

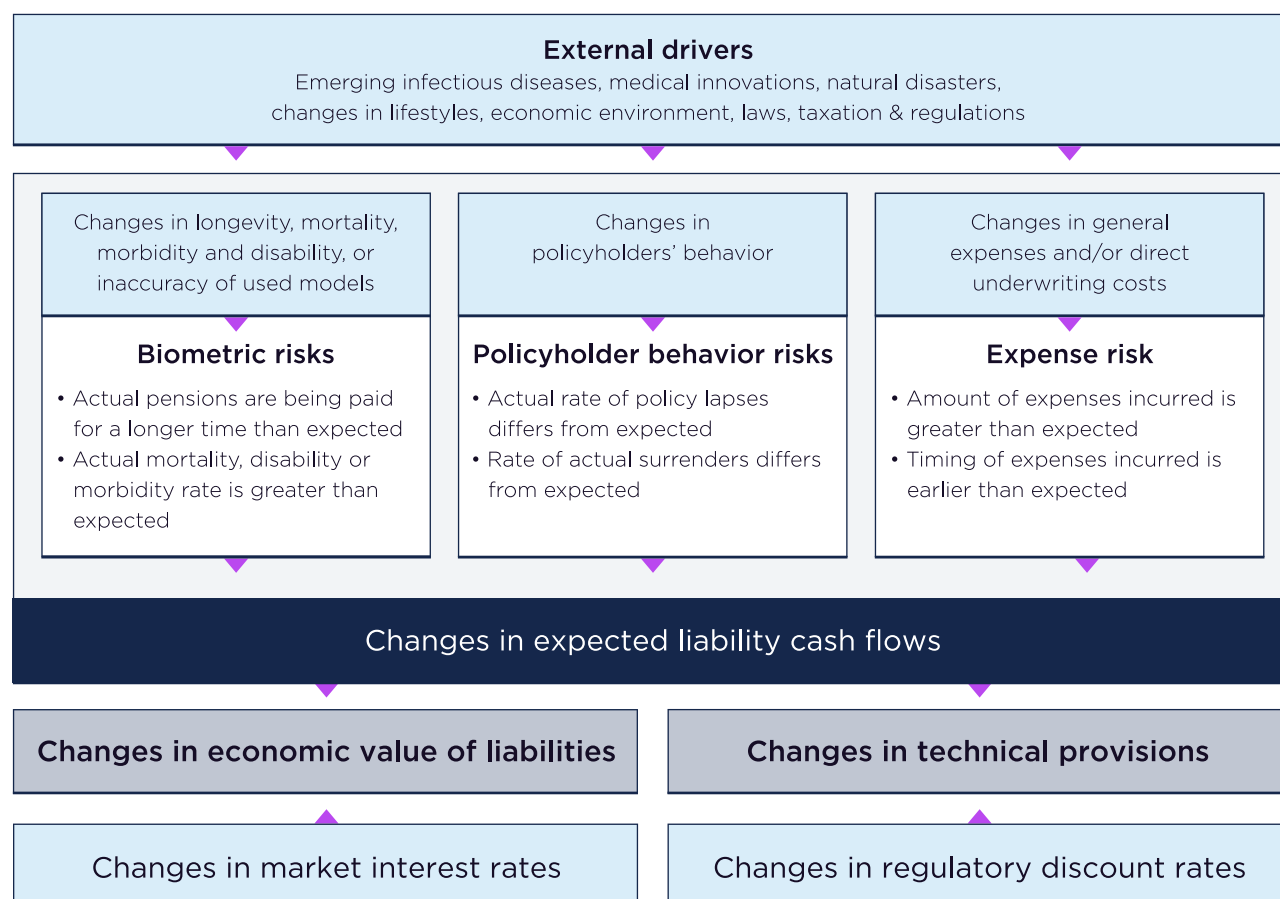
# Life Insurance Underwriting Risks

Life insurance risks encompass underwriting risk and discount rate risk in technical provisions. Underwriting risk includes biometric, policyholder behavior and expense risks.

On the 30th of December, 2014 Mandatum Life received from Suomi Mutual its with-profit group pension portfolio. Portfolio comprises approximately 2,300 policies and 34,000 members. Amount of transferred assets and liabilities were EUR 1,337 million. Technical provisions include longevity reserve (EUR 87 million) and expense reserve (EUR 22

million). Due to the special features of the received portfolio, the remaining technical provisions (EUR 1,228 million) and related assets have been segregated (segregated group pension portfolio or segregated assets) from the rest of Mandatum Life's balance sheet. Unless otherwise stated the technical provision information and insurance risk descriptions at the end of 2014 include the segregated group pension portfolio. The segregated group pension portfolio did not have an effect on the 2014 risk result.

## Life Insurance Underwriting Risks



## Biometric Risks

Biometric risks refer to the risk that the company has to pay more mortality, disability or morbidity benefits

than expected, or the company has to keep paying pension payments to the pension policy holders for a

longer time (longevity risk) than expected when pricing the policies.

In life insurance catastrophe events include – as in non-life insurance – rare single events or series of events, usually over short period of time and, albeit even less frequently, longer lasting events. When a low frequency, high severity event or series of single events leads to a significant deviation in actual benefits and payments from the total expected payments, catastrophe, i.e. an extreme case of biometric risk, risk has realized.

Long duration of policies and restriction of Mandatum Life's right to increase tariffs increases biometric risks. If the premiums turn out to be inadequate and cannot

be increased, technical provisions have to be supplemented with an amount corresponding to the increase in expected losses.

The table Claim Ratios After Reinsurance, Mandatum Life, 2014 and 2013 shows the insurance risk result in Mandatum Life's Finnish life insurance policies. The ratio of the actual claims costs to the assumed was 79 per cent in 2014 (79 per cent in 2013). Sensitivity of the insurance risk result can also be assessed on the basis of the information in the table. For instance the increase of mortality by 100 per cent would increase the amount of benefit payments from EUR 16.5 million to EUR 33 million.

## Claim Ratios After Reinsurance

Mandatum Life, 2014 and 2013

EURm	2014			2013		
	Risk income	Claim expense	Claim ratio	Risk income	Claim expense	Claim ratio
<b>Life insurance</b>	<b>45.3</b>	<b>27.5</b>	<b>61%</b>	<b>47.4</b>	<b>27.1</b>	<b>57%</b>
Mortality	27.2	16.5	61%	29.8	16.1	54%
Morbidity and disability	18.1	11.0	61%	17.6	11.0	62%
<b>Pension</b>	<b>63.1</b>	<b>58.5</b>	<b>93%</b>	<b>57.5</b>	<b>55.5</b>	<b>97%</b>
Individual pension	9.6	10.2	107%	9.1	9.8	108%
Group pension	53.5	48.3	90%	48.4	45.7	94%
Mortality (longevity)	49.4	45.6	92%	43.9	43.3	99%
Disability	4.1	2.7	66%	4.5	2.4	52%
<b>Mandatum Life</b>	<b>108.4</b>	<b>86.0</b>	<b>79%</b>	<b>104.8</b>	<b>82.6</b>	<b>79%</b>

Longevity risk is the most critical biometric risk in Mandatum Life. Most of the longevity risk arises from the with profit group pension portfolio. With profit group pension policies have mostly been closed for new members for years and due to this the average age of members is relatively high, i.e. for the segregated group pension portfolio around 67 years and for the other group pension portfolios around 69 years. In the unit-linked group pension and individual pension portfolio the longevity risk is less significant because most of these policies are fixed term annuities including death cover compensating the longevity risk.

The annual longevity risk result and longevity trend is analyzed regularly. For the segregated group pension portfolio the assumed life expectancy related to the technical provisions was revised in 2014 and for the other group pension portfolios in 2002 and 2007. In total these changes increased the 2014 technical provision by EUR 108 million (EUR 23 million in 2013) including EUR 87 million longevity reserve for

segregated group pension portfolio. The cumulative longevity risk result has been positive since these revisions. The longevity risk result of group pension for the year 2014 was EUR 3.8 million (EUR 0.6 million in 2013). The segregated group pension portfolio did not yet have an effect on the 2014 risk result.

Mortality risk result in life insurance is positive. A possible pandemic is seen as the most significant risk that could adversely affect the mortality risk result.

The insurance risk result of other biometric risks has been profitable in total, although the different risk results differ considerably. In a longer term, disability and morbidity risks are mitigated by the company's right to raise insurance premiums for existing policies in case the claims experience deteriorates.

The insurance portfolio of Mandatum Life is relatively well diversified and does not include major concentration risks. To further mitigate the effects of possible risk concentrations, Mandatum Life has the

catastrophe reinsurance in place.

## Policyholder Behavior and Expense Risks

Policyholder behaviour risks arise from the uncertainty related to behaviour of the policyholders. The policyholders have the right to cease paying premiums (lapse risk) and may have a possibility to interrupt their policies (surrender risk).

Behaviour of Policyholders is a major risk as well and ability to keep lapse and surrender rates in a low level is a crucial success factor especially for the expense result of unit-linked business.

From ALM point of view surrender and lapse risks are less significant because in Mandatum Life, around 90 per cent of with profit technical provisions consist of pension policies in which surrender is possible only in exceptional cases. For ALM risk, surrender risk is therefore only relevant in individual life and capital redemption policies of which the related technical provisions amounts to only 4 per cent (EUR 222 million) of the total with profit technical provisions. Furthermore, the supplements to technical provisions

are not paid out at surrender which also reduces the surrender risk related to the with profit policies. Surrender and lapse risks are taken into account when the company is analyzing its ALM risk.

The company is also exposed to expense risk, which arises from the fact that the timing and/or the amount of expenses incurred differs from those expected at the timing of pricing. As a result expense charges originally assumed may not be enough to cover the realized expenses.

Policy terms and tariffs cannot usually be changed materially during the lifetime of the insurance, which increases the expense risk. The main challenge is to keep the expenses related to insurance administrative processes and complex IT infrastructure at a competitive level. In year 2014, expense result was EUR 19 million (EUR 14 million in 2013). Mandatum Life does not defer insurance acquisition costs.

## Discount Rate Risk in Technical Provisions

Discount rate risk in technical provisions is the main risk affecting the adequacy of technical provisions. The guaranteed interest rate in policies is fixed for the whole policy period. Thus, if market interest rates and expected investment returns fall, technical provisions may have to be supplemented.

The guaranteed interest for the segregated group pension policies is mainly 3.5 per cent. The technical provision corresponding this portfolio has been supplemented with a discount rate reserve of EUR 241 million, resulting in a discount rate of 1.0 per cent for the technical provision. Reserve for future bonuses has important role in risk management of segregated group pension portfolio. The reserve amounts to EUR 181 million and approximately EUR 150 million of it can be used to cover possible investment losses or to finance possible changes in discount rate of segregated technical provisions.

In most of the other with profit policies, the guaranteed interest rate is 3.5 per cent. In individual

policies sold in Finland before 1999, the guaranteed interest rate is 4.5 per cent, which is also the statutory maximum discount rate of these policies. With respect to these policies, the maximum discount rate used when discounting technical provisions has been decreased to 3.5 per cent. As a result, technical provisions have been supplemented with EUR 69 million in 2014 (EUR 75 million in 2013). In addition, EUR 50 million has been reserved to lower the interest rate of with profit liabilities to 2.0 per cent in 2015 and EUR 17 million for the year 2016 to lower the interest rate of with profit liabilities to 3.0 per cent, i.e. Mandatum Life has set up an extra reserve of EUR 135 million as part of technical provisions.

The provisions related to each product type and guaranteed interest rates are shown in the table Analysis of the Change in Provisions before Reinsurance, Mandatum Life, 2014. The table also shows the change in each category during 2014.

## Analysis of the Change in Provisions before Reinsurance

Mandatum Life, 2014

EURm	Liability 2013	Premiums	Claims paid	Expense charges	Guaranteed interest	Bonuses	Other	Liability 2014	Share %
<b>Mandatum Life parent company</b>									
<b>Unit-linked total</b>	<b>4,475</b>	<b>923</b>	<b>-459</b>	<b>-57</b>	<b>0</b>	<b>0</b>	<b>277</b>	<b>5,159</b>	<b>50</b>
Individual pension insurance	1,014	76	-10	-14	0	0	83	1,149	11
Individual life	1,530	346	-159	-16	0	0	125	1,826	18
Capital redemption operations	1,489	437	-287	-21	0	0	58	1,677	16
Group pension	442	65	-4	-7	0	0	10	507	5
<b>With profit and others total</b>	<b>3,910</b>	<b>146</b>	<b>-395</b>	<b>-35</b>	<b>131</b>	<b>0</b>	<b>1,205</b>	<b>5,047</b>	<b>49</b>
<b>Group pension</b>	<b>2,311</b>	<b>57</b>	<b>-188</b>	<b>-7</b>	<b>77</b>	<b>0</b>	<b>-3</b>	<b>2,248</b>	<b>22</b>
Guaranteed rate 3.5%	2,190	36	-175	-5	74	0	-11	2,109	20
Guaranteed rate 2.5% or 0.0%	121	21	-13	-2	3	0	8	139	1
<b>Group pension insurance, segregated portfolio</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,228</b>	<b>1,228</b>	<b>12</b>
Guaranteed rate 3.5%	0	0	0	0	0	0	805	805	8
Reserve for decreased discount rate (3,5% -> 1,0%)	0	0	0	0	0	0	241	241	2
Future bonus reserves	0	0	0	0	0	0	181	181	2
<b>Individual pension insurance</b>	<b>1,141</b>	<b>17</b>	<b>-162</b>	<b>-6</b>	<b>45</b>	<b>0</b>	<b>3</b>	<b>1,038</b>	<b>10</b>
Guaranteed rate 4.5%	945	11	-134	-5	40	0	-21	836	8
Guaranteed rate 3.5%	153	4	-18	-1	5	0	7	150	1
Guaranteed rate 2.5% or 0.0%	43	2	-11	0	1	0	17	52	1
<b>Individual life insurance</b>	<b>233</b>	<b>32</b>	<b>-29</b>	<b>-10</b>	<b>8</b>	<b>0</b>	<b>-16</b>	<b>218</b>	<b>2</b>
Guaranteed rate 4.5%	68	5	-6	-1	3	0	-3	67	1
Guaranteed rate 3.5%	109	12	-13	-3	4	0	-8	100	1
Guaranteed rate 2.5% or 0.0%	56	15	-11	-6	1	0	-5	51	0
<b>Capital redemption operations</b>	<b>4</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>
Guaranteed rate 3.5%	0	0	0	0	0	0	0	0	0
Guaranteed rate 2.5% or 0.0%	4	1	0	0	0	0	0	4	0
<b>Future bonus reserves</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Reserve for decreased discount rate</b>	<b>146</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-11</b>	<b>135</b>	<b>1</b>
<b>Longevity reserve</b>	<b>23</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>85</b>	<b>108</b>	<b>1</b>
<b>Assumed reinsurance</b>	<b>6</b>	<b>4</b>	<b>-1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-6</b>	<b>2</b>	<b>0</b>
<b>Other liabilities</b>	<b>45</b>	<b>35</b>	<b>-14</b>	<b>-12</b>	<b>0</b>	<b>0</b>	<b>11</b>	<b>66</b>	<b>1</b>
<b>Mandatum Life parent company total</b>	<b>8,385</b>	<b>1,070</b>	<b>-854</b>	<b>-92</b>	<b>131</b>	<b>0</b>	<b>1,567</b>	<b>10,207</b>	<b>98</b>
<b>Subsidiary Mandatum Life Insurance Baltic SE</b>	<b>159</b>	<b>41</b>	<b>-28</b>	<b>-3</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>170</b>	<b>2</b>
Unit-linked	142	37	-26	-2	0	0	2	153	1
Others	18	3	-2	-1	1	0	-1	17	0
<b>Mandatum Life group total</b>	<b>8,544</b>	<b>1,110</b>	<b>-882</b>	<b>-95</b>	<b>131</b>	<b>0</b>	<b>1,568</b>	<b>10,377</b>	<b>100</b>

Unit linked business has been Mandatum Life's main focus area since year 2001. Since that the trend of unit linked technical provisions have been upward and annual average change in technical provisions has been an increase of 25 per cent per annum. Due to the nature of unit linked business, volatility between years is relatively high.

In contrast, the trend of with profit technical provisions has been downward since 2005 if the impact of the the segregated group pension portfolio on the technical provisions in 2014 is excluded. Especially the parts of technical provisions with the highest 4.5 per cent and 3.5 per cent guarantees have decreased. Technical provisions with highest guarantees fell by EUR 203 million. Taking into

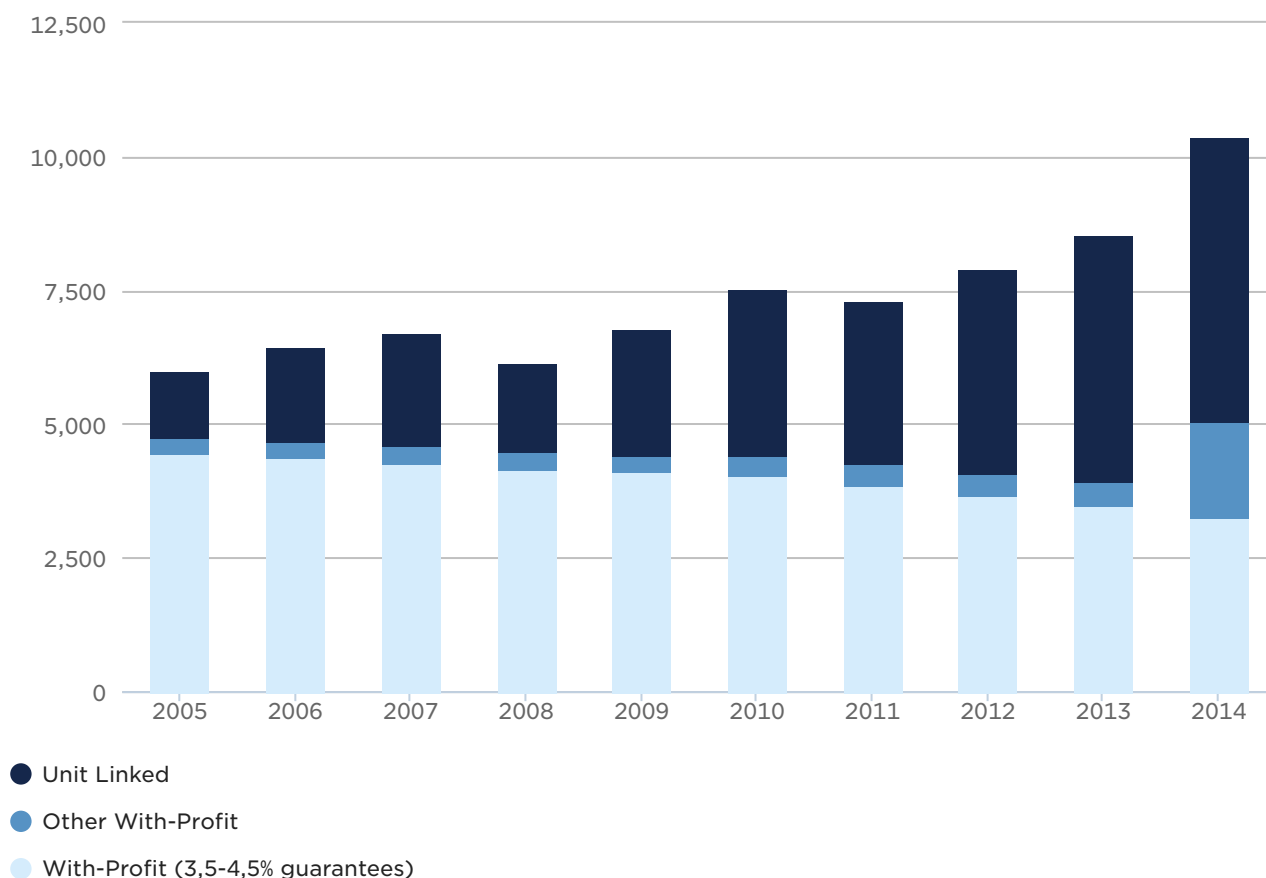
account all transferred group pension liabilities (EUR 1,337 million) from Suomi mutual, with profit technical provisions increased to EUR 5,065 million (EUR 3,927 million in 2013). The development of the structure and

amount of Mandatum Life's technical provisions is shown in the figure Development of With Profit and Unit-linked Technical Provisions, Mandatum Life, 2005-2014.

## Development of With Profit and Unit-linked Technical Provisions

Mandatum Life, 2005-2014

EURm



The table Expected Maturity of Insurance and Investment Contracts before Reinsurance, Mandatum Life, 31 December 2014 shows the expected maturity and duration of insurance and investment contracts of

Mandatum Life. The sensitivity of technical provisions to changes in discount rates can be assessed on the basis of the durations shown in the table.

## Expected Maturity of Insurance and Investment Contracts before Reinsurance

Mandatum Life, 31 December 2014

EURm	Duration	2015-2016	2017-2018	2019-2023	2024-2028	2029-2033	2034-2038	2039-
<b>Mandatum Life parent company</b>								
<b>Unit-linked total</b>	<b>8.8</b>	<b>902</b>	<b>804</b>	<b>1405</b>	<b>921</b>	<b>742</b>	<b>325</b>	<b>388</b>
Individual pension insurance	11.8	88	134	280	236	191	139	166
Individual life	8.1	365	295	502	323	272	105	88

Capital redemption operations *)	6.8	417	325	496	268	212	33	55
Group pension	12.0	33	50	127	95	69	49	80
<b>With profit and others total</b>	<b>10.0</b>	<b>1,032</b>	<b>832</b>	<b>1,585</b>	<b>1,115</b>	<b>787</b>	<b>541</b>	<b>805</b>
<b>Group pension</b>	<b>11.2</b>	<b>371</b>	<b>347</b>	<b>728</b>	<b>551</b>	<b>411</b>	<b>300</b>	<b>472</b>
Guaranteed rate 3.5%	11.2	349	333	701	530	394	287	448
Guaranteed rate 2.5% or 0.0%	11.3	22	15	27	20	16	13	24
<b>Group pension insurance, segregated portfolio</b>	<b>11.1</b>	<b>175</b>	<b>164</b>	<b>358</b>	<b>287</b>	<b>218</b>	<b>155</b>	<b>210</b>
<b>Individual pension insurance</b>	<b>7.1</b>	<b>274</b>	<b>245</b>	<b>385</b>	<b>201</b>	<b>103</b>	<b>48</b>	<b>66</b>
Guaranteed rate 4.5%	7.2	221	195	320	171	84	37	56
Guaranteed rate 3.5%	6.9	39	38	49	25	16	8	7
Guaranteed rate 2.5% or 0.0%	5.9	14	13	16	5	3	2	2
<b>Individual life insurance</b>	<b>9.3</b>	<b>58</b>	<b>49</b>	<b>68</b>	<b>46</b>	<b>33</b>	<b>24</b>	<b>36</b>
Guaranteed rate 4.5%	8.6	22	15	22	14	11	8	9
Guaranteed rate 3.5%	10.8	21	19	33	23	17	13	24
Guaranteed rate 2.5% or 0.0%	6.8	15	15	13	8	5	3	3
<b>Capital redemption operations *)</b>	<b>8.7</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>
Guaranteed rate 3.5%	0.0	0	0	0	0	0	0	0
Guaranteed rate 2.5% or 0.0%	8.7	0	0	2	1	0	0	0
<b>Future bonus reserves</b>	<b>1.0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Reserve for decreased discount rate</b>	<b>3.9</b>	<b>81</b>	<b>12</b>	<b>20</b>	<b>11</b>	<b>6</b>	<b>2</b>	<b>3</b>
<b>Longevity reserve</b>	<b>11.8</b>	<b>11</b>	<b>10</b>	<b>23</b>	<b>19</b>	<b>16</b>	<b>12</b>	<b>17</b>
<b>Assumed reinsurance</b>	<b>0.5</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Other liabilities</b>	<b>0.9</b>	<b>60</b>	<b>3</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Mandatum Life parent company total</b>	<b>9.4</b>	<b>1,934</b>	<b>1,635</b>	<b>2,991</b>	<b>2,036</b>	<b>1,530</b>	<b>866</b>	<b>1,193</b>
<b>Subsidiary SE Sampo Life Insurance Baltic</b>	<b>16</b>	<b>22</b>	<b>35</b>	<b>20</b>	<b>35</b>	<b>17</b>	<b>49</b>	<b>49</b>
Unit-linked	12	18	28	18	34	16	49	49
Others	3	4	6	2	1	0	0	0
<b>Mandatum Life group total</b>	<b>1,950</b>	<b>1,658</b>	<b>3,025</b>	<b>2,056</b>	<b>1,565</b>	<b>883</b>	<b>1,243</b>	<b>1,243</b>

\*) Investment contracts

## Life Insurance Risk Management

In general Biometric risks are managed by careful risk selection, by setting prices to reflect the risks and costs, by setting upper limits for the protection granted and by use of reinsurance. Mandatum Life's Underwriting Policy sets principles for risk selection and limits for sums insured and Reinsurance Policy governs the use of Reinsurance. The Board approves the Underwriting policy, pricing guidelines and the central principles for the calculation of technical provisions.

The Insurance Risk Committee is responsible for maintaining the Underwriting Policy and monitoring the functioning of the risk selection and claims processes. The Committee also reports all deviations from the Underwriting Policy to the RMC. The Insurance Risk Committee is chaired by the Chief Actuary who is responsible for ensuring that the principles for pricing policies and for the calculation of

technical provisions are adequate and in line with the risk selection and claims processes.

Reinsurance is used to limit the amount of individual mortality and disability risks. The Board of Directors annually approves the Reinsurance Policy and determines the maximum amount of risk to be retained on the company's own account, which for Mandatum Life is EUR 1.5 million per insured. To mitigate the effects of possible catastrophes, Mandatum Life participates in the catastrophe reinsurance bought jointly by Finnish life insurance companies.

The risk result is followed actively and analyzed thoroughly annually. Mandatum Life measures the efficiency of risk selection and adequacy of tariffs by collecting information about the actual claims expenditure for each product line and each type of risk and comparing it to the claims expenditure

assumed in insurance premiums of every risk cover.

Technical provisions are analyzed and the possible supplement needs are assessed regularly. Assumptions related to technical provisions are reviewed annually. Adequacy of technical provisions is tested quarterly. Tariffs for new policies are set and

the Underwriting Policy and assumptions used in calculating technical provisions are updated based on adequacy tests and risk result analysis. Tariffs and prices, as well as the reinsurance principles and reserving principles are reviewed and approved annually by the Board of Directors of Mandatum Life.