De Nederlandsche Bank, Amsterdam

Modelling and analysing longevity risk

Dr. Stephen J. Richards, B.Sc, F.F.A.

26th November 2013

Contents

1. About the speaker

- Consultant on longevity risk since 2005.
- Founded longevity-related software businesses in 2006:

LONGEVITAS

mortalityrating.com

- Joint venture with Heriot-Watt in 2009:

PROJECTIONS TOOLKIT

2. About Longevitas

- Analyses mortality differentials in experience data.
- Used by insurers, reinsurers, consulting actuaries and banks.
- Tools licensed by clients in:
    - Australia
    - Germany
    - UK
    - USA

2. About Longevitas

Used on data sets from:

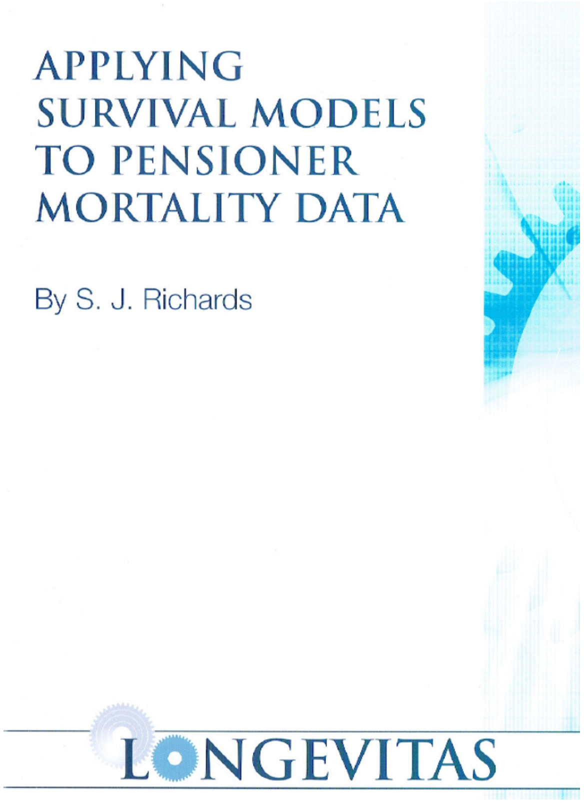
- Canada
- France
- Germany
- Netherlands
- UK
- USA

3. About the Projections Toolkit

- Enables rapid fitting of stochastic projection models.
- Used to understand risk in mortality improvements.
- Used by insurers and reinsurers.

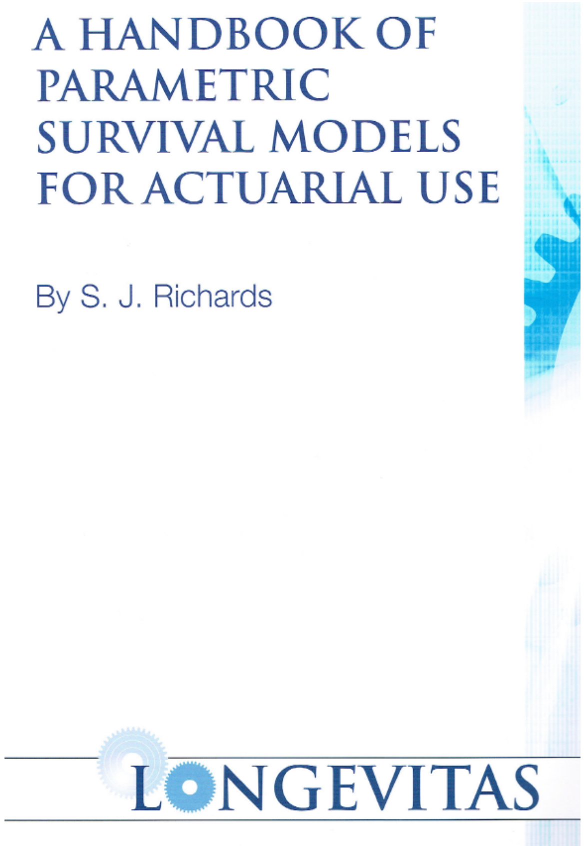
4. Materials

4. Survival models and postcodes



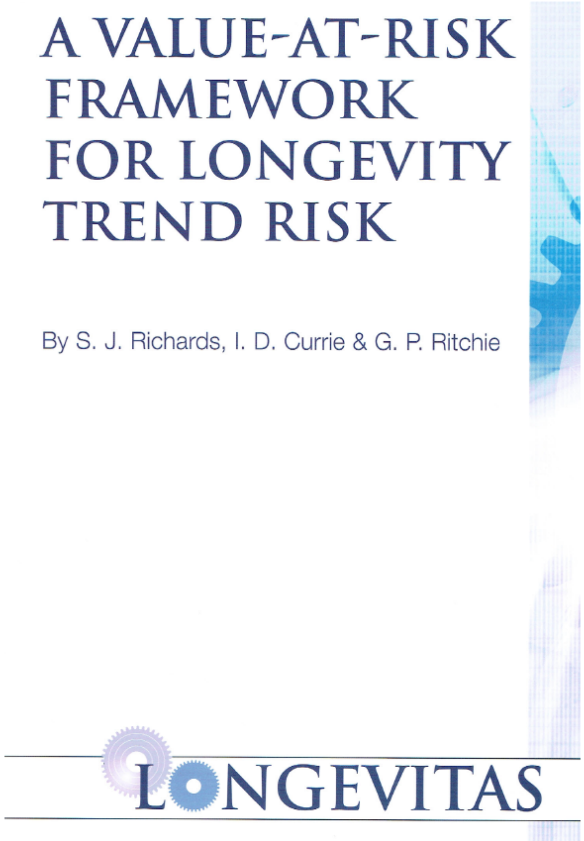
Richards (2008)

4. Survival models with implementation details



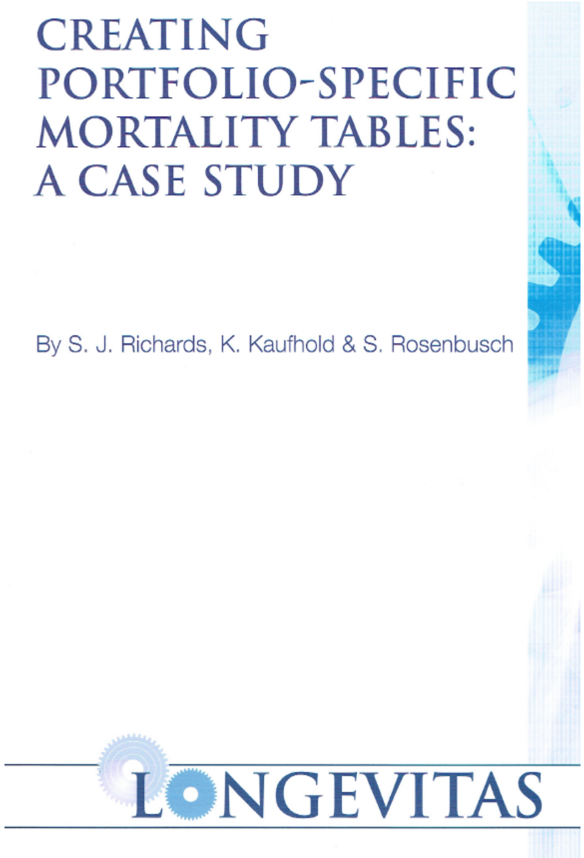
Richards (2012)

4. Value-at-risk (VaR) for longevity trend risk



Richards, Currie and Ritchie (2012)

4. Creating your own mortality tables



Richards, Kaufhold and Rosenbusch (2013)

5. References

Richards, S. J. **2008** *Applying survival models to pensioner mortality data*, British Actuarial Journal, **14(II)**, pages 257–326 (with discussion).

Richards, S. J. **2012** *A handbook of parametric survival models for actuarial use*, Scandinavian Actuarial Journal, 2012 (**4**), pages 233–257.

Richards, S. J., Currie, I. D. and Ritchie, G. P. **2012** *A value-at-risk framework for longevity trend risk*, British Actuarial Journal (to appear)

Richards, S. J., Kaufhold, K. and Rosenbusch, S. **2013** *Creating portfolio-specific mortality tables: a case study*, European Actuarial Journal, **3(2)**, 295–319.

LONGEVITAS