SOA International Experience Study

Estonia 2009

Introduction

The 2009 Estonia experience study was undertaken as a joint research venture between the 4 Estonia insurance companies and the Society of Actuaries (SOA) International Experience Study (IES).

The 2009 Estonia experience study includes both mortality and persistency studies of policies in force any time during the 2006-2008 study period. The study applies to the entire portfolios of the contributing companies and these companies represent the vast majority of the Estonia individual life insurance market. Separate studies were performed based upon policy counts and insurance in force. Actual mortality was compared to expected mortality based upon the SOA 1975-80 select and ultimate mortality table.

Each of the contributing companies prepared a policy file of all policies in force during the study period that including policy, demographic and status information. These files were processed by each company using the SOA IES experience study tool and summary information was sent to the SOA Research Department for compilation. This report presents some of the summary information that was returned to the Estonia actuaries for their review.

The study relied primarily upon the company actuaries to validate the quality of the data submitted although members of the SOA International Experience Study Working Group did review the data submissions for high level consistency. This study is the first study performed in Estonia and although there were no known data issues it is still expected that data quality is likely to improve as subsequent studies are performed.
Results

The graphs below illustrate results from the study. Additional detail is contained in the appendix to this report. The first graph shows the exposure to mortality risk based upon contracts. One contract year of exposure equals one contract in force for one year.

The next graph shows the average insurance (in thousand Kroons) per contract.

The next two graphs show the ratio of actual mortality to expected mortality based upon the SOA 1975-80 select & ultimate table. One graph is based upon contracts in force while the other is based upon insurance.
The final graph presents persistency by policy years.
## Appendix A: Mortality Data

### Mortality By Contract - Males

<table>
<thead>
<tr>
<th>Age At Issue</th>
<th>Exposure</th>
<th>Actual Claims</th>
<th>Expected Claims</th>
<th>Actual / Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 9</td>
<td>11,432</td>
<td>11</td>
<td>8</td>
<td>143%</td>
</tr>
<tr>
<td>10-19</td>
<td>2,595</td>
<td>3</td>
<td>3</td>
<td>111%</td>
</tr>
<tr>
<td>20-29</td>
<td>51,562</td>
<td>34</td>
<td>40</td>
<td>86%</td>
</tr>
<tr>
<td>30-39</td>
<td>79,518</td>
<td>89</td>
<td>91</td>
<td>98%</td>
</tr>
<tr>
<td>40-49</td>
<td>46,559</td>
<td>109</td>
<td>120</td>
<td>91%</td>
</tr>
<tr>
<td>50-59</td>
<td>14,062</td>
<td>83</td>
<td>67</td>
<td>124%</td>
</tr>
<tr>
<td>60 +</td>
<td>1,958</td>
<td>20</td>
<td>20</td>
<td>100%</td>
</tr>
<tr>
<td>Total</td>
<td>207,686</td>
<td>349</td>
<td>348</td>
<td>100%</td>
</tr>
</tbody>
</table>

### Mortality by Contract - Females

<table>
<thead>
<tr>
<th>Age At Issue</th>
<th>Exposure</th>
<th>Actual Claims</th>
<th>Expected Claims</th>
<th>Actual / Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 9</td>
<td>11,095</td>
<td>14</td>
<td>4</td>
<td>371%</td>
</tr>
<tr>
<td>10-19</td>
<td>2,793</td>
<td>2</td>
<td>1</td>
<td>168%</td>
</tr>
<tr>
<td>20-29</td>
<td>50,220</td>
<td>14</td>
<td>23</td>
<td>62%</td>
</tr>
<tr>
<td>30-39</td>
<td>76,937</td>
<td>36</td>
<td>67</td>
<td>54%</td>
</tr>
<tr>
<td>40-49</td>
<td>52,478</td>
<td>78</td>
<td>100</td>
<td>78%</td>
</tr>
<tr>
<td>50-59</td>
<td>16,973</td>
<td>47</td>
<td>49</td>
<td>96%</td>
</tr>
<tr>
<td>60 +</td>
<td>1,970</td>
<td>6</td>
<td>8</td>
<td>72%</td>
</tr>
<tr>
<td>Total</td>
<td>212,465</td>
<td>197</td>
<td>252</td>
<td>78%</td>
</tr>
</tbody>
</table>

### Mortality by Insurance – Males

(Amounts in Kroon)

<table>
<thead>
<tr>
<th>Age At Issue</th>
<th>Exposure</th>
<th>Actual Claims</th>
<th>Expected Claims</th>
<th>Actual / Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 9</td>
<td>257,085,273</td>
<td>154,234</td>
<td>142,761</td>
<td>108%</td>
</tr>
<tr>
<td>10-19</td>
<td>146,493,994</td>
<td>65,992</td>
<td>150,828</td>
<td>44%</td>
</tr>
<tr>
<td>20-29</td>
<td>9,645,195,535</td>
<td>5,161,009</td>
<td>7,151,245</td>
<td>72%</td>
</tr>
<tr>
<td>30-39</td>
<td>13,030,590,469</td>
<td>11,208,194</td>
<td>13,207,852</td>
<td>85%</td>
</tr>
<tr>
<td>40-49</td>
<td>5,296,317,043</td>
<td>13,392,495</td>
<td>11,920,866</td>
<td>112%</td>
</tr>
<tr>
<td>50-59</td>
<td>1,175,782,074</td>
<td>2,935,585</td>
<td>5,575,418</td>
<td>53%</td>
</tr>
<tr>
<td>60 +</td>
<td>222,879,569</td>
<td>2,986,592</td>
<td>3,044,613</td>
<td>98%</td>
</tr>
<tr>
<td>Total</td>
<td>29,774,343,958</td>
<td>35,904,101</td>
<td>41,193,582</td>
<td>87%</td>
</tr>
</tbody>
</table>
Mortality by Insurance – Females
(Amounts in Kroon)

<table>
<thead>
<tr>
<th>Age At Issue</th>
<th>Exposure</th>
<th>Actual Claims</th>
<th>Expected Claims</th>
<th>Actual / Expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 9</td>
<td>249,170,125</td>
<td>219,890</td>
<td>76,421</td>
<td>288%</td>
</tr>
<tr>
<td>10-19</td>
<td>137,661,106</td>
<td>44,362</td>
<td>56,814</td>
<td>78%</td>
</tr>
<tr>
<td>20-29</td>
<td>5,424,555,333</td>
<td>1,223,698</td>
<td>2,240,138</td>
<td>55%</td>
</tr>
<tr>
<td>30-39</td>
<td>7,443,518,331</td>
<td>2,352,095</td>
<td>5,668,137</td>
<td>41%</td>
</tr>
<tr>
<td>40-49</td>
<td>4,024,506,534</td>
<td>3,889,780</td>
<td>6,719,317</td>
<td>58%</td>
</tr>
<tr>
<td>50-59</td>
<td>819,644,047</td>
<td>1,068,944</td>
<td>2,191,765</td>
<td>49%</td>
</tr>
<tr>
<td>60 +</td>
<td>78,752,150</td>
<td>83,829</td>
<td>388,511</td>
<td>22%</td>
</tr>
<tr>
<td>Total</td>
<td>18,177,807,626</td>
<td>8,882,597</td>
<td>17,341,103</td>
<td>51%</td>
</tr>
</tbody>
</table>
Appendix B: Persistency Data

Persistency by Contract

<table>
<thead>
<tr>
<th>Policy Year</th>
<th>Exposure</th>
<th>Lapses</th>
<th>Lapse Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>87,489</td>
<td>3,810</td>
<td>4.4%</td>
</tr>
<tr>
<td>2</td>
<td>67,322</td>
<td>3,644</td>
<td>5.4%</td>
</tr>
<tr>
<td>3</td>
<td>53,101</td>
<td>3,600</td>
<td>6.8%</td>
</tr>
<tr>
<td>4</td>
<td>44,814</td>
<td>3,030</td>
<td>6.8%</td>
</tr>
<tr>
<td>5</td>
<td>38,321</td>
<td>2,838</td>
<td>7.4%</td>
</tr>
<tr>
<td>6</td>
<td>36,904</td>
<td>2,701</td>
<td>7.3%</td>
</tr>
<tr>
<td>7</td>
<td>34,097</td>
<td>2,526</td>
<td>7.4%</td>
</tr>
<tr>
<td>8</td>
<td>27,533</td>
<td>2,141</td>
<td>7.8%</td>
</tr>
<tr>
<td>9</td>
<td>16,612</td>
<td>1,478</td>
<td>8.9%</td>
</tr>
<tr>
<td>10</td>
<td>8,134</td>
<td>681</td>
<td>8.4%</td>
</tr>
<tr>
<td>Total</td>
<td>414,328</td>
<td>26,449</td>
<td>6.4%</td>
</tr>
</tbody>
</table>

Persistency by Insurance
(Amounts in Kroon)

<table>
<thead>
<tr>
<th>Policy Year</th>
<th>Exposure</th>
<th>Lapses</th>
<th>Lapse Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>14,480,711,685</td>
<td>506,811,511</td>
<td>3.5%</td>
</tr>
<tr>
<td>2</td>
<td>9,812,091,851</td>
<td>506,737,205</td>
<td>5.2%</td>
</tr>
<tr>
<td>3</td>
<td>6,779,898,429</td>
<td>478,333,422</td>
<td>7.1%</td>
</tr>
<tr>
<td>4</td>
<td>5,254,438,629</td>
<td>412,056,937</td>
<td>7.8%</td>
</tr>
<tr>
<td>5</td>
<td>3,755,569,694</td>
<td>303,504,738</td>
<td>8.1%</td>
</tr>
<tr>
<td>6</td>
<td>2,849,499,977</td>
<td>221,206,186</td>
<td>7.8%</td>
</tr>
<tr>
<td>7</td>
<td>2,326,087,949</td>
<td>193,122,217</td>
<td>8.3%</td>
</tr>
<tr>
<td>8</td>
<td>1,888,496,651</td>
<td>171,174,496</td>
<td>9.1%</td>
</tr>
<tr>
<td>9</td>
<td>1,199,676,609</td>
<td>133,674,486</td>
<td>11.1%</td>
</tr>
<tr>
<td>10</td>
<td>599,240,089</td>
<td>62,908,409</td>
<td>10.5%</td>
</tr>
<tr>
<td>Total</td>
<td>48,945,711,564</td>
<td>2,989,529,607</td>
<td>6.1%</td>
</tr>
</tbody>
</table>
Appendix C: Contributing Companies

Compensa
Sampo
SEB
Swedbank