Mortality perspective - Canada
IAA Mortality Committee, Nassau 2012
Agenda

• Life insurance
• Annuities
Life Insurance
Life Insurance Industry

- As reported in LA most recent Canadian Individual Life Insurance Industry table is CIA 1997-2004
- Yearly industry studies carried out by the Canadian Institute of Actuaries (“CIA”)
- Latest report covered policies between anniversaries from 2009 to 2010
- Many tables of A/E results of which:
  - Table 1: select/ultimate by duration and issue age groupings
  - Table 2: same as table 1 split by gender
  - Table 3: selection of table 2 split by type of underwriting
  - Table C4: year/year trends by categories over last 5 study years
  - Table C5: subset of C4 by type of underwriting
  - Table C7: A/E and exposures for policies > $1M for last 5 yrs
  - Table C9: table 4 with three 5yr moving averages
  - Table 9: A/E by policy types
Life Insurance Industry

A/E select/ultimate by gender

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Male Select</td>
<td>80.9</td>
<td>83.2</td>
<td>79.5</td>
<td>79.2</td>
<td>75.4</td>
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<tr>
<td>Female Select</td>
<td>89.8</td>
<td>96.1</td>
<td>85.2</td>
<td>90.2</td>
<td>72.2</td>
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<td>Male Ult.</td>
<td>91.6</td>
<td>91.9</td>
<td>86.9</td>
<td>93.5</td>
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<tr>
<td>Female Ult.</td>
<td>96.8</td>
<td>96.2</td>
<td>90</td>
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<td>83.1</td>
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Life Insurance Industry

A/E select only, gender/smoking

<table>
<thead>
<tr>
<th>% of CIA 97-04</th>
<th>Male NS</th>
<th>Female NS</th>
<th>Male SM</th>
<th>Female SM</th>
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<tr>
<td>2005-06</td>
<td>79</td>
<td>91.2</td>
<td>87.6</td>
<td>84.9</td>
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<td>2006-07</td>
<td>81.7</td>
<td>97.7</td>
<td>88.9</td>
<td>89.8</td>
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<tr>
<td>2007-08</td>
<td>79.2</td>
<td>82.7</td>
<td>80.1</td>
<td>92.8</td>
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<tr>
<td>2008-09</td>
<td>76.8</td>
<td>89.9</td>
<td>89.2</td>
<td>92.1</td>
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<tr>
<td>2009-20</td>
<td>72.8</td>
<td>72.2</td>
<td>86.6</td>
<td>72</td>
</tr>
</tbody>
</table>
Life Insurance Industry

2009-10 policies > $1M

<table>
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</thead>
<tbody>
<tr>
<td>Series1</td>
<td>66.3</td>
<td>71</td>
<td>62.3</td>
<td>119.9</td>
<td>55</td>
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</tbody>
</table>
Life Insurance Industry

A/E by policy type (2009-10 experience)

- Whole Life
- Ren. Term
- UL
- Term to 100

Mortality perspective - Canada
Life Insurance Industry

A/E by policy size (2009-10 experience)

Policy size

Mortality perspective - Canada
Annuities
Annuities (repeat from LA report)

- No Canadian annuitant table yet released
- Table typically used as “expected”: 1983 IAM Basic
- Draft table (CIP2005) presented in a Research Paper in October 2006
- Based on data from industry (1988-2001); single life data only
- Distinguishes gender, issue age and duration
- Based on income
- Being reviewed by peers for possible release; no timeline set
- Industry studies carried out annually by the Canadian Institute of Actuaries
- 2012 release covers experience from 2000 to 2009 (see following slides)
Annuities

- CIA experience 2000-09 for payout annuities
- E = 1983 IAM Basic (mostly US experience)
- Overall Male & Female A/Es very close at about 84%
- Registered results quite different than non-registered
  - Males: 93.1% vs 73.5%
  - Females: 89.6% vs 78.5%
- Trend lines all point to mortality improvements over 10 years
- “Back-to-back” annuities experience very low A/E
- Self selection effect when studying A/E over 1st 10 years since issue
- As monthly income increases, mortality improves as illustrated in next slide
Annuities

• CIA experience 2000-09 ("refund" = some guaranteed period)

CIA Annuities 2000-09, by monthly income

<table>
<thead>
<tr>
<th>% of IAM 1983 Basic</th>
<th>&lt;1000</th>
<th>[1K,5K)</th>
<th>[5K,10K)</th>
<th>[10K,20K)</th>
<th>[20K,50K)</th>
<th>50K+</th>
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</thead>
<tbody>
<tr>
<td>Refund</td>
<td>98.1</td>
<td>94.3</td>
<td>90.4</td>
<td>86.7</td>
<td>78.5</td>
<td>62.1</td>
</tr>
<tr>
<td>Non-refund</td>
<td>101.2</td>
<td>94.5</td>
<td>86.1</td>
<td>76.4</td>
<td>59.7</td>
<td>44.8</td>
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