

Despite a challenging year, Swiss Re maintained a very strong capital position. Controlled risk-taking and active capital management underpin our financial strength.

Overview

Our capital strength enables us to respond to market developments.

Despite large industry losses, we remained strongly capitalised. This reflects our efficient capital allocation and effective risk governance and steering approach throughout the Group.



David Cole
Group Chief Financial Officer



Patrick Raaflaub
Group Chief Risk Officer

“Our capital position is very strong and we continue to have ample financial flexibility.”

“Our risk appetite framework forms the basis for controlled risk-taking and protects our financial strengths.”

Capitalisation

Swiss Re maintained a very strong capital position during 2017 despite a challenging year. This allowed us to allocate capital to potential market opportunities while continuing to distribute excess capital to our shareholders. The Group's Swiss Solvency Test ratio remains comfortably above Swiss Re's respectability level of 220%. Rating agencies A.M. Best, Moody's and Standard & Poor's (S&P) rated Swiss Re's financial strength 'superior', 'excellent' and 'very strong', respectively (see page 72).

Our overall goal for capital management is to maintain a capital structure that operates efficiently within constraints imposed by regulators and requirements from rating agencies as well as maximises our financial flexibility. Our underwriting and investment decisions are steered to make capital and liquidity fungible to the Group wherever possible, while complying with local regulations and client needs. Cash dividends paid to the Group's parent holding company, Swiss Re Ltd, totalled USD 22.4 billion since 2012.

As part of the Group's target capital structure, Swiss Re created further financial flexibility by establishing a USD 750 million pre-funded truly perpetual subordinated debt facility that has a fixed credit spread for life (see page 70).

Based on the Group's capital strength, the Board of Directors proposes a 2017 regular dividend of CHF 5.00 per share. In addition, the Board of Directors proposes a public share buy-back programme of up to CHF 1.0 billion purchase value, commencing at the discretion of the Board of Directors after the AGM's approval.

Liquidity

Our core insurance and reinsurance operations generate liquidity primarily through premium income. Our exposure to liquidity risk stems mainly from two sources: the need to cover potential extreme loss events and regulatory constraints that limit the flow of funds within the Group.

The amount of liquidity held is largely determined by internal liquidity stress tests, which estimate the potential funding requirements stemming from extreme loss events. Based on these internal liquidity stress tests, we estimate that the Swiss Reinsurance Company Ltd liquidity pool, the primary liquidity pool of the Group, currently holds significant surplus liquidity.

Swiss Re also provides FINMA with a yearly report on its liquidity position, in accordance with FINMA's circular 13/5, "Liquidity – Insurers".

Risk Management

Group Risk Management is key to the controlled risk-taking that underpins our financial strength. Risk Management is mandated to ensure that the Group and the legal entities have the necessary expertise, frameworks and infrastructure to support good risk-taking. In addition, it monitors and ensures adherence to applicable frameworks and also performs reserving and reporting activities.

Risk Management is embedded throughout our business. We have dedicated Chief Risk Officers and risk teams for all major legal entities and regions. These are closely aligned to Swiss Re's business structure, in order to ensure effective risk oversight, but remain part of our Risk Management function under the Group CRO, thus ensuring their independence as well as a consistent Group-wide approach to overseeing and controlling risks. They are supported in this by central risk teams that provide specialised risk expertise and oversight.

The Group's risk-taking is steered by our Risk Appetite Framework, which consists of two interlinked components: risk appetite and risk tolerance. The risk appetite statement facilitates discussions

about where and how Swiss Re should deploy its capital, liquidity and other resources under a risk-return view, while the risk tolerance sets clear boundaries to risk-taking.

Our proprietary integrated risk model provides a meaningful assessment of the risks to which the Group is exposed and represents an important tool for managing our business. It determines the capital requirements for internal purposes and forms the basis for regulatory reporting under the Swiss Solvency Test (SST) and under Solvency II for our legal entities in continental Europe. With the approval of our internal model under FINMA's revised process, we achieved a key milestone in 2017.

We continuously review and update our internal model and its parameters to reflect our experiences and changes in the risk environment and current best practice.

Swiss Re's risk profile in 2017

During 2017, Swiss Re's overall risk remained broadly stable at USD 19.7 billion (compared to USD 19.5 billion at the end of 2016), as an increase in insurance risk was largely offset by lower financial market and credit risk.

Property and casualty risk increased, mainly driven by the strengthening of major currencies against the US dollar as well as an increase in property reserves following the 2017 natural catastrophe events. Natural catastrophe exposures decreased overall as a result of the Group's active cycle management.

The increase in life and health risk was driven in particular by the appreciation of major currencies against the US dollar and lower interest rates, as well as higher lethal pandemic and critical illness exposure.

The decrease in financial risk was mainly driven by a lower credit spread and lower credit risk.

Capital management

Superior capitalisation despite a challenging year.

Despite the large industry losses from natural catastrophe events, Swiss Re has remained strongly capitalised throughout 2017, allowing us to respond to potential market developments while continuing to repatriate excess capital to our shareholders.

Superior capitalisation despite severe events

Swiss Re's policy of ensuring superior capitalisation at all times has meant that even in the face of large insurance claims from the 2017 natural catastrophe events, we maintain a very strong capital position and high financial flexibility. Our financial strength enables us to respond to potential market developments in the aftermath of such severe events and to stay committed to creating long-term shareholder value.

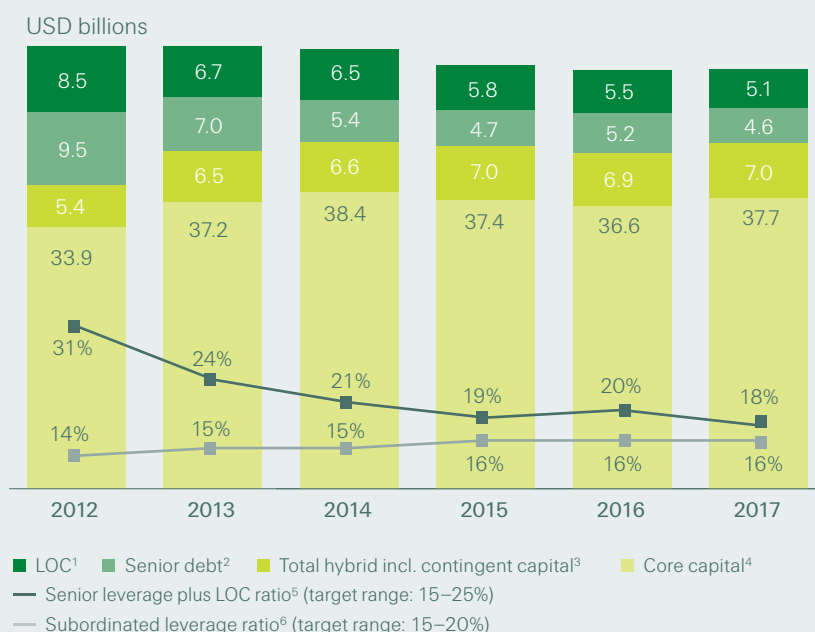
Key achievements in 2017

In June 2017, Swiss Re Ltd established a USD 750 million truly perpetual pre-funded subordinated debt facility that has a fixed credit spread for life providing the Group with a permanent source of 'on-demand' non-dilutive capital irrespective of market conditions at the time. This is our fourth pre-funded subordinated debt facility, bringing the total amount of such facilities to USD 2.65 billion, further enhancing the Group's financial flexibility while increasing its resilience.

Swiss Reinsurance Company Ltd redeemed three subordinated debt instruments totalling USD 0.9 billion on their first call date and further reduced senior leverage by USD 1.0 billion due to maturities.

The Group capital structure is comfortably within the senior leverage (15–25%) and subordinated leverage (15–20%) target ranges, providing further financial flexibility.

TARGET LEVERAGE MAINTAINED



¹ Unsecured LOC capacity and related instruments (usage is lower).

² Senior debt excluding non-recourse positions.

³ Includes SRL's pre-funded dated subordinated debt facilities and contingent capital instruments accounted for as equity.

⁴ Core capital of Swiss Re Group is defined as economic net worth (ENW).

⁵ Senior debt plus LOCs divided by total capital.

⁶ Subordinated debt divided by sum of subordinated debt and ENW.

Distribution to shareholders since 2012 (USD)

15.4 billion

Business Unit structure and capital allocation

Our Business Unit structure enables us to allocate capital opportunistically to maximise shareholder returns. Following the string of severe natural disasters and supported by the Group's strong capitalisation, we strengthened Corporate Solutions' capital position in 2017. This underlines our commitment to the Business Unit's long-term strategy, given the attractiveness of the commercial insurance market. Furthermore, the Group continues to invest in the growth of Life Capital's open book businesses, while we remain disciplined in repatriating excess capital to our shareholders.

The cash dividends paid to Swiss Re Ltd since 2012 totalled USD 22.4 billion, providing the basis for the Group's high financial flexibility. The total amount of capital returned to shareholders since the implementation of the new Group structure in 2012 is USD 15.4 billion.

External dividends to shareholders

Based on the Group's capital strength, the Board of Directors proposes an increase in the 2017 regular dividend to CHF 5.00 per share, up from CHF 4.85 in 2016. In addition, the Board of Directors proposes a public share buy-back programme of up to CHF 1.0 billion purchase value, commencing at the discretion of the Board of Directors after the AGM's approval.

Unlike prior years, beyond the Board and regulatory approval and considering the capital management priorities, there will be no other preconditions to the commencement of the proposed share buy-back programme.

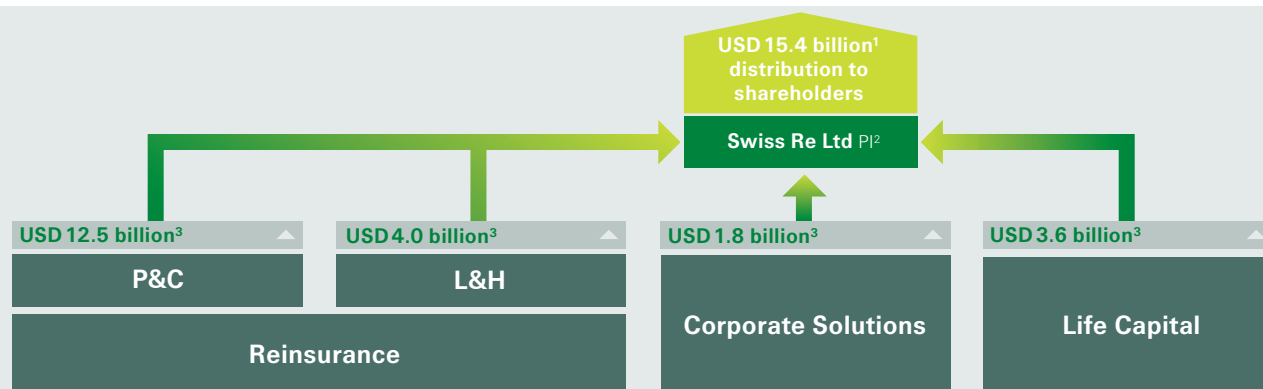
**Swiss Re Group's capital adequacy
Regulatory capital requirements**

Swiss Re is supervised at the Group level and for its regulated legal entities domiciled in Switzerland by FINMA. FINMA supervision comprises minimum solvency requirements, along with a wide range of qualitative assessments and governance standards.

Swiss Re provides regulatory solvency reporting to FINMA under the rules of the Insurance Supervision Ordinance. This SST report is based on an economic view. We calculate available capital based on our Economic Value Management (EVM) framework and required capital under the SST using our internal risk model (see pages 54–63 for further information on EVM). The minimum requirement for the SST is a ratio of 100%. Swiss Re's SST ratio materially exceeds the minimum requirement.

Swiss Re's capital management aims to ensure our ability to continue operations following an extremely adverse year of losses from insurance and/or financial market events.

CAPITAL RETURNED TO SHAREHOLDERS SINCE NEW STRUCTURE CREATED IN 2012



¹ Reflects total external dividend and public share buy-back programmes between January 2012 and December 2017.

² Principal Investments has paid to Group dividends of USD 0.5bn between January 2012 and December 2017.

³ Internal dividend flows from January 2012 to December 2017.

Rating agency capital requirements

Rating agencies assign credit ratings to the obligations of Swiss Re and its rated subsidiaries.

The agencies evaluate Swiss Re based on a set of criteria that include an assessment of our capital adequacy.

Each rating agency uses a different methodology for this assessment; A.M. Best and S&P base their evaluation on proprietary capital models.

A.M. Best, Moody's and S&P rate Swiss Re's financial strength based upon interactive relationships. The insurance financial strength ratings are shown in the table below.

On 24 November 2017, S&P affirmed the AA– financial strength of Swiss Re and its core subsidiaries. The outlook on the rating is "stable". The rating reflects Swiss Re's extremely strong capital adequacy in excess of the 'AAA' benchmark and competitive position build on market leadership, long-standing reputation, and wide distribution networks across both life and non-life reinsurance.

On 7 December 2017, A.M. Best upgraded Swiss Re's long-term issuer credit rating to "aa" from "aa–" and affirmed the A+ (superior) financial strength of Swiss Re and its core subsidiaries. The rating outlook is "stable". The rating is a result of Swiss Re's balance sheet strength, which A.M. Best categorises as strongest, as well as strong operating performance, very favourable business profile and very strong enterprise risk management.

On 19 December 2017, Moody's affirmed Swiss Re's insurance financial strength rating and outlook at "Aa3" stable. The rating reflects Swiss Re's excellent market position, very strong business and geographic diversification and strong balance sheet in terms of capital and financial flexibility.

SWISS RE'S FINANCIAL STRENGTH RATINGS

As of 31 December 2017	Financial strength rating	Outlook	Last update
Moody's	Aa3	Stable	19 December 2017
Standard & Poor's	AA–	Stable	24 November 2017
A.M. Best	A+	Stable	7 December 2017

Liquidity management

We actively manage liquidity risks to ensure that we can satisfy the financial obligations of the Group.

As a re/insurance group, our core business generates liquidity primarily through premium income. Our exposure to liquidity risk stems mainly from two sources: the need to cover potential extreme loss events and regulatory constraints that limit the flow of funds within the Group.

To manage these risks, we have a range of liquidity policies and measures in place. In particular, we aim to ensure that:

- sufficient liquidity is held to meet funding requirements under current conditions as well as adverse circumstances;
- funding is charged and credited at an appropriate market rate through our internal transfer pricing;
- diversified sources are used to meet our residual funding needs; and
- long-term liquidity needs are taken into account, both in our planning process and in our management of financial market risk.

Liquidity risk management

Our core liquidity policy is to retain sufficient liquidity in the form of unencumbered liquid assets and cash to meet potential funding requirements arising from a range of possible stress events. To allow for regulatory restrictions on intra-Group funding, liquidity is managed within groups of entities known as liquidity pools. Swiss Re is served by four main liquidity pools representing the parent companies of the Group and each of the three Business Units. Each liquidity pool comprises the respective parent company and its unregulated subsidiaries whose funds are freely transferable to the parent company. The amount of liquidity held is largely determined by internal liquidity stress tests, which estimate the potential funding requirements stemming from extreme loss events. The funding requirements under stress include:

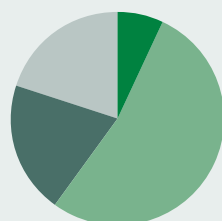
- cash and collateral outflows, as well as potential capital and funding support required by subsidiaries as a result of loss events;
- repayment or loss of all maturing unsecured debt and credit facilities;
- additional collateral requirements associated with a potential ratings downgrade;
- further contingent funding requirements related to asset downgrades; and
- other large committed payments, such as expenses, commissions and tax.

The stress tests also assume that funding from assets is subject to conservative haircuts, that intra-Group funding is not available if it is subject to regulatory approval, that no new unsecured funding is available, and that funding from new re/insurance business is reduced.

COMPOSITION OF ONE-YEAR SPOT LIQUIDITY IN THE SRZ¹ LIQUIDITY POOL

as of 31 December 2017
(Total USD 10.6 billion)

- 7% Cash short-term investments and reverse repos
- 53% Government bonds AAA rated & US
- 20% Other developed market government bonds investment grade
- 20% Developed market supranational agencies and municipal bonds



¹ Swiss Reinsurance Company Ltd

The primary liquidity stress test is based on a one-year time horizon, a loss event corresponding to 99% tail value at risk (see pages 81–82), and a three-notch ratings downgrade.

Swiss Re's liquidity stress tests are reviewed regularly and their main assumptions are approved by the Group Executive Committee. Swiss Re provides FINMA with a yearly report on its liquidity position, in accordance with FINMA's circular 13/5, "Liquidity – Insurers."

Liquidity position of the Swiss Reinsurance Company Ltd (SRZ) liquidity pool

The SRZ liquidity pool is the primary liquidity pool of the Group. The estimated total liquidity sources in the SRZ liquidity pool available within one year, after haircuts and net of short-term loans from Swiss Re Ltd and securities lending, amounted to USD 17.9 billion as of 31 December 2017, compared with USD 18.5 billion as of 31 December 2016. The 2017 total includes USD 10.6 billion of liquid assets and cash, referred to as "one-year spot liquidity", compared with USD 13.4 billion in 2016. Based on the internal liquidity stress tests described above, we estimate that the SRZ liquidity pool holds surplus liquidity after dividends to Swiss Re Ltd.

In 2017, the amount of surplus liquidity reduced slightly. This reduction was largely due to a management decision to reduce external debt, as well as the impact of the exceptional natural catastrophe losses in the third quarter. These negative impacts were partially offset by foreign exchange rate movements, which increased surplus liquidity.

Risk management

Our Risk Management provides independent oversight, continuously monitors changes in our risk landscape and ensures controlled risk-taking.

Embedded throughout the business, our Group Risk Management function ensures an integrated approach to managing current and emerging threats. Risk Management plays a key role in business strategy and planning discussions, where our risk appetite framework facilitates risk-return discussions and sets boundaries to Group-wide risk-taking.

Taking and managing risk is central to Swiss Re's business. All risk-related activities, regardless of the legal entity in which they are undertaken, are subject to the Group's risk management framework. Consequently, the framework is applied at Group level and cascaded to all legal entity levels whereby the three entities Swiss Reinsurance Company Ltd (SRZ), Swiss Re Corporate Solutions Ltd (SRCS) and Swiss Re Life Capital Ltd (SRLC) represent the top-level legal entities for the Business Units Reinsurance, Corporate Solutions and Life Capital.

The risk management framework sets out how Swiss Re organises and applies its risk management practices to ensure that all activities are conducted in line with the principles and limits mandated by the Group Risk Policy.

The framework comprises the following major elements:

- Risk governance documentation, incl. Group Risk Policy
- Key risk management principles
- Fundamental roles for delegated risk-taking
- Risk culture
- Organisation of risk management, including responsibilities at Board and executive level
- Risk control framework
- Risk appetite framework, including limits

Swiss Re applies a differentiated governance approach at legal entity level, depending on the materiality of individual entities. SRZ, SRCS and SRLC, as well as major legal entities within the Group that are designated as so-called "Level I entities", are subject to enhanced governance, which includes the following requirements:

- Develop and maintain corporate and risk governance documentation that governs the responsibilities of the legal entity Board, committees and management
- Establish an Audit Committee as well as a Finance and Risk Committee to support the legal entity Board in performing its oversight responsibility for risk and capital steering
- Designate a Chief Risk Officer and Chief Financial Officer

Risk governance documentation

Swiss Re's risk management framework is set out in risk governance documentation at Group and legal entity level. Risk governance is the subset of corporate governance that describes the risk management framework and documents risk management practices. Group-level risk documents form the basis for all risk governance across Swiss Re. Additional risk governance for legal entities is prepared as an addendum to the Group or parent entity document.

Group risk governance documents are organised hierarchically across five levels, which are mirrored by equivalent documents at legal entity (LE) level:

- At the highest level, the Swiss Re Ltd (SRL) Bylaws and the charter for the Group Finance and Risk Committee outline the ultimate authority for risk management, assigning responsibilities to the Group Board of Directors and the Group Executive Committee.
- The Group Risk Policy is defined by the Group Board and articulates Swiss Re's risk appetite framework (risk appetite and tolerance) as well as fundamental risk and capital structure principles.
- The Group Risk Management Standards outline how the Group organises and applies its risk management practices.

- Risk category standards describe how risk practices are implemented for a specific category.
- The lowest level comprises risk management methodology and process documentation.

Key risk management principles

Swiss Re's risk management is based on four fundamental principles. These apply consistently across all risk categories at Group and legal entity level:

- **Controlled risk-taking** – Financial strength and sustainable value creation are central to Swiss Re's value proposition. The Group thus operates within a clearly defined risk policy and risk control framework.
- **Clear accountability** – Swiss Re's operations are based on the principle of delegated and clearly defined authority. Individuals are accountable for the risks they take on, and their incentives are aligned with Swiss Re's overall business objectives.
- **Independent risk controlling** – Dedicated units within Risk Management control all risk-taking activities. These are supported by Compliance and Group Internal Audit functions.
- **Transparency** – Risk transparency, knowledge sharing and responsiveness to change are integral to the risk control process. The central goal of risk transparency is to create a culture of mutual trust, and reduce the likelihood of surprises in the source and potential magnitude of losses.

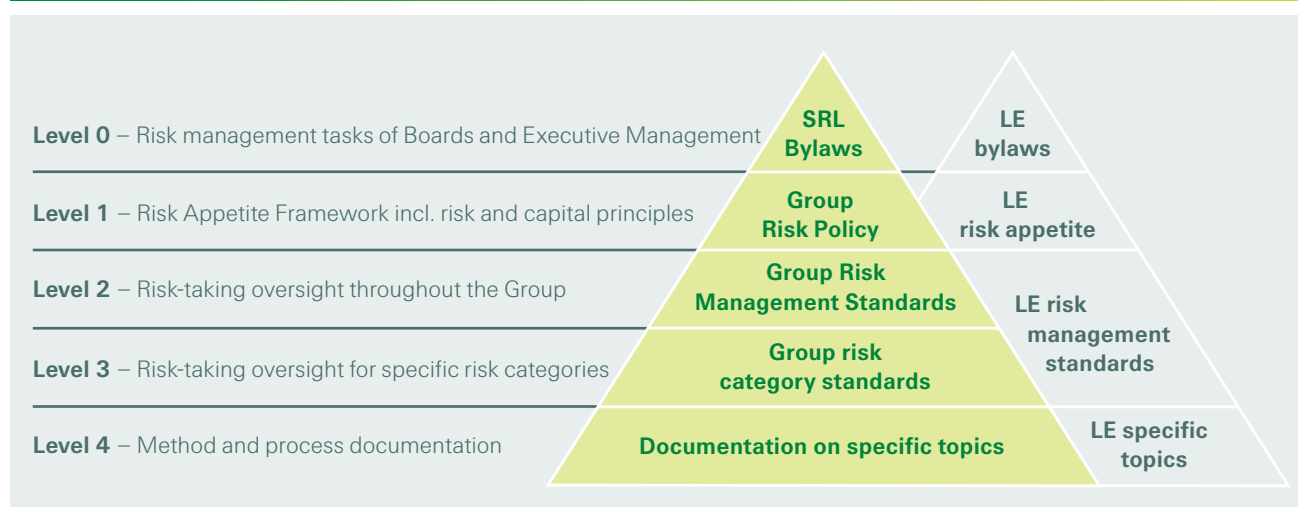
Fundamental roles for delegated risk-taking

In order to ensure clear control, accountability and independent monitoring for all risks, Swiss Re's risk governance distinguishes between three fundamental roles in the risk-taking process:

- **Risk owner** – establishes a strategy, delegates execution and control, and retains ultimate responsibility for the outcomes.
- **Risk taker** – executes an objective within the authority delegated by the risk owner; risk takers are required to provide the respective risk controller with all information required to monitor and control their risks.
- **Risk controller** – is tasked by the risk owner with independent oversight of risk-taking activities to mitigate potential conflicts of interest between the risk owner and risk taker; risk controllers are responsible for escalating relevant concerns.

Risk-taking activities are typically subject to three lines of control. The first line comprises the day-to-day risk control activities performed by risk takers in the business as well as in Group functions. Independent oversight performed by functions such as Risk Management and Compliance represents the second line of control. The third line consists of independent audits of processes and procedures carried out by Group Internal Audit or by external auditors.

RISK GOVERNANCE DOCUMENTATION HIERARCHY



Risk culture

Swiss Re fosters and maintains a strong risk culture to promote risk awareness, rigour and discipline across all its activities. This risk culture stands for the risk and control related values, knowledge and behaviour shared by all employees. Its principal components are summarised in a framework that builds on the Group Code of Conduct as well as on key risk management principles in the Group Risk Policy.

The risk culture framework serves to influence appropriate behaviour in four key aspects, which are assessed annually for all employees in the performance and compensation process:

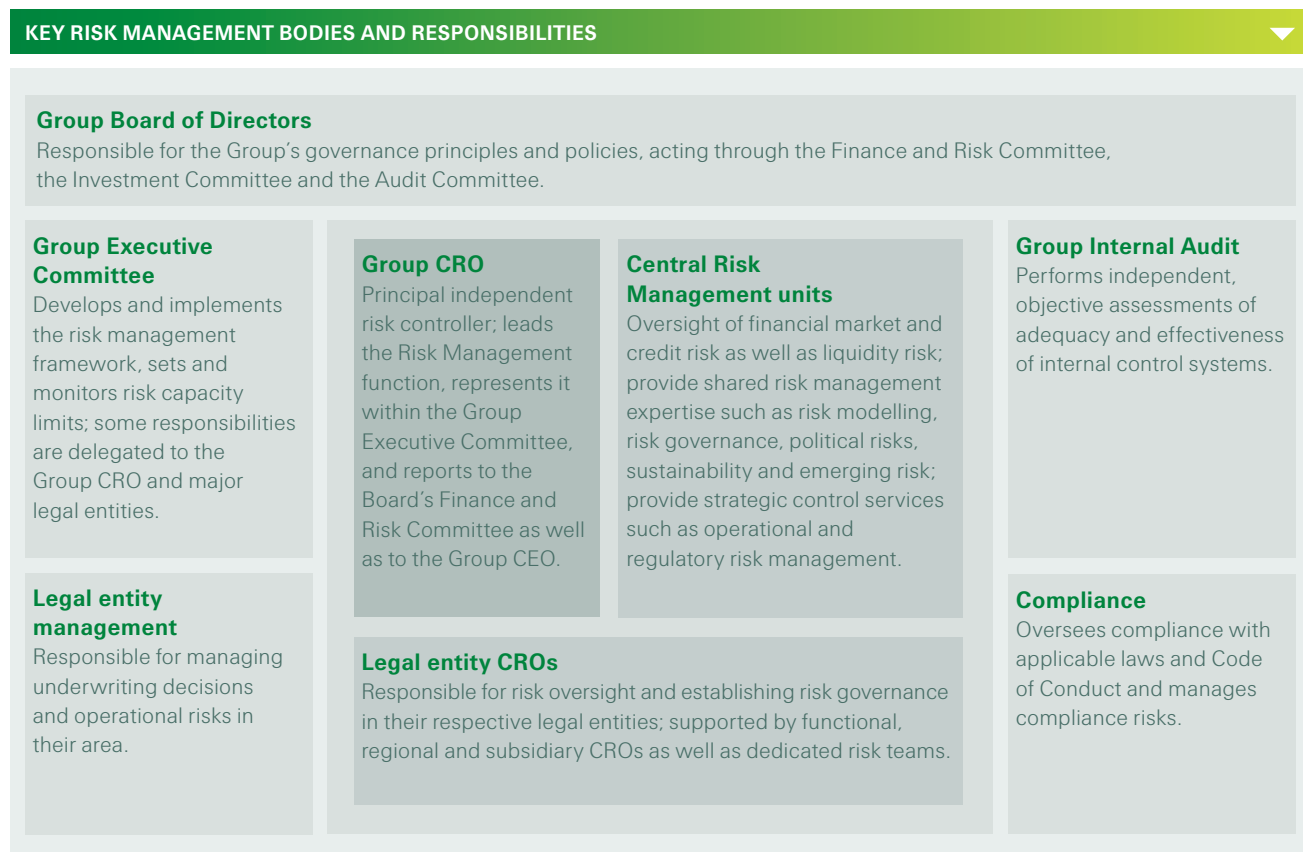
- Leadership in providing clear vision and direction
- Consideration of risk-relevant information in decision-making
- Risk governance and accountability of risk takers as well as transparent flow of risk information
- Embedding of risk management skills and competencies

Swiss Re's risk culture provides the foundation for the efficient and effective application of its Group-wide risk management framework. Group Risk Management reinforces the risk culture by ensuring risk transparency and fostering open discussion and challenge in the Group's risk-taking and risk management processes.

Key risk takers across Swiss Re are a particular focus in promoting good risk and control-related behaviours. The relevant positions are identified in a regular process, and those who hold them are subject to additional behavioural objectives and assessments.

Risk culture is directly linked to Swiss Re's performance management, which is based not only on business results but also on behaviours. Swiss Re's compensation framework aims to foster compliance and support sensible risk-taking. Swiss Re also has a range of incentive programmes that reflect the long-term nature of its business by rewarding sustained performance rather than short-term results. This helps to align shareholder and employee interests.

Swiss Re's compensation principles and framework are captured within the Swiss Re Group Compensation Policy. The Group's Finance and Risk Committee conducts a regular risk assessment for all changes to this policy.



Organisation of risk management

The Group Board of Directors (Group Board, the Board) is ultimately responsible for Swiss Re's overall risk governance principles and policies. It defines basic risk management principles and the risk appetite framework, including the Group's risk appetite and risk tolerance; in addition, it approves the Group's risk strategy. The Group Board mainly performs risk oversight and governance through three committees:

- Finance and Risk Committee – defines the Group Risk Policy, reviews risk capacity limits, monitors adherence to risk tolerance, and reviews top risk issues and exposures.
- Investment Committee – reviews the financial risk analysis methodology and valuation related to each asset class, and ensures that the relevant management processes and controlling mechanisms are in place.
- Audit Committee – oversees internal controls and compliance procedures.

The Group Executive Committee is responsible for developing and implementing Swiss Re's Group-wide risk management framework.

It also sets and monitors risk capacity limits, oversees the Economic Value Management framework (see page 54), determines product policy and underwriting standards, and manages regulatory interactions and legal obligations. The Group Executive Committee has delegated various risk management responsibilities to the Group Chief Risk Officer (Group CRO) as well as to certain legal entity CROs, in particular the CROs of the legal entities SRZ, SRCS and SRLC.

The Group CRO is appointed as the principal independent risk controller of Swiss Re. He is a member of the Group Executive Committee and reports directly to the Group CEO as well as to the Board's Finance and Risk Committee. The Group CRO also advises the Group Executive Committee, the Chairman or the respective Group Board Committees, in particular the Finance and Risk Committee, on significant matters arising in his area of responsibility.

The Group CRO leads the independent Risk Management function, which is responsible for risk oversight and control across Swiss Re. It thus forms an integral part of Swiss Re's business model and risk management framework. The Risk Management function comprises dedicated risk teams for legal entities and regions, as well as central teams that provide specialised risk expertise and oversight.

While the Risk Management organisation is closely aligned to Swiss Re's business structure, in order to ensure effective risk oversight, all embedded teams and CROs remain part of the Group Risk Management function under the Group CRO, thus ensuring their independence as well as a consistent Group-wide approach to overseeing and controlling risks.

Legal entity risk teams are led by dedicated CROs who report directly or indirectly to their top-level entity CRO, with a secondary reporting line to their respective legal entity CEO. These legal entity CROs are responsible for risk oversight in their respective entities, as well as for establishing the proper risk governance to ensure efficient risk

identification, assessment and control. They are supported by functional, regional and subsidiary CROs who are responsible for overseeing risk management issues that arise at regional or subsidiary level.

The central risk teams oversee Group liquidity and capital adequacy and maintain the Group frameworks for controlling these risks throughout Swiss Re. They also support CROs at Group and legal entity level in discharging their oversight responsibilities. They do so by providing services, such as:

- Financial risk management
- Specialised risk category expertise and accumulation control
- Risk modelling and analytics
- Regulatory relations management
- Maintaining the central risk governance framework

Risk Management is also in charge of actuarial reserving and monitoring of reserve holdings for SRCS and SRLC as well as their subsidiaries, while for SRZ and its subsidiaries the setting of the reserves is performed by valuation actuaries within the P&C and L&H Business Management units.

Risk management activities are complemented by Swiss Re's Group Internal Audit and Compliance units:

- Group Internal Audit performs independent, objective assessments of the adequacy and effectiveness of internal control systems. It evaluates the execution of processes within Swiss Re, including those within Risk Management.
- The Compliance function oversees Swiss Re's compliance with applicable laws, regulations, rules, and the Code of Conduct. It also assists the Group Board, Group Executive Committee and other management bodies in identifying, mitigating and managing compliance risks.

Risk control framework

Swiss Re operates within a clearly defined risk control framework. This is set out in the Group Risk Management Standards and comprises a body of standards that establish an internal

control system for taking and managing risk. These standards set responsibilities for risk takers and risk controllers. The risk control framework defines five key tasks, which are the core components of Swiss Re's risk management cycle:

- **Risk tolerance and appetite assessment of plan** – ensures that the risk implications of plans are understood, and determines whether business and investment plans adhere to risk appetite framework (risk appetite and tolerance).
- **Risk identification** – ensures that all risks to which Swiss Re is exposed are transparent in order to make them controllable and manageable.
- **Risk measurement** – enables Swiss Re to understand the magnitude of its risks and to set quantitative controls that limit its risk-taking.
- **Risk exposure control** – allows Swiss Re to control its risk-taking decisions and total risk accumulations, including the passive risk we are exposed to through our operations.
- **Risk reporting** – creates internal risk transparency and enables Swiss Re to meet external disclosure requirements.

In addition, Risk Management performs several risk control activities across multiple components of the risk management cycle, in particular:

- Model and tool assurance
- Valuation assurance
- Insurance risk reviews, to assess the quality of decision-making in the taking of underwriting risks by performing independent assessments of costing, pricing, wording and claims handling

Swiss Re has implemented a principle-based integrated internal control system to mitigate identified operational risks including financial reporting and compliance risks, as well as risks that could impair the effectiveness and efficiency of operations. This control system represents a subset of Swiss Re's risk control framework and is based on international standards established by COSO (the Committee of Sponsoring Organisations of the Treadway Commission). It is applied on multiple organisational levels, including Group, functions, regions and legal entities.

Risk transfer

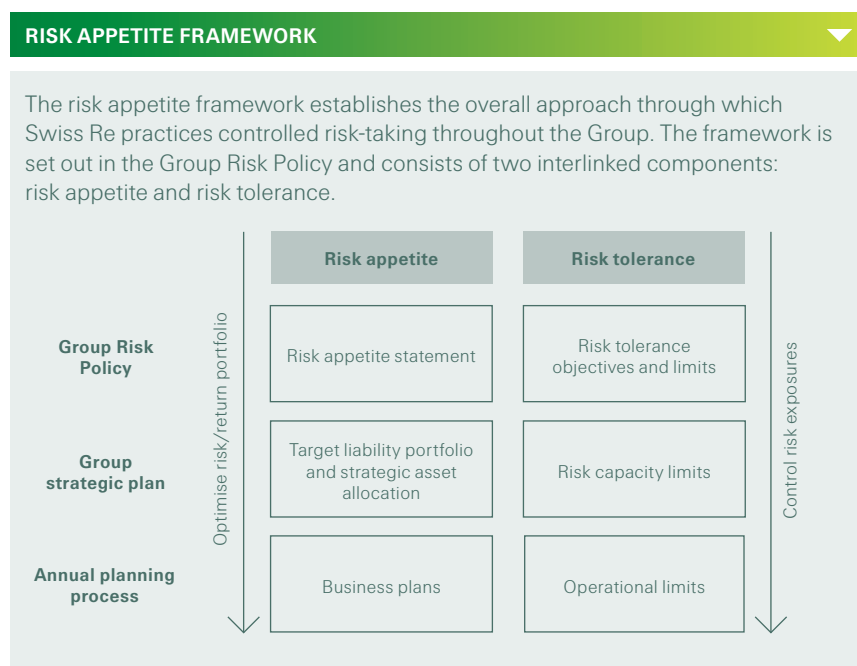
To efficiently manage capital across the Group and ensure that risk-taking in individual legal entities is well diversified, the Group employs internal retrocession and funding agreements. These serve to improve the fungibility of capital and consequently Group-wide diversification. In addition, the Group aims to maximise the amount of funds available centrally by optimising the excess capital held within its subsidiaries and branches.


Swiss Re also manages and mitigates insurance risk through external retrocession, insurance risk swaps or by transferring risk to capital markets through insurance-linked securities, industry loss warranties or other derivatives. This provides protection against extreme catastrophic events, further diversifies risk, stabilises economic results and releases underwriting capacity.

In addition, Swiss Re uses financial market derivative instruments as well as financial market securities to hedge financial market and credit risks arising from investments and insurance liabilities. Interest rate risk from insurance liabilities is managed through investments in fixed-income instruments whose pricing is sensitive to changes in government yields, such as government bonds.



Find more information about the risk control framework in our interactive online report.



 Find more information about the risk appetite framework in our interactive online report.

In the context of business strategy and planning, the risk appetite statement facilitates discussions about where and how Swiss Re should deploy its capital, liquidity and other resources under a risk-return view, while the risk tolerance sets clear boundaries to risk-taking.

During strategic planning and target-setting, Risk Management provides an opinion on the proposed strategy and targets to the Group Executive Committee and ultimately the Group Board. The opinion focuses on the risk impact of the proposed strategy and the risks related to its implementation. The strategic plan, risk appetite and capital allocation ambition are expressed in a target portfolio for the Group's assets and liabilities, which should ultimately deliver the Group's targeted performance.

Risk appetite outlines the Group's principles on acceptable risks and provides key directions for risk-taking and risk controlling as part of implementing Swiss Re's strategy: achieving targeted performance, providing liquidity and financial flexibility, managing capital adequacy, and protecting and growing franchise value.

The Group Board further details Swiss Re's risk appetite through its approval or review of the following key steering frameworks as part of the Group's planning process: target liability portfolio, strategic asset allocation and the Group's target capital structure.

Risk tolerance describes the extent to which the Group Board has authorised executive management to assume risk. It represents the amount of risk that Swiss Re is willing to accept within the constraints imposed by its capital and liquidity resources, its strategy, and the regulatory and rating agency environment within which it operates.

Swiss Re's risk tolerance is based on three objectives:

- To protect the shareholders' franchise by ensuring that the Group is able to continue operating the business following an extreme loss event.
- To maintain capital and liquidity at respectability levels that are sufficiently attractive from a client perspective, and that meet regulatory requirements and expectations.
- To avoid material operational risks that could subject the Group to large operational losses with corresponding consequences from an economic, reputational or regulatory perspective.

To meet the first objective, the Group Risk Policy defines an extreme loss absorption limit with conditions that must be fulfilled following the realisation of a loss corresponding to a 99% Group shortfall event. To meet the second objective, the Group's risk tolerance criteria includes respectability limits, which need to be met under normal operating conditions. These limits ensure that Swiss Re has adequate capital and liquidity above minimum requirements to be considered a respectable counterparty by external stakeholders. To meet the third objective, the Group has established a Group-wide risk matrix methodology in which key operational risks are assessed against an acceptable level of expected losses.

The Group Board is responsible for approving the risk tolerance criteria, as well as for monitoring and reviewing risk tolerance through its Finance and Risk Committee. Breaches or anticipated breaches of limits established to control the risk tolerance criteria must be communicated to the Group Finance and Risk Committee.

In addition, Risk Management proposes risk capacity limits to ensure compliance with overall risk appetite and risk tolerance criteria. The risk capacity limits represent an aggregated constraint to risk-taking and seek to ensure that Group-wide accumulation risk remains within acceptable levels. They allow for risk monitoring and hence also for risk controlling during the execution of the plan. In addition to the risk capacity limits proposed by Risk Management, the Group Executive Committee also sets operational limits, which the business monitors and controls in day-to-day management.

Risk assessment

In 2017, our overall risk remained broadly stable, as an increase in insurance risk was largely offset by lower financial market and credit risk.

Swiss Re's internal risk model was approved by FINMA in November 2017. The model is used to measure the Group's risk position and related capital requirements as well as for defining the risk tolerance, risk limits, and liquidity stress tests.

Based on the internal risk model, our overall risk in terms of 99% tail value at risk (tail VaR) remained broadly stable at USD 19.7 billion in 2017 (compared to USD 19.5 billion at the end of 2016).

Alternative risk measurements — 99% and 99.5% VaR — remained stable at USD 14.6 billion and USD 17.4 billion, respectively.

The Group capital requirement table below shows the 99% tail VaR on a standalone basis for each of Swiss Re's core risk categories:

- Property and casualty risk increased by 5% to USD 9.8 billion, mainly due to the strengthening of major currencies against the US dollar and higher reserve exposure following the 2017 natural catastrophe events.

- Life and health risk increased by 4% to USD 7.7 billion, driven mainly by the strengthening of major currencies against the US dollar and lower interest rates, as well as higher lethal pandemic and critical illness exposure.
- Financial market risk decreased by 3% to USD 11.9 billion; this was mainly driven by lower credit spread risk reflecting the minority investment of MS&AD Insurance Group Holdings Inc (MS&AD) into ReAssure.
- Credit risk decreased by 3% to USD 3.3 billion; an important driver of the change was the minority investment of MS&AD into ReAssure.



Find more information about the internal risk model in our interactive online report.

GROUP CAPITAL REQUIREMENT BASED ON ONE-YEAR 99% TAIL VAR

in USD billions, as of 31 December	2016	2017	Change in %	cross reference information
Property & Casualty	9.4	9.8	5	see page 84
Life & Health	7.4	7.7	4	see page 85
Financial market	12.3	11.9	-3	see page 86
Credit ¹	3.4	3.3	-3	see page 87
Simple sum	32.5	32.7	1	
Diversification effect	-12.9	-13.0		
Swiss Re Group	19.5	19.7	1	

¹ Credit comprises credit default and credit migration risk from both asset management and underwriting. Credit spread risk falls under financial market risk.

Our internal risk model takes account of the accumulation and diversification between individual risks. The effect of diversification at the category level is demonstrated in the table above, which represents the difference between the Group 99% tail VaR and the sum of standalone tail VaR amounts in the individual risk categories. The extent of diversification is largely determined by the selected level of aggregation — the higher the aggregation level, the lower the diversification effect.

ALTERNATIVE RISK MEASUREMENTS TO 99% TAIL VAR FOR SWISS RE GROUP

in USD billions, as of 31 December	2016	2017	Change in %
99% VaR	14.5	14.6	1
99.5% VaR	17.4	17.4	0

Swiss Re's risk landscape

The risk categories shown in the table below are discussed on the following pages. Across these categories we identify and evaluate emerging threats and opportunities through a systematic framework that includes the assessment of potential surprise factors that could affect known loss potentials. Liquidity risk management is discussed on page 73.

CORE RISKS IN SWISS RE'S INTERNAL MODEL			
INSURANCE RISK		FINANCIAL RISK	
PROPERTY & CASUALTY	LIFE & HEALTH	FINANCIAL MARKET	CREDIT
<ul style="list-style-type: none"> ■ Natural catastrophe ■ Man-made ■ Costing and reserving ■ Claims inflation 	<ul style="list-style-type: none"> ■ Lethal pandemic ■ Mortality trend ■ Longevity ■ Critical illness ■ Income protection ■ Lapse 	<ul style="list-style-type: none"> ■ Credit spread ■ Equity ■ Foreign exchange ■ FM inflation ■ Interest rate ■ Real estate 	<ul style="list-style-type: none"> ■ Default risk ■ Migration risk
OTHER SIGNIFICANT RISKS			
OPERATIONAL	LIQUIDITY	MODEL	VALUATION
REGULATORY	POLITICAL	STRATEGIC	SUSTAINABILITY
EMERGING RISKS			

Swiss Re is exposed to a broad landscape of risks. These include risks that are actively taken as part of insurance or asset management operations, and are calculated in the internal risk model as part of the Group's economic capital requirement as well as to allocate risk-taking capacity:

- **Property and Casualty (P&C) insurance risk** arises from coverage provided for property, liability, motor, and accident risks, as well as for specialty risks such as engineering, agriculture, aviation and marine. It includes underlying risks inherent in the business Swiss Re underwrites, such as inflation or uncertainty in pricing and reserving.
- **Life and Health (L&H) insurance risk** arises from coverage provided for mortality (death), longevity (annuity) and morbidity (illness and disability) as well as from acquiring closed books of business. In addition to potential shock events (such as a severe pandemic), it includes underlying risks inherent in life and health contracts that arise when mortality, morbidity, or lapse experience deviates from expectations.
- **Financial market (FM) risk** represents the potential impact on assets or liabilities that may arise from movements in financial market prices or rates, such as equity prices, interest rates, credit spreads, foreign exchange rates or real estate prices. Financial market risk originates from two main sources: investment activities and the sensitivity of the economic value of liabilities to financial market fluctuations.
- **Credit risk** reflects the potential financial loss that may arise due to diminished creditworthiness or default of counterparties of Swiss Re or of third parties; credit risk arises from investment and treasury activities, structured transactions and retrocession, as well as from liabilities underwritten by credit and surety insurance units.

The risk landscape also includes other risks that are not explicitly part of the Group's economic capital requirement but are actively monitored and controlled due to their significance for Swiss Re:

- **Liquidity risk** represents the possibility that Swiss Re will not be able to meet expected and unexpected cash flow and collateral needs without affecting either daily operations or Swiss Re's financial condition.

- **Operational risk** represents the potential economic, reputational or compliance impact of inadequate or failed internal processes, people and systems or from external events, including legal risk and the risk of a material misstatement in financial reporting. Swiss Re has implemented a capital model for operational risk, which is used for Solvency II purposes.
- **Strategic risk** represents the possibility that poor strategic decision-making, execution or response to industry changes or competitor actions could harm Swiss Re's competitive position and thus its franchise value.
- **Regulatory risk** arises from changes to insurance regulations and supervisory regimes as well as from interactions with regulatory authorities and supervisory regimes of the jurisdictions in which Swiss Re operates.
- **Political risk** comprises the consequences of political events or actions that could have an adverse impact on Swiss Re's business or operations.
- **Model risk** reflects the potential impact of model errors or the inappropriate use of model outputs. It may arise from data errors or limitations, operational or simulation errors, or limitations in model specification, calibration or implementation; model risk may also be caused by insufficient knowledge of the model and its limitations, in particular by management and other decision-makers.
- **Valuation risk** represents uncertainty around the appropriate value of assets or liabilities. It may arise from product complexity, parameter uncertainty, quality and consistency of data, valuation methodology, or changes in market conditions and liquidity. Swiss Re is exposed to financial valuation risk from investment assets it holds as well as reserve valuation risk from insurance liabilities that result from the coverage it underwrites.
- **Sustainability risk** comprises the environmental, social and ethical risks that may arise from individual business transactions or the way Swiss Re conducts its operations.
- Across all risk categories, Swiss Re actively identifies **emerging risks** and threats as part of its risk identification process; this includes new risks as well as changes to previously known risks that could create new risk exposures, or increase the potential exposure or interdependency between existing risks.

Some of these risks are reflected indirectly in the risk model, as their realisations may be contained in the historical data used to calibrate some of the risk factors. In addition, output from the model is used in measuring liquidity risk under stressed conditions. As separate risk categories, these risks are an integral part of Swiss Re's risk landscape. They are monitored and managed within the Risk Management organisation, and included in risk reports to executive management and the Board at Group and legal entity level.

Reputational risk is not considered a separate risk category but rather represents a possible consequence of any risk type in addition to the potential financial and compliance impact.

Insurance risk

Insurance risk management involves identifying, assessing and controlling risks that Swiss Re takes through its underwriting activities, including related risks such as inflation or uncertainty in pricing and reserving.

Risk Management also provides independent assurance throughout the business cycle, starting with the annual business planning process. It reviews

underwriting standards, costing models and large transactions, and monitors exposures, reserves and limits. Regular internal reports ensure transparency across the Group, providing management with quantitative and qualitative risk assessments.

Swiss Re also manages and mitigates insurance risk through external retrocession, insurance risk swaps

or by transferring risk to capital markets. This provides protection against extreme catastrophic events, further diversifies risk, stabilises economic results and releases underwriting capacity.

Property and casualty risk

Change from 2016 99% tail VaR: +5%



Developments in 2017

Property and casualty risk, net of retrocession and securitisation, grew by 5% to USD 9.8 billion. This increase was mainly driven by the strengthening of major currencies against the US dollar as well as higher property reserves following the major natural catastrophes in the second half of 2017.

These effects were partly offset by a reduction in natural catastrophe exposures in 2017 as a result of disciplined underwriting in a challenging market environment.

The 200-year event losses from major natural catastrophe scenarios, net of retrocession and securitisation, are shown on page 85.

The Atlantic hurricane and Californian earthquake scenarios decreased by 10% and 5%, respectively, reflecting the reduction in exposures mentioned above. The European windstorm scenario remained broadly stable as the reduction in exposure was largely offset by the strengthening of the euro against the US dollar. The Japanese earthquake scenario also remained stable.

Management

The CROs of SRZ, SRCS and their subsidiaries are responsible for overseeing all property and casualty exposures written in their areas. In addition, Group Risk Management monitors and controls accumulated exposures across Swiss Re to ensure that they remain within the defined risk tolerance level.

The first line of control for property and casualty risks lies within Swiss Re's underwriting units. All transactions must be reviewed by at least two authorised individuals, and are subject to authority limits. Each underwriter is assigned an individual authority based on technical skills and experience. In addition, capacity limits are allocated to

local teams; any business that exceeds this authority or is otherwise complex or unusual triggers an escalation process that extends up to the Group Executive Committee. As an exception, single risks and some renewed treaties with non-material changes can be authorised by an individual underwriter with the necessary authority – but these risks are subject to checks after acceptance.

Large transactions that could materially impact the risk at Group level or for key legal entities require independent review and sign-off by Risk Management before they are authorised. This is part of a three-signature principle, under which key transactions must be approved by

Client Markets, Underwriting and Risk Management. For transactions of defined types and within defined limits, this may be applied through the approval of underwriting or pricing guidelines. For other transactions, the signatures must be secured through an individual review.

In addition to underwriting and capacity limits, Swiss Re's limit framework includes aggregate Group limits for P&C risk as well as individual limits for major natural catastrophe scenarios – Atlantic hurricane, Californian earthquake, European windstorm and Japanese earthquake. These limits guard against exposure accumulations and ensure that risk-taking remains within Swiss Re's risk tolerance.

INSURANCE RISK STRESS TESTS: SINGLE EVENT LOSSES WITH A 200-YEAR RETURN PERIOD¹

Pre-tax impact on economic capital in USD billions, as of 31 December	2016	2017	Change in %
Natural catastrophes			
Atlantic hurricane	-5.1	-4.5	-10
Californian earthquake	-3.4	-3.2	-5
European windstorm	-2.6	-2.5	-1
Japanese earthquake	-3.1	-3.1	1
Life insurance			
Lethal pandemic	-2.4	-2.8	15

¹ Single event losses with a 200-year return period show for example that there is a 0.5% probability over the next year that the loss from a single Atlantic hurricane event could exceed USD 4.5 billion. The impact excludes earned premiums for the business written and reinstatement premiums that could be triggered as a result of the event.

Life and health risk

Change from 2016 99% tail VaR: +4%



Developments in 2017

Overall life and health risk increased by 4% to USD 7.7 billion, driven mainly by the strengthening of major currencies against the US dollar as well as lower interest rates.

In addition, higher lethal pandemic and critical illness exposure contributed to the increase. The growth was driven in part by new business written in Europe and Asia, particularly in China.

The 200-year lethal pandemic event shown in the table above rose by 15%. The increase is in line with the increase in lethal pandemic tail VaR and is driven by the strengthening of major currencies against the US dollar as well as by the higher exposure mentioned above.

Management

The CROs of SRZ, SRLC and their subsidiaries are responsible for overseeing all life and health exposures written in their respective areas. Accumulated exposures across Swiss Re are monitored and controlled by Group Risk Management to ensure that they remain at an acceptable level for the Group.

Underwriters represent the first line of control for life and health risks. All transactions that could materially change risk at Group level or for key legal entities require independent review and sign-off by Risk Management before they can be authorised. This is part of a three

signature principle, under which key transactions must be approved by Client Markets, Underwriting, and Risk Management. For transactions of defined types and within defined limits, this may be applied through the approval of underwriting or pricing guidelines. For other transactions, the signatures must be secured through a review of the individual transaction.

In addition to underwriting and capacity limits, Swiss Re's limit framework includes aggregate Group limits for L&H risk as well as separate limits for mortality, longevity and lethal pandemic risk. At SRZ and SRLC level, acceptance of life and health risks is governed by aggregated limits. Market

exposure limits are in place for catastrophe and stop loss business. Swiss Re pays particular attention to densely populated areas and applies limits for individual buildings to guard against risk exposure accumulations.

Financial risk

Financial risk management involves identifying, assessing and controlling risks inherent in the financial markets as well as counterparty credit risks, while monitoring compliance with Swiss Re's risk appetite and risk management standards.

Swiss Re's central Financial Risk Management team oversees all activities that generate financial market or credit risk. Its mandate covers internally and externally managed assets, strategic participations, treasury activities, and credit and market risks that derive from Swiss Re's underwriting and retrocession activities, including structured transactions, credit insurance and surety business. The Head of Financial Risk Management reports to

the Group Chief Risk Officer, with a secondary reporting line to the Group Chief Investment Officer.

Financial Risk Management controls exposure accumulation for financial market and credit risks. In addition, the team is responsible for assurance activities related to asset valuation and financial risk models, as well as for reporting Swiss Re's financial risks. These responsibilities are exercised through defined governance processes, including regular reviews by Swiss Re's Senior Risk Council and other financial risk oversight bodies.

All activities with financial market and credit risk are subject to limits at various levels of the organisation (eg Group,

lines of business and legal entities). At the highest level, the Group Board of Directors sets a financial risk concentration limit which defines how much of the Group's risk exposure can derive from financial risk. As part of the business planning process, the Group Executive Committee establishes limits for aggregate financial market and credit risk at Group level as well as for major legal entities, with additional limits set for individual risk factors, business lines, portfolio managers, corporate counterparty and country. Risk limits may be expressed in terms of losses in a stress scenario, value at risk based on historic market moves, linear sensitivities to a particular risk factor or different methodologies of exposure aggregation.

Financial market risk

Change from 2016 99% tail VaR: -3%



Developments in 2017

In terms of tail VaR, overall financial market risk decreased by 3% to USD 11.9 billion. The reduction was primarily driven by lower credit spread risk, which decreased due to the minority investment of MS&AD into ReAssure; to a lesser extent the decrease is also due to a simplified aggregation methodology for bond portfolios and lower risk factor volatilities. These effects were partly

offset by the strengthening of the British pound and additional government bond and credit investments.

The sensitivities on page 87 show the pre-tax impact of various market scenarios on Swiss Re's economic capital. They differ from tail VaR, in particular as they do not take into account the historic volatility of the underlying assets.

Management

Financial market risk is monitored and controlled by dedicated experts within the Group's Financial Risk Management team. Financial Risk Management regularly reports on key financial market risks and risk aggregations, as well as on specific limits for internally and externally managed investment mandates. These reports track exposures, document limit usage and provide information on key risks that could affect the portfolio. The reports are presented and discussed with

those responsible for the relevant business line at the weekly Financial Market Risk Council.

The reporting process is complemented by regular risk discussions between Financial Risk Management, Asset Management and the Group's external investment managers, as well as by regular interactions with other key units that take financial market risk, such as Principal Investments and Acquisitions, Treasury, and the respective business teams that write transactions.

FINANCIAL MARKET AND CREDIT RISK STRESS TESTS



Pre-tax impact on economic capital in USD billions, as of 31 December	2016	2017	Change in %
Market scenarios			
100bp increase in credit spreads	-4.4	-4.4	0
30% fall in equity markets (incl. hedge funds)	-2.5	-2.7	8
15% fall in real estate markets	-0.7	-0.7	11
100bp parallel increase in global yield curves	-0.1	-0.1	-20
Credit stress test			
Credit default stress	-2.9	-3.0	3

Credit risk

Change from 2016 99% tail VaR: -3%



Developments in 2017

In 2017, Swiss Re's credit risk – which includes default and migration (deterioration in credit rating) risk – decreased slightly to USD 3.3 billion.

The main driver for the decrease in credit risk was lower exposure as a result of the minority investment of MS&AD into ReAssure as well as due to the implementation of counterparty default hedges.

The table above shows the pre-tax impact of various market scenarios on Swiss Re's economic capital. The credit default stress is calculated as the change in expected loss of the credit exposure in a stress event.

Management

Credit risk is monitored and controlled by experts within the Financial Risk Management team. Financial Risk Management regularly monitors and reports on credit exposures and limits. In addition, it is responsible for regularly monitoring corporate counterparty credit quality and exposures, and compiling watch lists of cases that merit close attention. These reports are presented and discussed with those responsible for the relevant business line at the weekly Credit Council.

The reporting process is supported by a Group-wide credit exposure information system that contains all relevant data, including counterparty details, ratings, credit risk exposures, credit limits and watch lists. Key credit practitioners across Swiss Re have access to this system, thus providing the necessary transparency to implement specific exposure management strategies for individual counterparties, industry sectors and geographic regions.

To take account of country risks other than from credit default, the Group's Political Risk Management team prepares specific country ratings in addition to the sovereign ratings used by Swiss Re. These ratings are considered in the decision-making process and cover political, economic and security-related country risks.

Management of other significant risks

Operational risk

Risk Management is responsible for monitoring and controlling operational risks based on a centrally coordinated methodology. Members of the Group Executive Committee are required to certify the effectiveness of the internal control system for their respective area of responsibility on a quarterly basis.

The Group's framework for mitigating operational risk is based on its three lines of control, assigning primary responsibility for identifying and managing risks to individual risk takers (first line of control), with independent oversight and control by the Risk Management and Compliance functions (second line of control) as well as Group Internal Audit (third line of control). This approach is designed to achieve a strong, coherent and Group-wide risk culture built on the principles of ownership and accountability.

Operational risk is inherent within Swiss Re's business processes. As the company does not receive an explicit financial return for such risks, the approach to managing operational risk differs from the approach applied to other risk categories. The purpose of operational risk management is to identify and cost-effectively mitigate operational risks that approach or exceed Swiss Re's tolerance.

Swiss Re's operational risk tolerance limits are based on a combination of the quantitative and qualitative impact as well as the probability of loss. The residual risk – the risk after mitigation – is assessed and reported on a quarterly basis to executive management and Boards of Directors at Group and legal entity level.

All operational events and issues are recorded and managed in a central Operational Risk Management system in order to address the identified problems and avoid the recurrence of similar events.

In 2017, Swiss Re has evolved its operational risk framework and refined the Group's integrated Internal Control System. As a result, a centrally governed global operational risk register with a global control catalogue provide a sound basis for the quarterly risk and control self-assessments and reporting. Throughout 2017, Swiss Re focused on further improvements on data analytics and visualisation as well as a software solution to better manage end-user applications.

Group Operational Risk Management actively participates in various research projects on topics such as risk boundaries, scenario analysis and cyber risk.

Strategic risk

Overall responsibility for managing strategic risk lies with the Group Board, which establishes Swiss Re's overall strategy. The Boards of legal entities are responsible for the strategic risk inherent in their specific strategy development and execution. Strategic risks are addressed by examining multi-year scenarios, considering the related risks, as well as monitoring the implementation of the chosen strategy year-by-year in terms of the annual business plan.

As part of their independent oversight role, Risk Management, Compliance and Group Internal Audit are responsible for controlling the risk-taking arising from the implementation of the strategy.

Regulatory risk

Swiss Re is strongly engaged in the regulatory debate and interaction, striving to mitigate potentially negative impacts while supporting reforms that could enhance the overall health of the sector, facilitate convergence of regulatory standards or generate business opportunities.

Regulatory developments and related risks that may affect Swiss Re and its subsidiaries are identified, assessed and monitored as part of regular oversight activities. Periodic reports and recommendations on regulatory issues are provided to executive management and the Board at Group and legal entity level.

The regulatory environment of the insurance industry continues to evolve on the national, regional and international level. While some regulatory changes create new business opportunities, others come with significant costs and business restrictions. Growing regulatory complexity, increased national protectionism and a fragile global economy are persistent themes affecting regulation and the way Swiss Re operates worldwide.

In 2017, Swiss Re was again not designated as Global Systemically Important Insurer (G-SII). The non-designation confirms that the international supervisory community continues to assess Swiss Re as neither causing nor amplifying systemic risk.

While prudential regulation in most regions is developing towards more risk-sensitive and economic-based capital regimes, regulatory fragmentation is increasing. Regulators show declining appetite for globally aligned policy reforms. Local capitalisation rules often fail to fully recognise the benefits of risk mitigation and diversification. In addition, there are moves to limit the use of internal models influenced by post-crisis banking regulation. Swiss Re strongly supports the use of internal models, full recognition of risk mitigation and diversification, appropriate consideration of counterparty default and concentration risk, and efficient application of eligible capital instruments. Uncoordinated regulatory approaches will be less effective in promoting financial stability and could undermine re/insurers' ability to support economic activity and closing the protection gap.

Growing national protectionism restricts the free flow of risk and capital. Swiss Re is advocating for the removal or reduction of market access barriers, so that policyholders, governments, taxpayers and national economies can fully benefit from international diversification and therefore reliable, quality and affordable risk cover.

Political risk

Political developments can threaten Swiss Re's operating model but also open up opportunities for developing the business. The Group adopts a holistic view of political risk and analyses developments in individual markets and jurisdictions, as well as cross-border issues such as war, terrorism, energy-related issues and international trade controls.

A dedicated Political Risk team identifies, assesses and monitors political developments worldwide. Swiss Re's political risk experts exercise oversight and control functions for named political risks, such as in the political risk insurance business; this includes monitoring political risk exposures, providing recommendations on particular transaction referrals and risk reporting. In addition, the Political Risk team provides specific country ratings that cover political, economic and security-related country risks; these ratings complement sovereign credit ratings and are used to support risk control activities and inform underwriting or other decision-making processes throughout the Group.

Swiss Re seeks to raise awareness of political risk within the insurance industry and the broader public, and actively engages in dialogue with clients, media and other stakeholders. We also build relationships that expand our access to information and intelligence, and allow us to further enhance our methodologies and standards. For example, we participate in specialist events hosted by institutions such as the International Institute of Strategic Studies, the Geneva Center for Security Policy, or the Risk Management Association, and maintain relationships with political risk specialists in other industries, think tanks and universities, as well as with governmental and non-governmental organisations.

The timing and consequences of the Brexit are not clear yet and depend on the outcome of the negotiations between the EU and the UK. Swiss Re operates in the UK through branches of our Luxembourg entities and some UK-domiciled entities. We are thus closely monitoring developments and are actively engaging with the relevant UK and EEA regulators in defining and aligning our Brexit contingency plans.

Model risk

Swiss Re uses models throughout its business processes and operations, in particular to price insurance products, value financial assets and liabilities, assess reserves and portfolio cash flows, and estimate risk and capital requirements. Model owners have primary responsibility for model-related risks and are required to adhere to a robust tool development process, including testing, peer review, documentation and sign-off. A similar process also applies to model maintenance.

Swiss Re's model governance is based on Group-wide standards for model validation and model changes. These standards seek to ensure that each material model has a clear scope, is based on sound mathematical and scientific concepts, has been implemented correctly and produces appropriate results given the stated purpose. Furthermore, the calibration of model parameters (and the data on which calibration relies) must be trustworthy, while expert judgments are required to be sensible, documented and evidenced.

Analytical or financial models that are used for costing, valuation and risk capital calculations are governed by Swiss Re's Model and Tool Assurance Framework. This requires the appropriateness of models to be assessed in an independent end-to-end validation process that includes specification, algorithms, calibration, implementation, results and testing. Material models used for costing, valuation of reserves and assets as well as Swiss Re's internal risk model are validated by dedicated teams within Risk Management. These teams provide independent assurance that the framework has been adhered to, and also conduct independent validations. Swiss Re's risk model is also subject to regulatory scrutiny.

Risk and capital management

Risk and assessment

Model-related incidents are captured within Swiss Re's operational risk framework. In addition, material model developments, incidents and risks are reported in regular risk updates to executive management and the Board at Group and legal entity level.

Swiss Re works closely with industry peers to develop and share best practices for assessing and managing model-related risks. In this context, we are actively participating in a CRO FORUM working group that provides a platform for such exchanges and is working on frameworks for model risk.

Valuation risk

Financial valuation risk is managed by a dedicated team within Financial Risk Management. The team performs independent price verification for financial risk positions to confirm that valuations are reasonable and ensure there are no material misstatements of fair value in Swiss Re's financial reports. The results of the independent price verification process are reviewed by the Asset Valuation Committee. Summary results are regularly reported to executive management and the Board at Group and legal entity level. In addition, Swiss Re's external auditor conducts quarterly reviews as well as a comprehensive year-end audit of controls, methodology and results.

Reserve valuation risk is managed by Swiss Re's Actuarial Control function, with dedicated teams for property and casualty, and life and health valuation. These teams ensure that Swiss Re's reserve setting process uses an appropriate governance framework, including defined accountabilities and decision-making processes for risk takers (as the first line of control) as well as for Actuarial Control. The framework ensures that there is independent assurance on the data, assumptions, models and processes used for valuation purposes; for all property and casualty business and selected life and health portfolios, it also includes an independent valuation of coverage provided to ensure that reserves are within an adequate range. Regular deep-dive investigations are performed into selected portfolios in order to review the appropriateness of both the reserves and the applied reserving approach.

In 2017, Actuarial Control extended the independent valuation of coverage provided to ensure that reserves are within an adequate range to segments of life and health business.

Sustainability risk

Swiss Re's continued business success depends on the successful management of sustainability risks, thus helping to maintain the trust of its stakeholders. The Group has a long-standing commitment to sustainable business practices, active corporate citizenship, as well as good, transparent governance. All employees are required to commit to and comply with Swiss Re's values and sustainability policies.

Potential sustainability risks are mitigated through clear corporate values, active dialogue and engagement with affected external stakeholders, and robust internal controls. These include a Group-wide Sustainability Risk Framework to identify and address sustainability risks across Swiss Re's business activities. The framework comprises sustainability-related policies – with pre-defined exclusions, underwriting criteria and quality standards – as well as a central due diligence process for related transactional risks.

Sustainability risks are monitored and managed by dedicated experts in Swiss Re's Group Sustainability Risk team, which is also responsible for maintaining the Sustainability Risk Framework. In addition, this unit supports Swiss Re's risk management and business strategy through tailored risk assessments and risk portfolio reviews. It fosters risk awareness through internal training, and facilitates development of innovative solutions to address sustainability issues. Finally, it represents and advocates Swiss Re's position on selected sustainability risk topics to external stakeholders.

Swiss Re is a founding signatory to the UN Principles for Sustainable Insurance (UN PSI) and is currently a board member of this initiative. The UN PSI provide a global framework for managing environmental, social and governance challenges. Swiss Re has been actively contributing to the initiative for several years, co-chaired it from 2013 to 2015 and publicly reports progress against the principles in its annual Corporate Responsibility Report; the 2017 edition has been published together with the 2017 Financial Report.

In June 2017, Swiss Re decided to develop a carbon risk steering mechanism that will help guide our business towards a low-carbon world and support our clients in their transition. The first part of the carbon steering mechanism will take form of a thermal coal policy, which will be integrated in the Sustainability Risk Framework by mid-2018. It will apply across all lines of business on direct, facultative and treaty side. This transition will take some time and constructive dialogue with clients.

Reflecting our strong overall commitment to corporate responsibility, Swiss Re continued to be included in leading sustainability indexes and rankings such as FTSE4Good, Euronext Vigeo World 120, Ethibel Excellence Global, oekom Prime Investment and the Dow Jones Sustainability Index. For more information on our sustainability practices, see also the Corporate Responsibility section on page 138 as well as our 2017 Corporate Responsibility report.

Emerging risk

Anticipating possible developments in the risk landscape is a central element of Enterprise Risk Management. Swiss Re promotes pre-emptive thinking on risk in all areas of the business in order to reduce uncertainty and diminish the volatility of the Group's results, while also identifying new business opportunities and raising awareness for emerging risks.

For this purpose, Swiss Re's risk identification processes are supported by a systematic framework that identifies, assesses and monitors emerging risks and opportunities across all areas of Swiss Re's risk landscape. This framework combines a bottom-up approach driven by employee input with central and regional experts on emerging risk. The resulting information is complemented with insights from external organisations such as think tanks, academic networks and international organisations, as well as from interaction with clients.

Findings are reported to management and internal stakeholders, including a prioritised overview of newly identified emerging risks and an estimate of their potential impact on Swiss Re's business. Swiss Re also publishes an annual emerging risk report (Swiss Re SONAR) to raise awareness within the Group and across the industry, and initiate a risk dialogue with key external stakeholders.

To further advance risk awareness across the industry and beyond, Swiss Re continues to participate actively in strategic risk initiatives such as the CRO Forum's Emerging Risk Initiative and the International Risk Governance Council.