Better data = Better valuations

Medical underwriting in pensions

Andrew Gething - Founder & MD MorganAsh
Agenda

• What is medical underwriting
• MUBA - Bulk Annuities
  – How it works
• MUMS – Mortality Studies
• Case studies
• Results
• Summary
Background

Expert underwriting & claims management services for Life & Pension industries
What is Medical Underwriting?

- Mortality prediction based on medical studies
  - Condition, lifestyle
- Summarised in underwriting manuals
- Mature in Life Insurance
- Predicting forward
Use of Medical Underwriting in Pensions

Actual current health status better prediction of mortality than postcode & assumptions

- Individual annuities
- 2013
  - MUBA - Bulk Annuities
  - MUMS - Mortality Studies
MUBA – Medically Underwritten Bulk Annuity

- Buy-out or buy in
- Independent trusted service
- Operate tender process
How it works

www.morganash.com/pension/muba
MUBA - Case Study

- Scheme £8.5M
- Pensioners targeted £5.3M
- No. of scheme members 51
- Result
  - Tender price £4.8M
  - Saving 8.3%

“The MorganAsh process of contacting scheme members went very well…We received a good reduction from the insurers which enabled us to pursue a buy in transaction, thus de-risking our scheme.”

Howard Jones
4 Bucket approach

1. Better than average health
2. Average health
3. Slightly below average health
4. Below average health
MUMS - Case Study

- Largest timber mills in the UK £40M
- Deficit £12M
- Proportion of pensioners £27M
- No. of pensioners 25
- Result
  - Revaluation pensioners £22M
  - Potential saving £5M
  - Agreed saving £2.3M

"The outcome showed a reduction in liability due to mortality of some £5m compared to the scheme actuary’s assumptions for this £40m scheme."
H Jones Chief Financial Officer BSW Timber Limited.
• Scheme £500M
• Deficit £100M
• No. of pensioners 550
• Result
  • Revaluation £450M
  • Saving £50M
  • Share price rise 12%
MUMS – Case study - healthy

- **Financial services company** £60M
  - White collar execs
  - People 113
  - Average pension income £40K

- **Result**
  - Participation rate 70%
  - Improved valuation £57M
  - **Saving** £5 %

“The original valuation assumed all lives were healthier than standard SAPS due to their wealth. Actual health data and underwriting proved this assumption to be incorrect.”

“The general observation that wealth correlates to health does not necessarily apply to smaller cohorts.”
MUMS - Results across projects
MUMS - Benefits

- De-risk with evidence
- More accurate valuation
- Resolve arguments
- Buy in/out
- Funding requirements
- M&A activity
- Mergers
- DB Transfers ??
Indstry take up

- Passed regulator scrutiny
- Projects with 8 consultants
- Value variation up to 10%
Summary

Evidence Not Assumptions

Not everyone is the same!!

"Most Innovative Actuarial / Risk Consultancy Services Provider Of The Year"
Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.
## MUMS - Sample cases and outcomes

<table>
<thead>
<tr>
<th></th>
<th>Total Pension size</th>
<th>Accounting Saving based on MUMS study</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project 1</strong></td>
<td>£500M</td>
<td>£50M</td>
</tr>
<tr>
<td><strong>Project 2</strong></td>
<td>£180M</td>
<td>£30M</td>
</tr>
<tr>
<td><strong>Project 3</strong></td>
<td>£130M</td>
<td>£30M</td>
</tr>
<tr>
<td><strong>Project 4</strong></td>
<td>£50M</td>
<td>£5M</td>
</tr>
<tr>
<td><strong>Project 5</strong></td>
<td>£600M</td>
<td>£30M</td>
</tr>
<tr>
<td><strong>Project 6</strong></td>
<td>£400M</td>
<td>£30M</td>
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</table>
### Sample output

<table>
<thead>
<tr>
<th>Case ID</th>
<th>Member or Spouse</th>
<th>DoB</th>
<th>Age</th>
<th>Gen</th>
<th>Liability value</th>
<th>Group 1 (75% of SAPS)</th>
<th>Group 2 (100% of SAPS)</th>
<th>Group 3 (125% of SAPS)</th>
<th>Group 4 (mortality loading - %EM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Member</td>
<td>09/11/1952</td>
<td>63</td>
<td>M</td>
<td>7,844.71</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Spouse</td>
<td>18/08/1955</td>
<td>60</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50%</td>
</tr>
<tr>
<td>3</td>
<td>Member</td>
<td>17/02/1927</td>
<td>89</td>
<td>M</td>
<td>41,236.29</td>
<td></td>
<td></td>
<td></td>
<td>125%</td>
</tr>
<tr>
<td>4</td>
<td>Spouse</td>
<td>05/01/1934</td>
<td>82</td>
<td>F</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>5</td>
<td>Member</td>
<td>19/07/1951</td>
<td>64</td>
<td>M</td>
<td>6,999.93</td>
<td></td>
<td></td>
<td></td>
<td>Y</td>
</tr>
</tbody>
</table>
Examples (Very ill folk) – Years to age

<table>
<thead>
<tr>
<th>Age</th>
<th>Gender</th>
<th>Condition</th>
<th>Rating</th>
<th>Years to age</th>
<th>Normal mortality age</th>
<th>Predicted mortality age</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>M</td>
<td>Type 1 diabetic since age 15, current control poor, progressive multiple sclerosis for 20+ years</td>
<td>Bucket 4 +450%</td>
<td>18</td>
<td>87</td>
<td>70</td>
</tr>
<tr>
<td>60</td>
<td>M</td>
<td>Type 1 diabetic, poor control, BMI 32, 42 alcohol units per week, high blood pressure, raised cholesterol</td>
<td>Bucket 4 +350%</td>
<td>15</td>
<td>87</td>
<td>72</td>
</tr>
<tr>
<td>60</td>
<td>M</td>
<td>Type 2 diabetic with retinopathy, heart attack at age 52 with angioplasty/stents, family history of heart attacks in father aged 42</td>
<td>Bucket 4 +300%</td>
<td>14</td>
<td>87</td>
<td>73</td>
</tr>
<tr>
<td>60</td>
<td>F</td>
<td>BMI 30, hypertension with 3 treatments and borderline raised, cerebrovascular accident in 2005 and told will never fully recover with ongoing symptoms</td>
<td>Bucket 4 +200%</td>
<td>11</td>
<td>90</td>
<td>78</td>
</tr>
<tr>
<td>60</td>
<td>F</td>
<td>Irregular heart rhythm, palpitations once every 6/12, breast cancer 2012</td>
<td>Bucket 4 +175%</td>
<td>10</td>
<td>90</td>
<td>79</td>
</tr>
</tbody>
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