



# RISK REPORT 2016

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## Risk management

Topdanmark's policy is to hedge against risks arising from the Company's activities or to limit such risks to a level that allows the Company to maintain normal operations and implement its planned measures even in the case of highly unfavourable events in the outside world.

As a consequence of this policy, the Company has, for a number of years, identified and reduced or eliminated those risks which could potentially cause losses exceeding what Topdanmark considers to be acceptable. For example, major strategic shareholdings have been sold, the catastrophe cover for weather-related events or terror has been increased significantly and the risk reduced.

At the end of 2016, Topdanmark's solvency ratio was 174. It is Topdanmark's opinion that, with this level of solvency, the Company will be able to maintain normal operations and implement planned measures even in the case of highly unfavourable events in the outside world such as another collapse in the financial markets as in 2008.

The solvency ratio can be adjusted in accordance with the Board of Director's wishes. For example, the Board of Director's can choose to increase the solvency ratio by reducing capital requirements via a lowering of the Group's investment-related risk profile. An element thereof could be to offer life-insurance customers with guaranteed yield to switch to unit link for which the capital requirement is significantly lower. It is an ongoing consideration process because both risk reducing measures will reduce the profitability of the Topdanmark Group.

Topdanmark's assessment is that the current level of solvency ratio is comfortable in view of the wish for a sound own funds base and satisfactory profitability.

In order to ensure strict control of the overall risk, the exposures are assessed as often as deemed necessary, i.e. daily, monthly, quarterly or in a few cases annually, according to the nature of the exposure.

The Board of Directors determines the overall risk policies and limits. The internal auditors report to the Board of Directors and report on, among other things, the observance of these risk policies and limits.

Topdanmark's risk management function identifies, assesses and quantifies risks. It reports to the Risk Committee, which is responsible for risk policies, risk limits, solvency calculation, capital plans, Topdanmark's own risk and solvency assessment (ORSA), and Topdanmark's partial, internal model for non-life insurance risks. The members of the Risk Committee are the CFO of the Group, the head of the Compliance Function and the heads of the primary risk areas, which are: Asset Management, Statistical Services, Reinsurance, Finance, Life Actuarial Services and Life Finance. The Risk Committee reports and recommends to the Board of Directors via the Executive Board.

The Risk Committee has set up the Model Committee, which is responsible for developing and operating Topdanmark's internal model for calculation of results probabilities and risks of the non-life insurance portfolio based on random simulation. The model is used for, among other things, optimising the reinsurance programme, cost of capital, forecast balancing and calculating capital requirements.

The internal model has been used in solvency calculations in accordance with the Danish solvency rules in force in 2014 and 2015 and has been amended to meet the EU Solvency II-rules, which took effect on 1 January 2016. The Danish Financial Supervisory Authority (DFSA) has approved Topdanmark's internal model to be used in these new EU solvency calculations.

The risk management function implements an annual ORSA process identifying risks in the business, quantifying these risks and collecting them in a risk register. Additionally, the principles of solvency calculation are reviewed, and the risk management process is updated. An ORSA report has been prepared, which, together with the risk register and risk management process, was considered at a Board seminar in the autumn of 2016.

The risk management function has addressed the new rules for solvency calculation, reporting etc. of the Solvency II Directive to ensure that Topdanmark meets this set of rules.

## Results and important changes in risk profile 2016

In 2016, no important changes in Topdanmark's business have occurred.

Results DKKm	2015	2016
Topdanmark Group	1,170	1,536
Topdanmark Forsikring A/S	1,148	1,506
Topdanmark Liv A/S	108	179
Nykredit Liv A/S	4	4

Changes in the companies' results have not significantly affected the companies' risk profiles.

The Executive Board in Group and Topdanmark Forsikring A/S has been expanded from 3 to 4 members with a view to promoting development within primarily digitalisation and efficiency improvement. The increased focus on digitalization and increased efficiency is partly to ensure better competitiveness in future and partly to ensure the retention of satisfactory profitability.

There are no new significant risk elements in 2016.

## Overview

Topdanmark believes that the Group's most important risks relate to the following main areas:

- Non-life insurance
- Life insurance
- Market
- Operational
- Counterparty
- Compliance
- Strategic.

The most important risks are described in the following survey. A more detailed description is available under [Risk factors](#) on page 6.

## Risk overview – Topdanmark Group

<b>Non-life insurance risks</b>		
Personal, liability and property insurance for the personal, SME and agricultural markets.		
<b>Most important risks</b>	<b>Risk preferences</b>	<b>Risk reducing activities</b>
<p>Underwriting risk</p> <ul style="list-style-type: none"> <li>• Acceptance policy</li> <li>• Follow-up policy.</li> </ul> <p>Provisioning risk</p> <ul style="list-style-type: none"> <li>• Provisions for outstanding claims</li> <li>• Provisions for unearned premiums.</li> </ul> <p>Disaster risks</p> <ul style="list-style-type: none"> <li>• Storm and rainstorm</li> <li>• Fire</li> <li>• Terror</li> <li>• Workers' comp.</li> </ul> <p>Cumulative risk.</p>	<p>Profit on both product and customer level.</p> <p>Spread of risk on different types of insurance/customer groups.</p> <p>Limited effect on results from individual claims events by means of reinsurance.</p>	<p>Risk-based price models allowing for market situation.</p> <p>Clear rules for new business.</p> <p>Risk equalisation through extensive reinsurance programme.</p> <p>Systematic follow-up on profitability.</p> <p>High data quality.</p> <p>Use of statistical models for pricing and calculation of provisions.</p>

<b>Life insurance risks</b>		
Life insurance contracts with bonus entitlement, unit-linked contracts with no investment guarantees and group life.		
<b>Most important risks</b>	<b>Risk preferences</b>	<b>Risk reducing activities</b>
<p>Limited loss-absorbing buffers in the event of low interest rates.</p> <p>Disability, which is the risk of increasing disability intensity or declines in the rates of resumption of work.</p> <p>Lifetime, where customers with life dependent policies live longer than expected.</p>	<p>For agreements with bonus entitlement, we aim at balancing return and risk so that ordinary risks are covered by the related bonus potential.</p> <p>The calculation of profit is viewed as a risk return on shareholders' equity where fluctuations are adjusted via bonus potential.</p>	<p>All policies are classified by the guaranteed benefit, and the investment policy is intended to ensure the ability to meet the benefits guaranteed.</p> <p>The market risk is freely adjustable in relation to each customer group's risk capacity.</p> <p>Normal fluctuations in investment return and risk results are provided for by the bonus potential per contribution group.</p> <p>Individual bonus potential is protected by loss participation schemes.</p> <p>Disaster reinsurance.</p> <p>In all interest groups, movements in interest rates are followed and risk reducing actions are performed as required.</p> <p>Prices relating to death and disability are regularly adjusted to the market situation and the observed claims record.</p> <p>The basis of new business is changed as needed.</p>

<b>Market risks</b>		
<b>Most important risks</b>	<b>Risk preferences</b>	<b>Risk reducing activities</b>
<p>Interest rate risk</p> <p>Equity risk</p> <p>Property risk</p> <p>Credit spread risk</p> <p>Concentration risk</p> <p>Currency risk</p> <p>Inflation risk</p> <p>Liquidity risk.</p>	<p>Topdanmark's policy is to accept a certain level of market risk in order to profit from the Group's strong liquid position and its high, stable earnings from insurance operations.</p> <p>In order to improve the average investment return and limit the overall market risk, Topdanmark invests in a wide range of asset categories.</p>	<p>Topdanmark's Board of Directors has set limits on the acceptance of market risks in the form of risk limits and scenario based requirements on the overall maximum loss.</p> <p>Compliance with these limits is checked regularly.</p>

<b>Counterparty</b>		
<b>Most important risks</b>	<b>Risk preferences</b>	<b>Risk reducing activities</b>
Reinsurance	To obtain efficient and secure reinsurance cover which is price competitive, a certain level of counterparty concentration is required.	Counterparty risk is limited by mainly buying hedging from reinsurance companies which, as a minimum, have a rating of A-.
Investment	A certain level of counterparty risk is accepted as an element of generation of return.	Counterparty risk is limited by diversification both geographically and in terms of type of debtor.  Counterparty risk on financial contracts is limited by the required security when overall risk on any given counterparty reaches a relatively low threshold value.

<b>Operational risks</b>		
<b>Most important risks</b>	<b>Risk preferences</b>	<b>Risk reducing activities</b>
IT	Generally, operational risks are to be reduced to an acceptable level.	Group IT security function.
Errors in internal processes, human errors insurance fraud and deceit.		Risk assessment, Information security policy, prioritisation of risks, guidelines, controls and IT Emergency plans based on ISO27001.  IT Security Committee/Cyber Security Board.  Policy for routines, process descriptions, controls and division of duties.  Special department for insurance fraud and deceit.  Event register.  Digitalisation/automation.

<b>Compliance</b>		
<b>Most important risks</b>	<b>Risk preferences</b>	<b>Risk reducing activities</b>
Insufficient knowledge of current or future legislation and rules.	Generally, the area of compliance risks is to be reduced to an acceptable level.	The Compliance Function issues rules for identification, management and control of compliance risks.
Violation of legislation and rules.		The Compliance Function exercises control and provides advice to ensure that the Group's business sectors and administrative departments observe relevant legislation and internal rules.

<b>Strategic risks</b>		
<b>Most important risks</b>	<b>Risk preferences</b>	<b>Risk reducing activities</b>
Generally, strategic risks are related to the Company's business model, political conditions, reputation, alliance partners' and competitors' behaviour as well as macroeconomic conditions.	Low strategic risk due to strong business model.	Topdanmark's business model stands strong against strategic risks. The results of the Company will, with a very high degree of probability, be positive even in the event of another collapse in the financial markets as in 2008. The Company's result will also be positive if it is hit by a storm like the 1999-hurricane, which was the largest storm event in the Company's history.

## Risk factors

The following description of risks for the Topdanmark Group provides more details of "Risk overview – Topdanmark Group" on pages [4-5](#).

## Non-life insurance

### Underwriting risk

#### Acceptance policy

Topdanmark's acceptance policy is based on a desire to make a profit from both products and customers. Topdanmark varies the pricing of its products, depending on the relevant risk criteria and the costs of administering those products.

Topdanmark's pricing has been aligned with the individual markets and types of customers. In the personal and commercial markets, prices are mostly based on standardised rates while major commercial and industrial customers are offered more individualised charges.

Danish insurance companies do not cover damage arising from floods or the cost of replanting forests following storms, industrial diseases, war or warlike acts, earthquake or other natural disasters and with certain exceptions damage due to nuclear energy or radioactivity.

#### Follow-up policy

In order that both products and customers are profitable, Topdanmark systematically acts upon changes in its customer portfolios.

Customer scoring is used in the personal market. The customers are divided into groups according to the expected level of profitability. The customer scoring helps ensure the balance between each customer's price and risk. This intends to ensure that no customer pays too much to cover losses on customers who pay too little.

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

Rates are revised regularly.

Provisions are generally calculated on a monthly basis across all lines of business. The claims trend is assessed monthly, followed up by any necessary price changes.

Topdanmark continues to improve its administration systems to achieve more finely meshed data capture, 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.

## Claims handling

In order to ensure uniform and efficient claims handling, Topdanmark has grouped handling of all types of claims into one operational unit.

The handling of claims is intended to make the customers feel "well-helped" while at the same time ensure efficient management and control of the claims incurred.

### Customers should feel "well-helped"

Topdanmark works to ensure that its customers feel "well-helped" in every situation during the claims handling process. It is crucial for the customers' experiences that:

- The customer feels LISTENED TO
- The customer has an OVERALL VIEW of the entire claims process – particularly who is doing what and when
- The customer is CONFIDENT that Topdanmark helps the customer to solve the claims problem.

Customers' satisfaction with visits and telephone and internet contact is monitored daily to act immediately on each dissatisfied customer enabling us to help the customer and also to learn from the incident.

### Efficient management of claims incurred

Topdanmark continuously focuses on making its claims handling processes more efficient under the following three main headings:

- Promptness
- Better replacement purchasing power
- Quality.

#### Promptness

It is important to promptly obtain an overall impression of the size of a claim, implement any damage controlling actions and/or commence the repair. Prompt attention not only reduces the compensation paid but also provides a better experience for the customer.

Typically, the claims department operates with day-to-day management of claims notifications and other claims handling in order that the value of the claim does not increase. Customers increasingly undertake notification of claims online. Turnaround times are continuously monitored.

#### Better replacement purchasing power

The claims department's purchasing power in terms of replacement products and services provides financial advantages for customers and shareholders alike.



The responsibility for arranging co-operation and purchase agreements has been channelled into one centralised purchasing function to ensure the highest possible discount, quality and security when delivering products and services. Service agreements have been made with, for example, SOS International, Falck Health Care, Scalepoint, Bygma, a range of tradesmen, garages and damage service companies.

### Quality

Topdanmark has developed routines for all significant claims processes to ensure that they are handled in a uniform and controlled manner. These are supplemented by rules governing the level of professional and financial competence expected of each of the claims employees.

The overall professionalism is checked by regular quality assessment of a random sample of claims. For example, it is investigated whether the cover, reason for the claim and provisioning are correct, the recourse possibilities have been tested and that the excess, VAT etc. have all been charged.

### Claims handling supported by Topdanmark's claims handling system

Topdanmark's claims handling system supports professional accuracy, and Topdanmark continuously works to optimise its systems in order to improve the claims handling processes through automation.

The claims organisation works with the version of the Lean concept used by the service organisations, based on the customer's needs and focusing on providing the right help in the first contact with the customer. Besides improved customer satisfaction, the correct assessment of the damage also reduces the claims handling time and the average compensation.

### Emergency plan

Topdanmark has an emergency plan to ensure that prompt, correct and targeted action is taken on a major weather event such as storm, hurricane, rainstorm or flood. The emergency programme consists of several levels, and this enables a proportional response depending on the size of the event. Topdanmark has appointed emergency helpers throughout the company whose claims handling knowledge is regularly kept up-to-date. Furthermore, alert drills are held twice a year in order to prepare the employees and improve the emergency programme.

### Loss prevention and loss limitation

Topdanmark focuses on loss prevention and loss limitation. The main objective is to incline customers towards pro-active risk handling so that they themselves can keep abreast of reducing their vulnerability. By doing this, Topdanmark ensures security for the customer and also reduces its own risk.

### Provisioning risk

#### Provisions for outstanding claims

Traditionally, the insurance classes are divided into short-tail i.e. those lines where the period from notification until settlement is short and long-tail those lines where the period from notification until settlement is long.

Examples of short-tail lines are building, personal property and comprehensive motor insurance. Long-tail lines relate to personal injury and liability such as workers' compensation, accident, third party insurance and commercial liability.

Composition of Topdanmark's overall provisions for outstanding claims:

Provisions for outstanding claims (%)	2015	2016
Short-tail	13	13
Annuity provisions in workers' compensation	23	24
Other claims provisions in workers' compensation	25	23
Accident	24	26
Motor personal liability	12	11
Commercial liability	4	4

The much higher provisioning risk in long-tail than in short-tail lines is due to the longer period of claims settlement. It is not unusual that claims in long-tail lines are settled three to five years after notification and in rare cases up to 10-15 years.

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 award of damages

adopted by, for example, the Danish Labour Market Insurance which awards 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, primarily statistical material from the Danish Labour Market Insurance and the Danish Road Sector/Road Directorate.

The actuarial team is in constant dialogue with the claims departments on any changes in the practices stemming from new legislation, case law or compensation awards as well as the impact of such changes on the routines used to calculate individual provisions.

#### **Provisions for unearned premiums**

The risk on provisions for unearned premiums is relevant particularly within lines with a combined ratio at par or over 100, e.g. change of ownership, workers' compensation and motor liability insurance, where the level of premiums is insufficient to cover the related expenses.

Worker's compensation and motor liability insurance typically cover a period of 1 year, while change of ownership covers, and the full five or ten-year payment is made up front.

Provisions for unearned premiums are based on the latest forecast for the 12 months ahead.

The forecast is prepared on the basis of quarterly analyses of premium, claims and cost development, and for change of ownership, on statistical analyses of the claims notifications pattern in relation to policy inception date.

#### **Disaster risks**

Topdanmark limits its insurance risk on significant events through a comprehensive reinsurance programme.

#### **Storm and rainstorms**

Reinsurance covers storm claims of up to DKK 5.1bn with a retention of DKK 100m. Snow loading, snow thawing and rainstorms are also covered. Reinstatement for the proportion of the cover used up is activated by payment of a reinstatement premium. In the event of another storm within the same year, there is cover of a further DKK 5.1bn with a retention of DKK 100m. In the event of a third and fourth storm, there is cover of up to DKK 670m with a retention of DKK 20m if the events occur within the same calendar year. To this should be added the cover not already hit twice by the first two storms. The cover of a third or fourth storm is dependent on the storm programme not having been hit previously by two individual storms each exceeding DKK 3.3bn. The storm programme is renewed on 1 July.

Specific reinsurance cover of DKK 100m for rainstorms takes effect if accumulated annual rainstorm claims exceed DKK 50m. For a claim to be accumulated, the event must exceed DKK 10m. The maximum retention in the event of an extreme rainstorm is DKK 75m plus reinstatement premiums.

#### **Fire**

Topdanmark has a proportional reinsurance programme for fire with a maximum retention of DKK 25m per claim on any one business.

#### **Terror**

With certain restrictions, terror is covered by the reinsurance contracts.

A national guarantee scheme of DKK 15bn covering terror claims including an element of NBCR (nuclear, biological, chemical, radiological) has been established. In 2016, the national guarantee scheme covered any market retention in excess of DKK 13.73 bn. With effect from 1 January 2017, the market retention will be reduced to DKK 9.9 bn.

The Danish non-life companies have established a terror pool. In 2016, the terror pool bought reinsurance which covered DKK 5,425 bn. after DKK 500 bn. In 2017, reinsurance will cover 4.5 bn. after 0.5 bn. Industrial injuries caused by any form of terror are covered by the state with a few exceptions.

#### **Workers' compensation**

In workers' compensation, up to DKK 1bn is covered with a retention of DKK 50m.

## **Cumulative risk**

Known cumulative risk is where it has been recognised prior to the event that several policyholders could be affected by the same event. In personal lines, Topdanmark's retention is DKK 15m for the first claim, DKK 5m for the second and DKK 15m for any third or subsequent risk. The retention is a maximum of DKK 25m in the SME line. Unknown cumulative risk is where several policyholders could be affected by the same individual event (conflagration damage) without the common risk being recognised prior to the event occurring. The retention is a maximum of DKK 50m.

## **Life insurance**

### **Loss absorbing buffers in the event of low interest rates**

Customers' individual and collective bonus potential is 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 that the related bonus potential is low. The lower the bonus potential, the higher the risk of any losses being wholly or partially born 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 frequently due to the investment return being lower than the 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, it will be relevant to reduce market risks in the event of low interest rates.

All policies have been split into contribution groups according to the guaranteed benefit scheme. In each contribution group, the investment policy is intended 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 increasing disability intensity or declines in the rates of resumption of work, in that the benefits have been guaranteed until expiry. Losses may be incurred 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.

## **Lifetime**

Lifetime 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.

## **Market**

Market risk represents the risk of losses due to changes in the market value of the Group's assets, liabilities and off-balance items as a result of changes in market conditions. Market risk includes interest rate, equity, property, currency, inflation and liquidity risk. The limits for these financial risks are fixed by Topdanmark's Board of Directors. In practice, Topdanmark Kapitalforvaltning (Asset Management) handles the investment, finance and risk alignment processes. Compliance with the limits set by the Board of Directors is regularly checked. The result of this is reported to the Board of Directors.

Market risks	Risk reducing activities
<p><b>Interest rate risk</b> Topdanmark is exposed to interest rate risk due to provisions for outstanding claims in non-life insurance and guaranteed benefits in life insurance.</p>	<p>Generally, the interest rate risk is limited and controlled by investing in interest-bearing assets in order to reduce the overall interest rate exposure of the assets and liabilities to the desired level.</p> <p>With regard to cover of interest-bearing assets, supplementary hedging by swaps and standard swaptions have been bought.</p>
<p><b>Equity risk</b> Topdanmark is exposed to equity risk from direct investments as well as investments made via derivatives.</p>	<p>The equity risk is alleviated by trades in the market and by derivatives.</p>
<p><b>Property risk</b> Topdanmark is exposed to property risk from investments in properties rented out for business or private residence.</p>	<p>The risk on the property portfolio is limited by a strategy focusing on the four largest cities in Denmark, with main emphasis on Copenhagen and Århus. Topdanmark invests in well-situated properties within the segments of housing and flexible office properties.</p>
<p><b>Credit Spread risk</b> Topdanmark is exposed to credit spread risk from bonds and other investments where prices are dependent on counterparty creditworthiness.</p>	<p>The credit spread risk is alleviated by focusing on bonds etc. with very high creditworthiness and by a spread on counterparties.</p>
<p><b>Concentration risk</b> Concentration risk is a risk that increases when investments are consolidated with individual issuers, whereby dependence on these issuers' solvency grows.</p>	<p>The concentration risk is limited by ensuring that investment size reconciles with counterparty creditworthiness.</p>
<p><b>Currency risk</b> Topdanmark's currency risk relates in practice only to investments.</p>	<p>The currency risk is alleviated by derivatives.</p>
<p><b>Inflation risk</b> Future inflation is implicitly included in a number of the models Topdanmark uses to calculate its provisions.</p> <p>Workers' compensation and illness/accident insurance differ from the general principles regarding the inclusion of an allowance for inflation. The provisions in workers' compensation insurance are calculated on the basis of the expected future indexation of wages and salaries, and those in illness/accident insurance on the basis of the expected net price index.</p>	<p>An expected higher future inflation rate would generally be included in the provisions with a certain time delay, while at the same time the result would be impacted by higher future indexation of premiums.</p> <p>In order to reduce the risk of inflation within workers' compensation and illness/accident insurance, Topdanmark uses index-linked bonds and derivatives hedging a significant proportion of the expected cash flows.</p>
<p><b>Liquidity risk</b> In insurance companies the liquidity risk is very limited as premiums are paid prior to the beginning of the risk period.</p> <p>Topdanmark's liquidity risk is therefore primarily related to the parent company.</p>	<p>Topdanmark finances its activities and share buy-back programme by using its subsidiaries' surplus liquidity via inter-group accounts, which are reduced by paying dividends.</p> <p>Further financing requirements are covered by short-term money market loans, typically with a maturity of one month or less.</p>

The liabilities of the Group's insurance companies are primarily technical provisions on which the payment

obligation is met by means of the cash flow from operations.

Undiscounted expected cash flow for the Group's most significant liabilities:

(DKKm)	Book value	1 year	2-6 years	7-16 years	17-26 years	27-36 years	>36 years
Provisions for claims							
2015	13,121	3,869	5,788	3,054	1,318	534	135
2016	13,209	4,045	5,153	2,841	1,272	552	174
Life insurance provisions guarantees and profitsharing							
2015	22,557	960	2,128	6,905	8,013	5,178	2,231
2016	24,465	2,444	6,783	9,673	4,585	2,088	0

In cashflows for life insurance provisions, repurchase and rewrite to paid-up policies are included in 2016. Comparative figures for 2015 have not been adjusted.

Life insurance provisions for unit-linked products are covered by corresponding investment assets and therefore not stated in the table.

The Group uses derivatives to hedge investment risks. The hedging of currency risk in particular often results in significant positive or negative changes to balance sheet values.

Topdanmark pays or receives cash security for any changes in value. The extent of these daily changes is limited such that there is no challenge to liquidity.

Generally, there are no maturity concentrations on derivative contracts.

The Group's insurance companies may raise money market loans as part of the day-to-day liquidity management. Typically, the maturity of such loans is less than a month. Both the subordinated loans raised by Topdanmark Forsikring and any outstanding money market loans will be repaid from the cash generated from operations.

Furthermore, the Group has a significant liquidity base of high-quality liquid bonds.

## Counterparty risk

Counterparty risk, also known as credit risk is the risk of losses caused by one or more counterparties' full or partial breach of their payment obligations. Topdanmark is exposed to credit risk in both its insurance and investment business.

## Reinsurance

Within insurance the reinsurance companies' ability to pay is the most important risk factor. Topdanmark minimises this risk by spreading and primarily buying reinsurance cover from reinsurance companies with a minimum rating of A-. Accordingly, almost all of its storm cover has been placed with such reinsurance companies.

## Investment

Topdanmark's investment risk is the inability of bond, loan or financial contract counterparties to meet their obligations. Most of Topdanmark's interest-bearing assets comprise Danish mortgage bonds and debt issued or guaranteed by top-rated European states. The risk of losses is considered to be very small due to the high quality of the issuers and a desired spread on both issuers and issues. To limit the risk on other bond and loan debtors, the portfolio is well diversified both geographically and with regard to type of debtor - and therefore the exposure to the concentration of risks is insignificant.

Interest-bearing assets by rating (%)	2015	2016
AAA+AA	71	78
A	6	3
BBB	2	0
<BBB	9	13
Money market deposits	12	7

To limit the counterparty risk of financial contracts, the choice of counterparties is restrictive, and security is required when the value of the financial contracts exceeds the predetermined limits. The size of the limits depends on the counterparty's credit rating and the term of the contract.

## Operational risk

Operational risk includes the risk of errors and deficiencies in internal processes, human errors, system errors, breakdowns of IT systems and losses incurred due to external events.

Topdanmark regularly develops and improves IT systems, routines and procedures. The responsible business units are also responsible for the risk management of this development.

Projects are to carry out a risk assessment with a description of the risks, possible consequences and measures to limit these risks.

## **IT**

Group IT Security, reporting to the IT manager, is responsible for information security.

### **Risk assessment**

Risk assessments of each operational IT risk are made regularly. Group IT Security reports on risks and events to the Compliance Function on a quarterly basis.

Topdanmark's risk assessment, information security policy, prioritisation of risks and IT Emergency strategy, are based on IS027001, revised each year and approved by the Board of Directors.

### **Cyber-crime risk**

The general threat from cyber-crime is increasing. In general, Topdanmark handles the risk via an IT Security Committee/Cyber-Crime Board that regularly assesses the threat and the measures necessary to secure the required security level.

### **IT Emergency plan**

The IT Emergency plan includes plans for re-establishing the IT environment if the systems suffer breakdowns. The IT Emergency plan is tested regularly. Topdanmark's business critical systems can be inaccessible for 24 hours without causing significant business problems. In order to reduce the probability of breakdowns of the IT systems and limit their duration, Topdanmark has invested in, for example, emergency power plants with a diesel generator, disk mirroring, alarms and automatic firefighting equipment. Critical IT equipment is in duplicate and placed in two physically separate machine rooms; another copy is placed with an outsourcing partner.

### **Tests**

The implementation of new IT systems is only effected after extensive testing procedures.

Periodically, Topdanmark's critical IT systems are tested to see if they can be compromised from outside and whether the IT systems have vulnerabilities that need to be repaired.

These tests are made by an external company with special expertise in this area. Topdanmark's IT Security Committee discusses and prioritizes the performance and results of the tests.

### **Accessibility**

It is Topdanmark's goal that the accessibility of its main systems is no less than 99.5%. In 2016, the mainframe platform had an average accessibility level of 99.86%, while average accessibility of the de-centralised systems was a little lower because they are dependent on the mainframe platform.

### **Errors in internal processes, human errors, insurance fraud and deceit**

Topdanmark's well-documented routines, procedures and efficient control environment minimise these risks. It has made emergency plans for the most significant areas.

### **Internal audit**

The routines and procedures in all critical areas are regularly checked by the auditors in order to assess the risks and recommend measures to limit each individual risk.

### **Central Claims**

Central Claims is a minor department solely dealing with cases where fraud is suspected. Topdanmark believes that honest customers should not have to pay for the dishonest customers. Therefore, we owe it to our customers to examine any suspicion of insurance fraud.

### **Event register**

According to Executive Order on management and control of insurance companies (the Section 71 Executive Order), Topdanmark shall monitor and report on operational risks. Therefore, Topdanmark should have a process and a tool to register events. Accordingly, the events are collected in a database and communicated onwards in the management system, when and if relevant, in order that the organisation learns from its mistakes.

### **Digitalisation/automation**

Topdanmark is working continuously on digitalisation and automation to ensure efficient business and a good customer experience. Focus is on automation of a number of processes, which will help to reduce the risk of human error.

## Compliance risk

At Topdanmark, compliance comprises compliance with all statutory and managerial requirements for Topdanmark's corporate governance.

Compliance risk is the risk that Topdanmark does not have sufficient knowledge of current or future rules. Additionally, compliance risk is the risk of violation of rules and the losses this might cause Topdanmark and Topdanmark's customers. Such losses can be direct financial losses or indirect losses in the form of sanctions or bad publicity as a consequence of not acting in accordance with the rules.

Rules comprise all rules, internal rules of Topdanmark's policies and the relevant guidelines as well as all relevant legislation and its sub rules. Furthermore, rules comprise fixed trade practices for the performance of activity in Topdanmark.

Accordingly, compliance comprises compliance with the rules which are necessary and required to ensure that Topdanmark's business is conducted in an appropriate and, in terms of business, proper way. Documentation of compliance for Topdanmark's stakeholders is part of compliance.

### Compliance Function's work

The Compliance Function is intended to:

- issue rules for identification, management and control of compliance risks
- exercise control and advise the Group on compliance with legislation and internal rules.

Topdanmark's Compliance Function exercises control and provides advice to ensure that the Group's business sectors and administrative departments comply with relevant legislation and internal rules. The Compliance Function's work is part of Topdanmark's overall control environment, which comprises the procedures, control and organisation ensuring observance of rules.

The Compliance Function's work comprises the following principal tasks:

- Compliance reviews and annual status meetings with all of the Group's business sectors and administrative departments
- Reporting on compliance risks to the Executive Board and the Board of Directors
- Administration and updating of the Compliance Function's routines and tools.

### Event register

The Compliance Function administers Topdanmark's event register.

## Risk scenarios

The Group's risk factors are illustrated in the following table on the most significant risk factors. The given assumptions do not reflect Topdanmark's expectations, but are shown only as examples which could be used as a basis for assessing the Company's exposure to the risks mentioned.

Risk scenarios (DKKm) after taxation and pension return tax			
		2015	2016
<b>Non-life insurance</b>			
Underwriting risk			
Combined ratio – 1pp increase		(69)	(69)
Provisioning risk			
Provisions on own account – 1% increase		(96)	(98)
Storm claims up to DKK 5,100m (Plus reinstatement premium etc.)		(77)	(78)
<b>Life insurance</b>			
Disability intensity - 35% increase*		(7)	(12)
Mortality intensity - 20% decline		(33)	(31)
<b>Market risk</b>			
Interest-bearing assets	1 pp increase	(431)	(592)
Provisions for claims and benefits etc.	in effective interest rate	465	672
Index-linked bonds	5% loss	(27)	(36)
Equities	10% loss	(80)	(82)
CDOs < AA	10% loss	(49)	(53)
Properties	10% loss	(127)	(124)
Annual currency loss with an up to 2.5% probability		(19)	(21)

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

## Solvency capital requirements

Solvency II took effect on 1 January 2016. Solvency II introduced new common EU rules on the calculation of solvency capital requirements and solvency capital.

An important goal of Solvency II is to promote good risk management based on market values and actual risk calculations. Solvency II includes a standard model for calculation of solvency capital requirements, which will be common to all insurance companies in the EU. Although the model provides the opportunity for company-specific values for some variables, the standard model will not provide a fair view of all the risk elements of all companies.



Therefore, Solvency II gives the companies the opportunity to fully or partially use their own internal risk model also for the solvency calculation. Topdanmark uses a partial internal model it has developed in-house to calculate the non-life risk. This model, approved by the DFSA, for calculating non-life risks in Topdanmark's solvency calculations.

The DFSA has permitted Topdanmark to use the volatility adjusted Solvency II interest rate curve.

Application of Topdanmark's internal model for non-life insurance means that the capital requirement is DKK 800m lower than if Topdanmark only used the standard model for calculation of solvency capital requirements.

In 2016, no important changes in valuation principles for calculation of accounts, solvency requirements and solvency capital requirements have been made.

Solvency and capital requirements DKKm	Capital requirement		Capital base	
	1-Jan-2016	31-Dec-16	1-Jan-2016	31-Dec-16
Topdanmark Group	3,193	3,643	6,943	6,348
Topdanmark Forsikring A/S	2,710	2,650	5,714	5,792
Topdanmark Liv A/S	1,227	1,659	4,167	3,487
Nykredit Liv A/S	46	43	120	126

### Solvency capital base

In 2016, a larger subordinated loan capital amount than previously is recognised. In 2016, all of the Topdanmark Group's hybrid capital and subordinated loans are included in solvency capital base.

The solvency capital base is calculated on the basis of shareholder's equity with bonuses and rebates, of which the most important are as follows:

Shareholders' equity
+ Hybrid Capital
+ Subordinated loans
+ Deferred tax on security fund
+ Profit margin
- Approved share buy-back
- Intangible assets
- Tax effect
<b>= Own funds</b>

In 2016, insurance holding companies have been subject to the same solvency rules and methods of calculation as those for insurance companies. A group calculation for solvency capital requirements and solvency capital has therefore been made for Topdanmark A/S in 2016 in accordance with Solvency II rules.

### Capital model

Topdanmark pursues a policy of keeping its shareholders' equity at a relatively low level. Any amounts in excess of the conservatively estimated shareholders' equity considered necessary to support the underlying business, are paid out to shareholders by way of buy-back of own shares.

Information about Topdanmark's capital structure model and model for calculation of share buy-back potential is available on [www.topdanmark.com](http://www.topdanmark.com) → Investor → [Capital model](#)

