Big data – friend or foe?

Nigel Bradshaw
Redmayne Consulting
Overview of the talk

• Introduction
• Role of underwriting
• Historic development of underwriting
• What is big data?
• Case study: Mortascore
• Future development of underwriting
• Big data – friend or foe?
Introduction

Nigel Bradshaw
• Actuary
• Royal Life, Prolific L&PL
• Scottish Provident (co-inventor Self Assurance)

Redmayne Consulting (est. 2002)
• Protection and other risk business consulting
• Proposition development
• Actuarial work

Mortality Metrics (est. 2012)
• Founded by actuaries, big-data modellers and big-data marketers
• Core product Mortascore: individual mortality scores
• Other products: postcode models, health models, bespoke modelling
Role of underwriting

• Managing out anti-selective early claims

• Matching the long-term experience to the pricing assumptions.
Historic development of underwriting

Spencer Leigh’s history of underwriting at Royal Insurance

1845 - 1870  Underwriting was by interview with full Board
1870 - 1900  Chief underwriter was a Board Director
1900 - 1950  Chief underwriter sat on the Executive
1950 - 1985  Chief underwriter was a senior manager
1985 – 2000  Spencer Leigh had a second job as a radio presenter on Radio Merseyside
What is big data?
What is big data?

Lots of internal data

Lots of external data
Case Study: Mortascore

• Mortascore is a proprietary Big-Data product
• Produced by Mortality Metrics Ltd
  – A sister company of Redmayne Consulting
• Mortascore provides an individual relative mortality index
  – e.g. Nigel Bradshaw 1.3
  – e.g. Matt Rann 0.8
• Based on socio, economic, geographic and lifestyle factors
  – Excludes medical factors
Case Study: Mortascore

- Built from population data
- 44m in-force records from CallCredit
  - Full marketing database
  - Nearly all adults in the country
  - 100’s of parameters against each individual
- Deaths from TDA
  - 70%+ of all deaths
  - Matched in CallCredit data to access their 100’s of parameters

Lots of internal data
Lots of external data
Case Study: Mortascore

- “Standard” big-data modelling
  - Data validation and cleansing
  - Robust parameter set
  - GLM
  - Open access software
  - Train and test
  - Bagging
Case Study: Mortascore

Mortality Index of the form:

\[ 0.1234 \times \text{parameter 1} + 0.5678 \times \text{parameter 2} + \ldots \]

Lots of internal data
Lots of external data

Male Individual Model

Redmayne Consulting
**Case Study: Mortascore**

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Lots of internal data

Lots of external data
Future development of underwriting

Medical advances and evidence

Freedom to underwrite

Technology

Big data

Lots of internal data

Lots of external data

THE FREEDOM TO UNDERWRITE

by Spencer Leigh

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Big data – friend or foe?

• Big data will happen
• Actuaries will use it
• If underwriters do not use it you will be marginalised
• Your choice
Big data – friend or foe?

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