

# Underwriting Risks and Performance

Topdanmark Forsikring is the second largest Danish non-life insurance company with a market share of 17 per cent. It operates mainly within personal-, SME- and agriculture client segments having approximately 500,000 household customers and respectively 100,000 SME and agriculture customers. The market share within the industrial segment has been low and it has further decreased in 2016 and 2017. This is in line with Topdanmark's strategy to have the material part of its risks in Denmark, as industrial customers typically have the material risk outside Denmark. All in all approximately 300,000 claims are handled on a yearly basis.

Topdanmark Livsforsikring is the fifth largest commercial life insurance company in Denmark with a market share of 8 per cent. Topdanmark Livsforsikring offers pension schemes with participating features and market interest pensions products, including life insurance covers and health insurance. The number of personal customers is around 50,000 and the number of customers within company pension schemes is around 80,000. The main source of the profit is the risk return from with-profit schemes.

## Non-Life Underwriting Performance and Risks

The premiums and underwriting performance by Solvency II lines of business are presented in the table Topdanmark

Underwriting Performance, 31 December 2017 and 31 December 2016.

**Topdanmark Underwriting Performance**  
31 December 2017 and 31 December 2016

|  | 2017             | 2016           | 2017            | 2016           | 2017            | 2016         | 2017              | 2016         | 2017                     | 2016        | 2017  | 2016         |
|--|------------------|----------------|-----------------|----------------|-----------------|--------------|-------------------|--------------|--------------------------|-------------|---|--------------|
| Underwriting performance by SII LoB (EURm)   | Premiums written |                | Premiums earned |                | Claims incurred |              | Operating expense |              | Reinsurers share per LoB |             | Total underwriting performance direct insurance |              |
| Medical expense insurance  | 0.0              | 0.0            | 0.0             | 0.0            | 0.0             | 0.0          | 0.0               | 0.0          | 0.0                      | 0.0         | 0.0   | 0.0          |
| Income protection insurance  | 204.6            | 197.2          | 200.0           | 193.2          | 135.5           | 135.5        | 25.5              | 25.2         | 1.8                      | 2.1         | 37.2  | 30.4         |
| Workers' compensation insurance  | 85.0             | 77.4           | 82.8            | 79.3           | 75.7            | 59.1         | 11.7              | 11.4         | 1.4                      | 0.6         | -5.9  | 8.3          |
| Motor vehicle liability insurance  | 88.0             | 89.1           | 92.0            | 91.8           | 54.2            | 53.0         | 16.7              | 16.9         | 0.4                      | 0.4         | 20.8  | 21.5         |
| Other motor insurance  | 191.4            | 192.8          | 192.4           | 194.7          | 114.0           | 113.8        | 28.6              | 28.9         | 1.3                      | 0.8         | 48.5  | 51.1         |
| Marine, aviation and transport insurance   | 7.0              | 6.4            | 7.1             | 6.3            | 5.8             | 3.9          | 1.5               | 1.5          | 0.1                      | 0.4         | -0.2  | 0.5          |
| Fire and other damage to property insurance  | 535.9            | 521.5          | 532.5           | 532.7          | 292.2           | 379.3        | 91.9              | 92.1         | 44.4                     | 9.4         | 104.1   | 51.9         |
| General liability insurance  | 73.3             | 62.0           | 70.0            | 63.4           | 39.7            | 32.5         | 12.3              | 11.7         | 3.0                      | 3.2         | 14.9  | 16.0         |
| Assistance   | 30.4             | 28.3           | 30.0            | 28.5           | 23.5            | 20.7         | 4.7               | 4.5          | 0.0                      | 0.0         | 1.8   | 3.3          |
| Other Life insurance   | 0.0              | 0.0            | 0.0             | 0.0            | 0.0             | 0.0          | 0.0               | 0.0          | 0.0                      | 0.0         | 0.0   | 0.0          |
| Annuities stemming from non-life insurance contracts and relating to health insurance obligations                                  | 0.0              | 0.0            | 0.0             | 0.0            | 0.0             | 0.0          | 0.0               | 0.0          | 0.0                      | 0.0         | 0.0   | 0.0          |
| Annuities stemming from non-life insurance contracts and relating to insurance obligations other than health insurance obligations | 0.0              | 0.0            | 0.0             | 0.0            | 0.0             | 0.0          | 0.0               | 0.0          | 0.0                      | 0.0         | 0.0   | 0.0          |
| <b>Total</b>   | <b>1,215.6</b>   | <b>1,174.6</b> | <b>1,206.8</b>  | <b>1,189.8</b> | <b>740.6</b>    | <b>797.7</b> | <b>192.8</b>      | <b>192.3</b> | <b>52.3</b>              | <b>16.9</b> | <b>221.1</b>                                    | <b>182.9</b> |

There was a moderate growth in premiums of 1.4 per cent in

2017, being a result of company's actions to maintain a

balance between growth and profitability in a competitive market. The combined ratio was 85.8 before run-off gains and 82.0 respectively after run-off gains. These figures exceeded the company's expectations mainly due to better weather than expected, a low level of large-scale claims and an improved claims trend mainly in the SME segment, an improved claims trend in theft, fewer and smaller fire claims and an improved claims trend in workers' compensation.

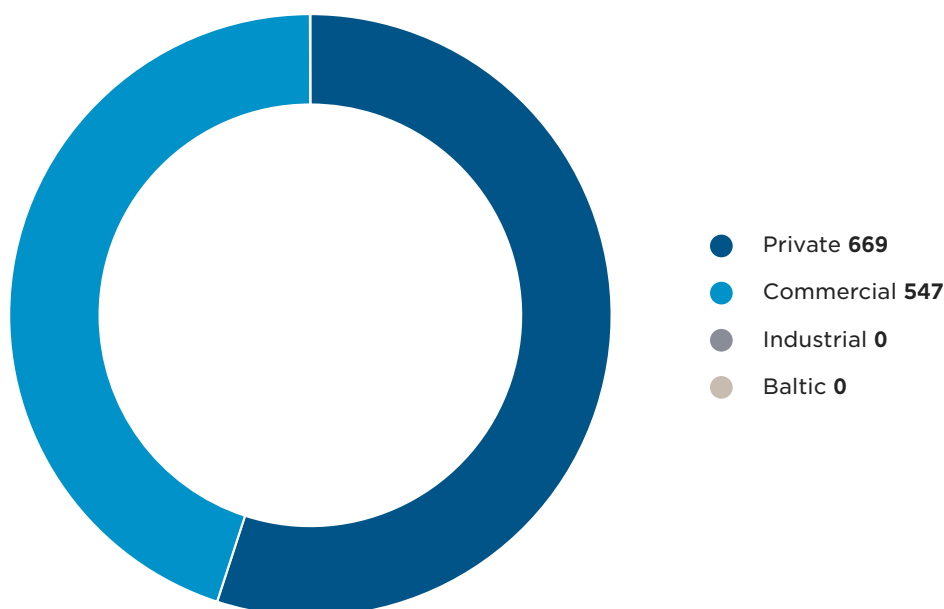
Topdanmarks non-life insurance risk is measured and monitored by a partial internal model, which was approved in 2015 by the Danish supervisory authorities for the SCR

calculation.

The claims provisions are mostly exposed to judicial decisions or changed recognition practices of the Labor Market Occupational Insurance. These events, if happened, may change compensation practices and thus increase claims from previous periods.

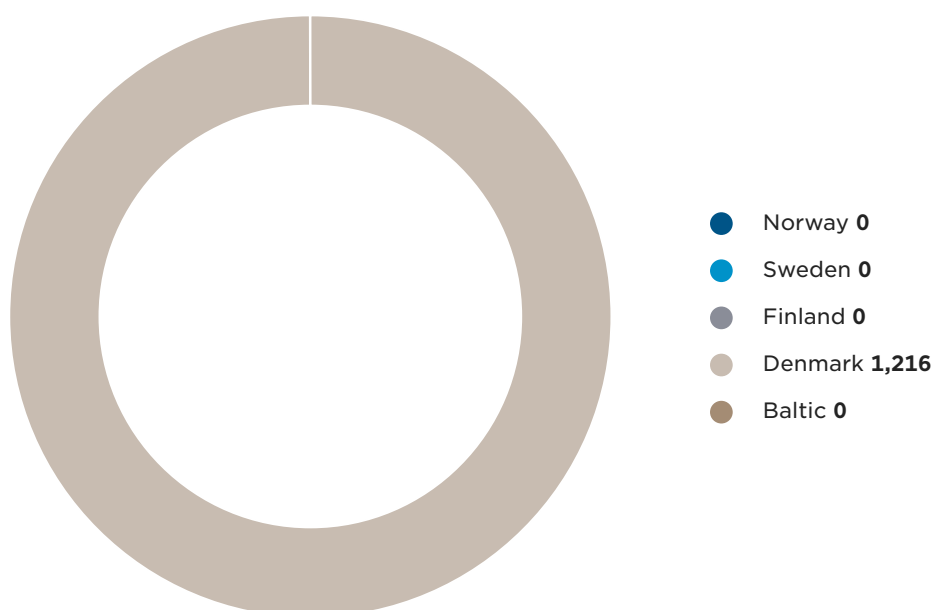
As shown in the below figure Breakdown of Gross Written Premiums by Business Area, Country and Line of Business, Topdanmark's insurance portfolio is diversified across Business Areas and Lines of Business.

### Breakdown of Gross Written Premiums by Business Area Topdanmark, 2017, total EUR 1,216 million



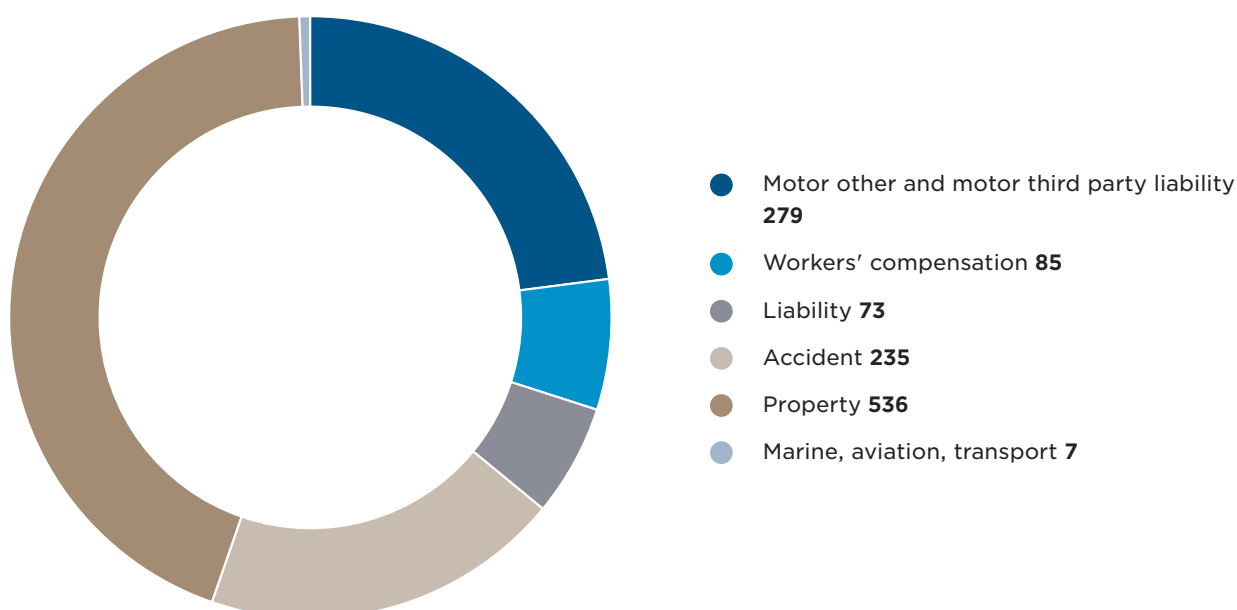
### Breakdown of Gross Written Premiums by Country

Topdanmark, 2017, total EUR 1,216 million



### Breakdown of Gross Written Premiums by Line of Business

Topdanmark, 2017, total EUR 1,216 million



## Premium and Catastrophe Risk and Their Management and Control

The main underwriting risk that influence the performance is catastrophe events. However, Topdanmark Forsikring has a very comprehensive reinsurance programme in place contributing to the low level of underwriting risk. The largest retention level of DKK 100 million plus reinstatement for each event is on storm events. The maximum retention on fire events is DKK 25 million and in workers' compensation up to DKK 1 billion is covered with a retention of DKK 50 million.

With certain restrictions, terror is covered by the reinsurance contracts. A national guarantee scheme of DKK 15 billion covering terror claims including an element of NBCR (nuclear, biological, chemical, radiological) has been established. In January 2017, the market retention was DKK 9.9 billion. To cover this market retention the Danish non-life companies have established a NBCR terror pool. In this pool for 2017, reinsurance cover was DKK 4.5 billion after DKK 0.5 billion.

Premium risk reduction measures taken at different levels of operations are as follows:

- Collection of data on risk and historical damage
- Use of collected and processed data in profitability reporting, risk analyzes and in the internal model
- Ongoing follow-up on risk developments as well as quarterly forecasts for future risk development
- Correct pricing using statistical model tool including customer scoring tools

- Reinsurance cover that reduces the risk especially for disaster damage
- Ongoing follow-up on the risk picture and reinsurance coverage in the Risk Committee.

In order to maintain product and customer profitability, Topdanmark monitors changes in its customer portfolios. Provisions are recalculated and the profitability reports are updated in the same context on a monthly basis. Based on this reporting, trends in claim levels are carefully assessed and price levels may be adjusted if considered necessary.

In the private market segment, customer scoring is used and customers are divided into groups according to their expected profitability levels. The customer scoring has two roles. First it helps to maintain the balance between the individual customer's price and risk. Secondly it facilitates the fairness between individual customers by ensuring that no customers are paying too large premiums to cover losses from customers who pay too small premiums.

The historical profitability of major SME customers with individual insurance schemes is monitored using customer assessment systems.

In addition to the above described analysis Topdanmark continuously improves its administration systems to achieve more detailed data which in turn enables it to identify the claims trends at an earlier point in time and compile information on the constituent parts of the various types of claims.

The non-life risk scenarios can be found in the next table.

### Non-Life Insurance Risk Scenarios Topdanmark Forsikring 31 December 2017 and 31 December 2016

#### Risk scenarios

| EURm after taxation and pension return tax | 2017  | 2016  |
|--|-------|-------|
| <b>Non-life insurance</b>                  |       |       |
| Underwriting risk                          |       |       |
| Combined ratio - 1bp increase              | -9.4  | -9.3  |
| Provision risk                             |       |       |
| Provision on own account - 1% increase     | -13.1 | -13.2 |
| Storm claims up to DKK 5,100m              | -10.5 | -10.5 |

## Reserve Risk and Its Management and Control

The insurance lines of business are divided into short-tail i.e. those lines where the period from notification until settlement is short and long-tail i.e. those lines where the

period from notification until settlement is long. Examples of short-tail lines in Topdanmark Forsikring are building, personal property and comprehensive motor insurance. Long-tail lines relate to personal injury and liability such as workers' compensation, accident, motor third party insurance and commercial liability.



## Composition of Topdanmark's Non-Life Overall Provisions for Outstanding Claims 31 December 2017 and 31 December 2016.

| Provisions for outstanding claims, %             | 2017 | 2016 |
|--|------|------|
| Short-tail                                       | 11.0 | 12.7 |
| Annuity provisions in workers' compensation      | 23.0 | 24.3 |
| Other claims provisions in workers' compensation | 25.2 | 23.0 |
| Accident   | 27.2 | 25.6 |
| Motor personal liability                         | 10.0 | 10.7 |
| Commercial liability                             | 3.5  | 3.6  |

Due to the longer period of claims settlement the long-tail lines of business are generally riskier than the short-tail lines. It is not unusual that claims in long-tail lines are settled three to five years after notification and in rare cases up to ten to fifteen years.

The reserve risk is calculated using Topdanmark's partial internal model for insurance risk. Workers' compensation claims provision has by far the biggest risk, followed by the other long-tail claims provisions which mainly consist of personal injury claims.

During such a long period of settlement, the levels of compensation could be significantly affected by changes in legislation, case-law or practice in the compensation of damages adopted by, for example, the Danish Labour Market Insurance which decides on compensation for injury and loss of earnings potential in all cases of serious industrial injuries. The practice adopted by the Danish Labour Market Insurance

also has some impact on the levels of compensation for accident and personal injury within motor, liability and commercial liability insurance.

The provisioning risk represents mostly the ordinary uncertainty of calculation and claims inflation, i.e. an increase in the level of compensation due to the annual increase in compensation per policy being higher than the level of general indexation or due to a change in judicial practice/legislation. The sufficiency of the provisions is tested in key lines by calculating the provisions using alternative models as well, and then comparing the compensation with information from external sources.

The actuarial team has a continuous dialogue with the claims departments on any changes in the practices regarding new legislation, case law or compensation practices as well as on the impact of such changes on the routines used to calculate individual provisions.

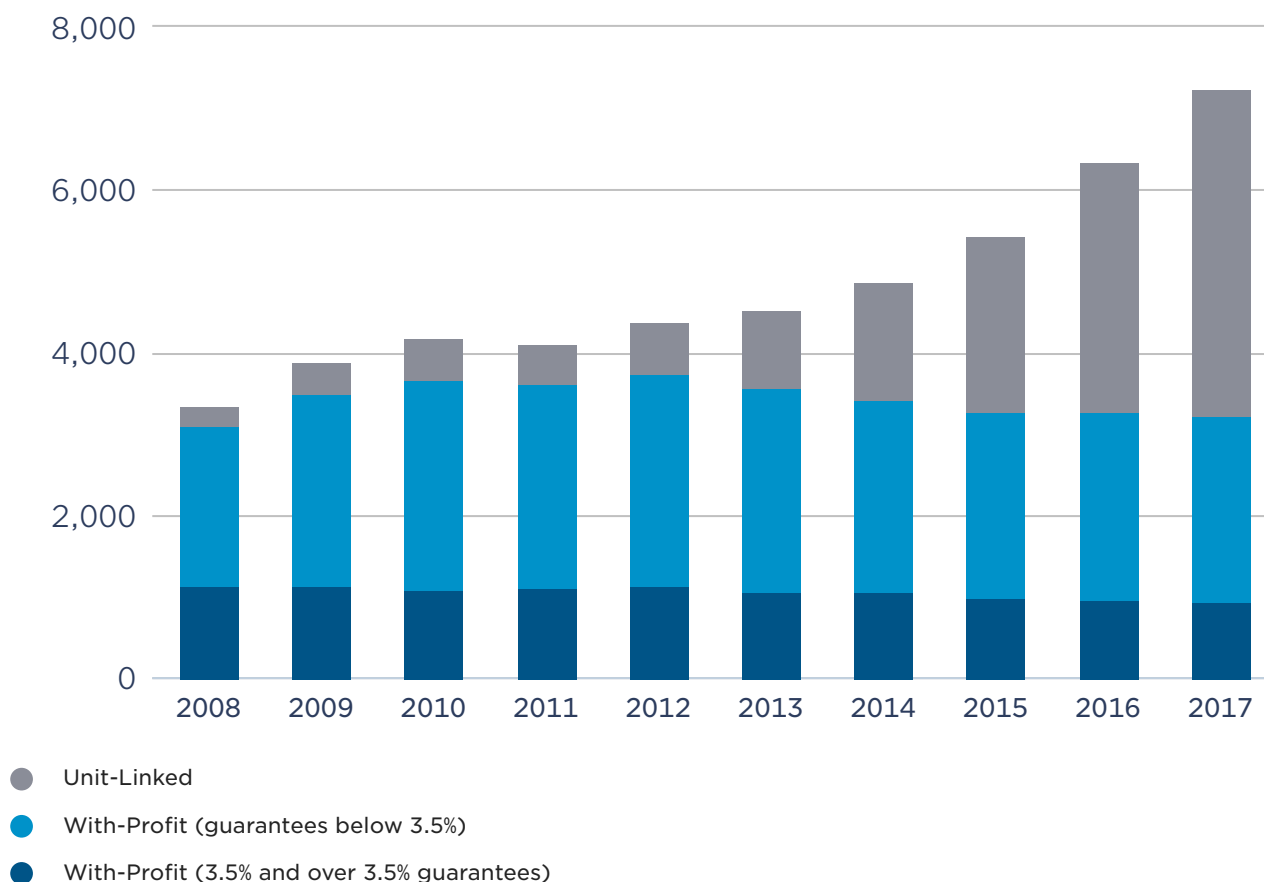
## Life Underwriting Performance and Risks

The development of the provisions for with profit and for unit-link business during the years 2008-2017 is illustrated in

the graph below.

### Development of With Profit and Unit-Linked Technical Provisions Topdanmark, 2008-2017

EURm



During the latest two years, premiums were split between products as follows.

### Sources of Gross Life Premiums Topdanmark, 2017 and 2016

| EURm                    | 2017           | 2016         |
|-------------------------|----------------|--------------|
| With-profits schemes    | 74.9           | 89.2         |
| Unit-linked schemes     | 220.7          | 195.3        |
| Group life              | 68.3           | 71.8         |
| <b>Regular premiums</b> | <b>363.9</b>   | <b>356.4</b> |
| With-profits schemes    | 52.9           | 63.5         |
| Unit-linked schemes     | 691.3          | 578.2        |
| <b>Single Premiums</b>  | <b>744.2</b>   | <b>641.7</b> |
| <b>Gross premiums</b>   | <b>1,108.2</b> | <b>998.0</b> |

The focus of new sales is on unit-linked schemes and their premiums are almost 83 per cent of the gross premium income. The above table also shows that single premium products are more common than regular premium products. However, the regular premiums are growing steadily while the single premiums are fluctuating more from year to year.

The risk inherent in the life business is first of all related to the with profit technical provisions. When the majority of new contracts are written as unit-linked contracts, the risk will not increase as much as the volume of premiums and total provisions.

In 2017, the investment return was sufficient to cover obligations to policyholders in all interest rate groups and hence the full risk return to shareholders' equity was recognized as income. Risk return on shareholders' equity

together with other main components of life business result are shown in the table Result of Life Insurance, Topdanmark, 2017 and 2016.

### Result of Life Insurance Topdanmark, 2017 and 2016

| EURm                                      | 2017        | 2016        |
|---|-------------|-------------|
| Investment return on shareholders' equity | 14.6        | 9.6         |
| Sales and administration                  | -3.4        | -5.7        |
| Insurance risk                            | 2.3         | 1.7         |
| Risk premium                              | 19.8        | 19.8        |
| <b>Profit on life insurance</b>           | <b>33.4</b> | <b>25.4</b> |

The main risks of Topdanmark Livsforsikring can be summarized as follows:

- Limited loss-absorbing buffers combined with low interest rates environment
- Disability risk
- Longevity risk

Falling interest rates and, in particular, sustained low interest rates along with prolonged lives represent a significant risk

scenario for insurers with guaranteed benefits as there will be a reduction of the individual bonus potentials used for loss absorption.

When an insured event occurs, the effect on the profit will depend on the size of loss absorbing capacity (LAC) of the reserves. When the loss absorbing capacity is higher than the losses, the customers themselves cover the losses.

## Life Insurance Underwriting Risk Control

In general Topdanmark Livsforsikring has continuous focus on the solvency position, the changes in the individual risks and the development of the loss-absorbing buffers. The latter is important because over time it can level out the market and insurance risks within the individual risk groups. Hence, the loss-absorbing buffers are a crucial part of the with profit concept in leveling of yields and claims over time.

The scenario-based Solvency Capital Requirement is calculated quarterly. When deemed necessary, due to market developments, the frequency of calculation is increased and, if necessary, the number and type of scenarios are increased.

Trends in product claim levels are assessed on top of the calculation of the insurance provisions. Profitability models are applied systematically as a follow-up on customer and portfolio levels. This assessment is used to identify price adjustment needs.

### Loss Absorbing Buffers in the Event of Low Interest Rates

Customers' individual and collective bonus potential together creates the loss absorbing buffers in life insurance against any losses incurred by customers on investment activities.

Low interest rates mean that the market value of the guarantees granted is high, and hence the related individual bonus potential is low. The lower the individual bonus potential, the higher the risk of any losses to be absorbed wholly or partially by shareholder's equity. If interest rates are high, the same losses could, to a larger degree, be absorbed by the bonus potential.

Declines in the collective bonus potential are most frequent, due to the investment return being lower than the annual addition of interest to deposits. Declines in collective bonus potential are also possible if interest rates are relatively high.

In order to protect shareholders' equity, in general it will be relevant to reduce market risks in the event of lower interest rates.

All policies have been split into contribution groups according to the guaranteed benefit scheme. For all contribution groups there are separate loss absorbing buffers and hence in each contribution group, the separate investment policy must be in line with risk taking capacity to ensure the ability to meet the guaranteed benefits. Market risk is adjusted continuously in accordance with the risk capacity of the contribution groups, and the movements in interest rates are monitored so that risk reducing actions can be taken when needed.

## Disability

Disability risk is the risk of increased disability intensity or declines in the rates of resumption of work. Losses may incur due to an increase in disability frequency or due to inadequate health evaluation when the policy is written.

Extra costs, due to a permanent change in disability risk, will be partially covered by individual and collective bonus potential. The remainder affects profit/loss for the year and consequently shareholders' equity.

## Longevity

Longevity risk is the risk that customers with life dependent policies, primarily annuities, live longer than expected. That will increase provisions for lifetime products. Extra costs, due to longer lifetimes, will be partially covered by individual and collective bonus potential. The remainder affects profit/loss for the year and consequently shareholders' equity.

Following risk reduction measures and methods are used in

Topdanmark Livsforsikring:

- All policies in the average return environment are divided according to the granted benefit guarantee and the investment policy is organized to ensure the ability to honor the guarantees
- Market risk can be adjusted freely in relation to the individual customer groups' risk capacity
- Normal fluctuations in ROI and risk results in the average interest rate environment are captured by bonus potentials per contribution group
- The individual bonus potentials in the average return environment are protected by cross-border protection
- Reinsurance
- Prices for death and disability are adjusted continuously in relation to the market situation and the observed injury history
- New subscription basis changes as needed
- Establishment of business processes that ensure that the products are sold at the right price / risk mix

The life risk scenarios can be found in the next table.

### Risk Scenarios in Life Insurance Topdanmark, 31 December 2017 and 31 December 2016

#### Risk scenarios

| EURm after taxation and pension return tax | 2017 | 2016 |
|--|------|------|
| <b>Life insurance</b>                      |      |      |
| Disability intensity - 35% increase*       | -1.4 | -1.6 |
| Mortality intensity - 20% decline          | -3.7 | -4.2 |

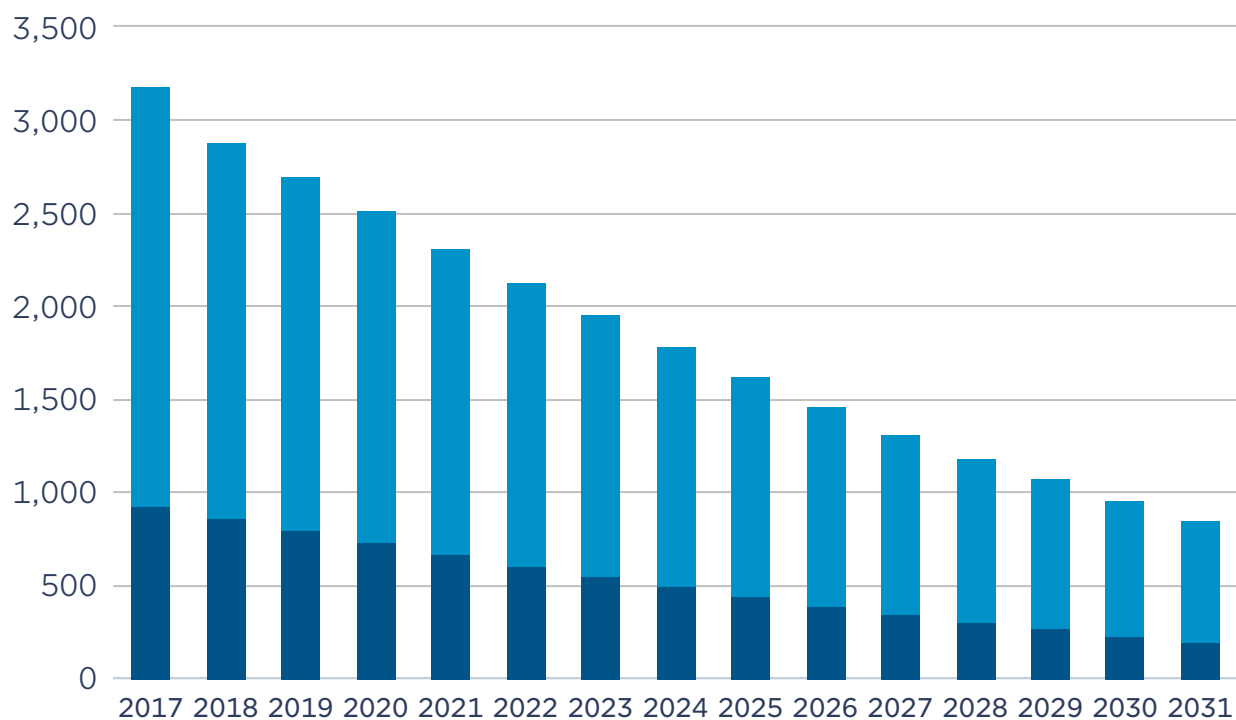
\*35% increase first year, subsequently 25%, coincident with 20% decline in reactivation rates

To monitor effectivity of the above risk reduction methods over time Topdanmark Risk Committee continuously monitors the company's risk profile and reinsurance cover. Also forecasts are followed up.

The run-off profile of the life insurance with profit liabilities shows that the provisions on high guarantees are decreasing. New with profit policies are written, but only with a very low guaranteed accumulated return.

### Forecast of Run-off With-Profit Liabilities Topdanmark Livsforsikring, 31 December 2017 - 31 December 2031

EURm



- With-Profit Liabilities (below 3.5 % guarantees)
- With-Profit Liabilities (3.5% and over 3.5% guarantees)