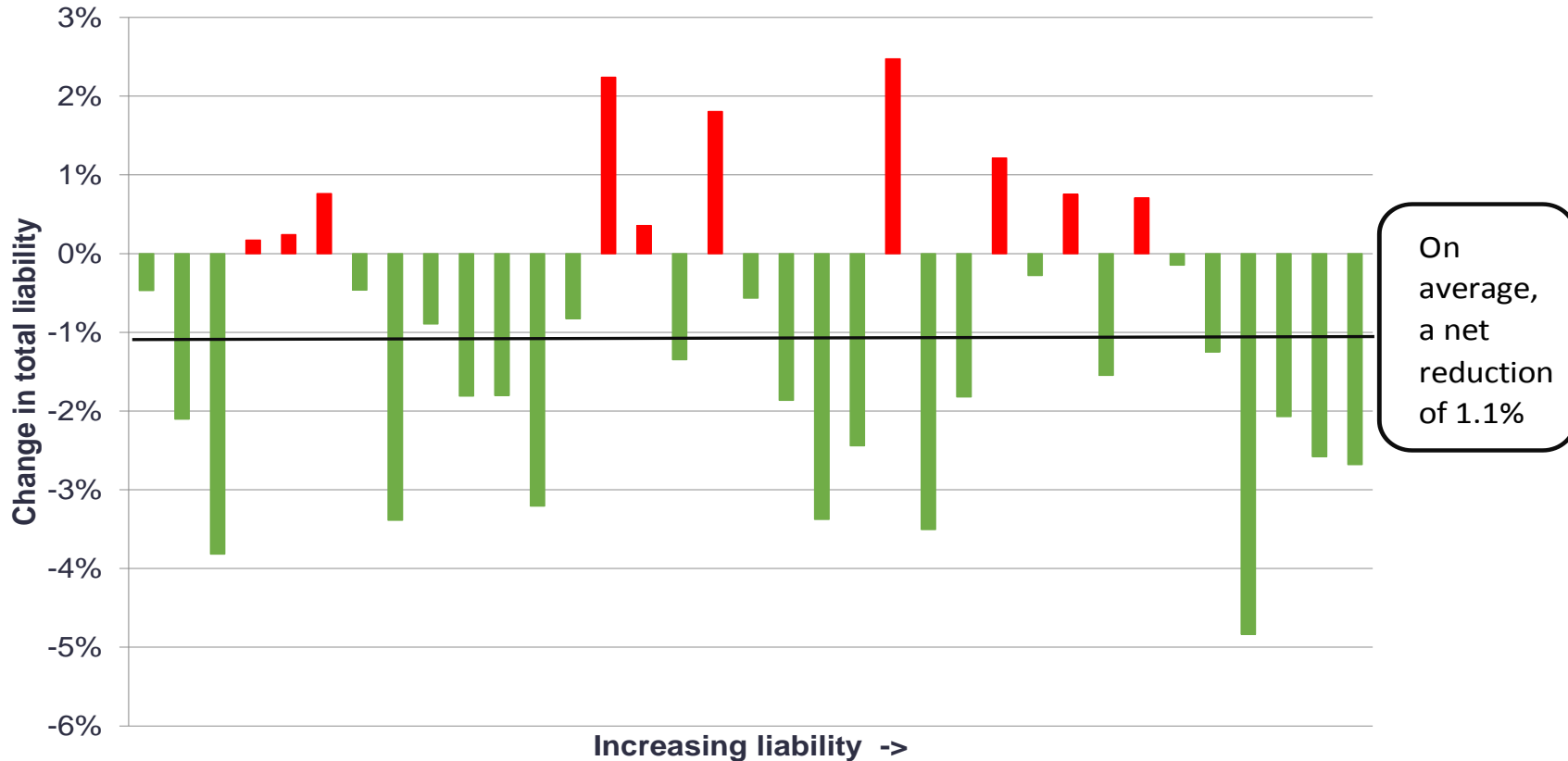**Changes in pricing or reserves from adding salary as a rating factor**
(Based on 115 different pension scheme portfolios of pensioners and dependants)

Loss of 1/3 of profits?
£63m loss (0.6%) in £11bn business written

£67bn missed business?
Portfolios which could be written at average reduced premium of 1.4%

Underpriced

Overpriced

No impact

<£200m

Increasing portfolio size

Hidden margins released

Impact of adopting VitaCurves (Schemes joining in last 3 years)

Change in total liability

Increasing liability ->

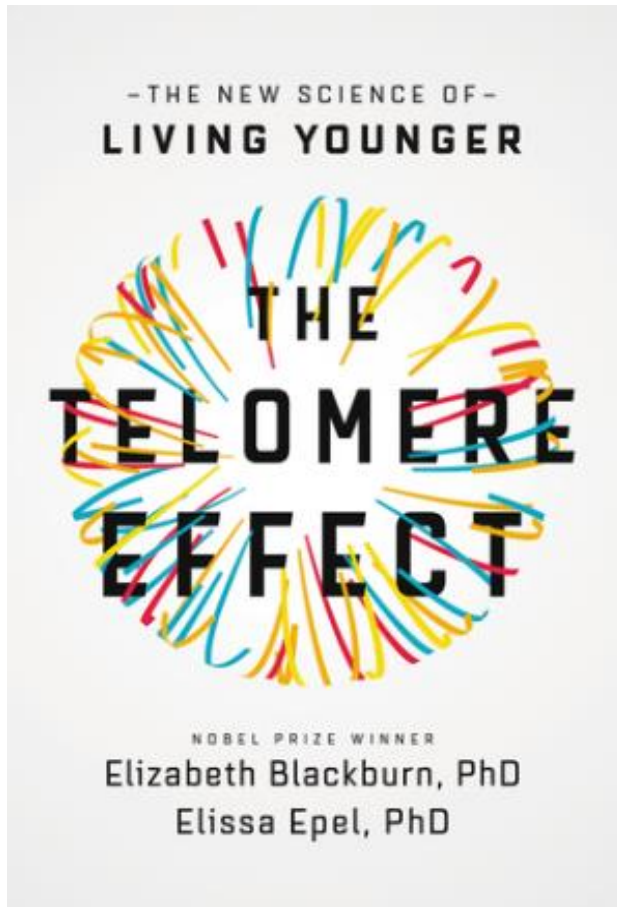On average, a net reduction of 1.1%

Source: Club Vita – 34 new schemes joining between July 2013 and June 2016, relative to each scheme's previous technical provision assumption for baseline longevity

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2. Trends

Lifestyle & environment are more influential than we thought
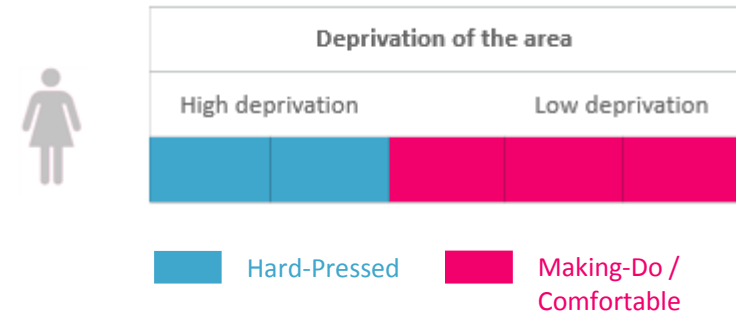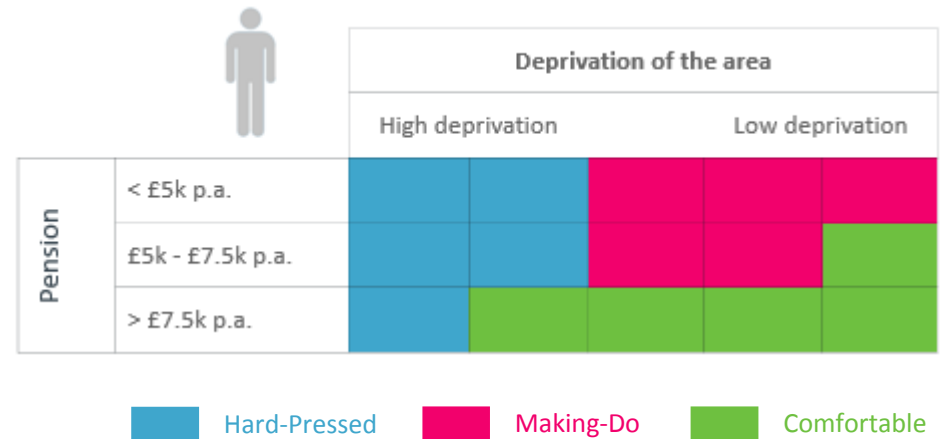
- Smaller part of longevity differences explained by genes we are born with than we thought

- Over 80% of differences are now believed to be lifestyle and environment effects

- Lifestyles follow tribal patterns within our societies

VITASEGMENTS

Principles

1. Findings applicable to all
2. Statistically credible
3. Interpretable groups
4. Manageable number
5. Capture differences in mortality improvements

Beware the flaw of averages

Group		Annualised mortality improvement (age-standardised)		
		2000-2005	2005-2010	2010-2015
England & Wales (ONS)		2.8% (±0.1%)	2.8% (±0.1%)	1.1% (±0.1%)

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Club Vita (total)	2.4% (±0.5%)	2.8% (±0.3%)	1.3% (±0.4%)

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Club Vita (total)	2.4% (±0.5%)	2.8% (±0.3%)	1.3% (±0.4%)
Comfortable	2.4% (±1.1%)	2.1% (±0.8%)	2.1% (±0.7%)
Making-do	2.2% (±0.8%)	3.2% (±0.5%)	0.9% (±0.6%)
Hard-pressed	2.5% (±0.7%)	2.9% (±0.5%)	1.0% (±0.6%)

VITA SEGMENTS

**4.
Not fit for purpose**

**3. Stable falls.
(70% of liabilities)**

1. Social cascade?

2. Austerity policies?

Figures in brackets represent 95% confidence interval. For more information, please see our report:
https://www.hymans.co.uk/media/uploads/PLSA_Longevity_model_-_June_2017.pdf

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3. So where are we heading?

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Today's "heterogeneous" trade

Protection insurers

Company pension schemes/annuity portfolios

Mortality →

← Longevity
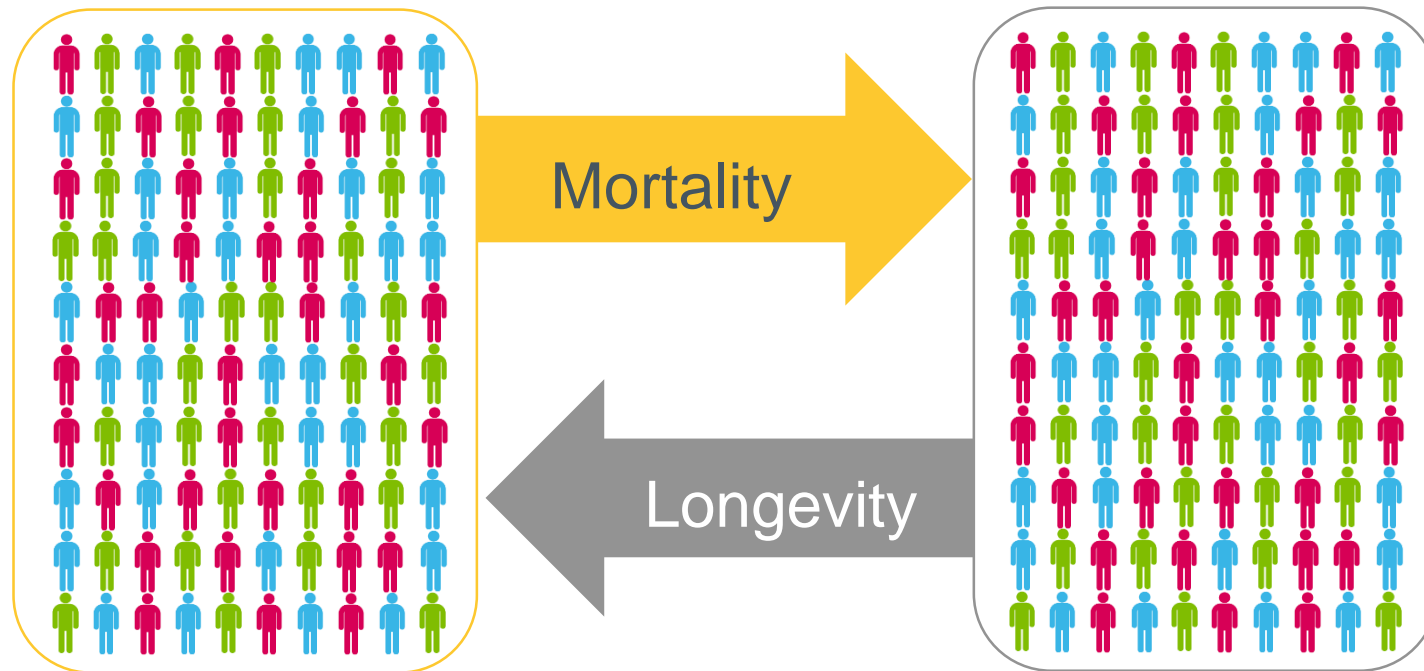
Low correlation anticipated in pricing => wide bid-offer spread

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Enabling more homogeneous trading

Insurers

Pension funds

Comfortable — Mortality → Comfortable / ← Longevity

Making do — Mortality → Making do / ← Longevity

Hard-pressed — Mortality → Hard-pressed / ← Longevity
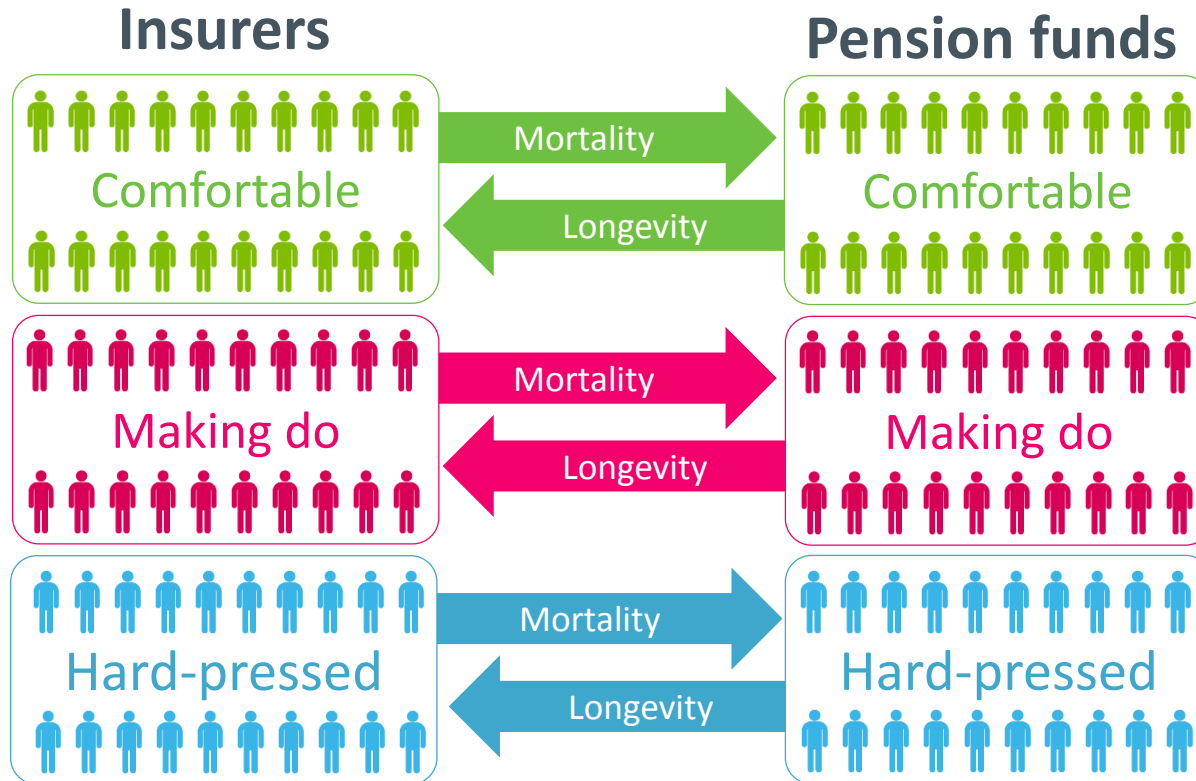
Higher correlation anticipated in pricing
$\Rightarrow$ **narrower bid-offer spread for pension funds & capital releases for insurers**

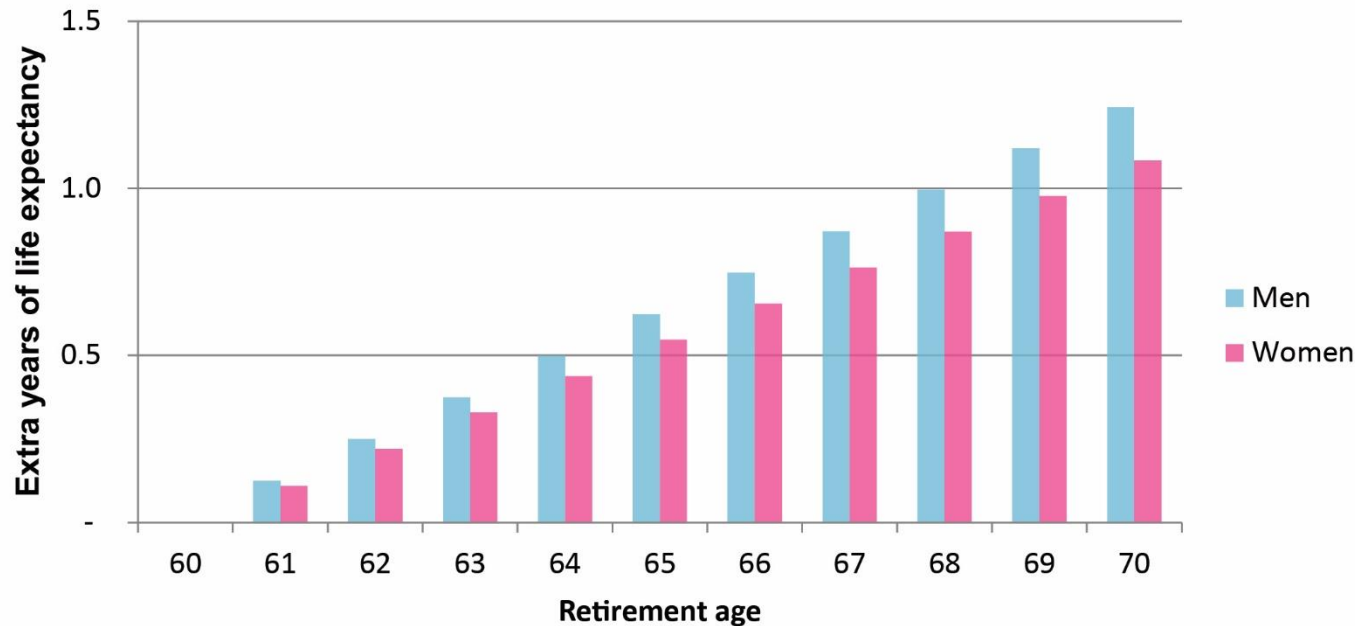CLUB VITA

The benefits of granular data

- ✓ **greater confidence** for both risk cedant and risk taker
  - ✓ narrower "bid-offer spreads"
- ✓ common currency to enable **operational-efficiency**
- ✓ prospect of **capital release** from insurers' balance sheet

More deals ….. more effective risk hedging

And finally, take heart ….

Extra years of life expectancy compared to retirement at 60
Source: Modelled data from VitaBank (2008-2010)

Work longer ….. live longer

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Thank you

Lang mae yer lums reek

Please join our discussion group

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