Risk review

Annual results 2022

Zurich Insurance Group

Message from our Group Chief Risk Officer

In today's volatile world, we are all risk managers. As the Group marked its 150-year anniversary, focused risk management continued to be a cornerstone of our success.

Peter Giger
Group Chief Risk Officer

Dear Shareholder

Events in 2022 clearly demonstrated a world where risks increased in dynamism and interconnectivity. It was a year marked by the resurfacing of historic and intertwined challenges previously considered to have been vanquished – war in Europe, high inflation, energy crises and escalating tensions between major geopolitical powers.

Despite the volatile environment, the Group has continued to remain financially robust and operationally resilient to continue to serve our customers. While there are significant external challenges, our solid risk management provides optimism that the Group can continue to build on its success in the years to come.

This position has been reached through diligent and patient preparation, which has allowed us to adapt quickly to identify, assess and manage the threats arising from today's uncertain and rapidly changing world.

Message from our Group Chief Risk Officer (continued)

Risk management has been at the center of this preparation, equipping all our employees with the right level of information and discipline to continue to actively take risks within the Group's risk appetite and tolerance.

This has been underpinned by a culture, driven by risk management experts, where risk-reward trade-offs are transparent, understood and appropriately managed.

Our integrated Enterprise Risk Management framework has continued to support effective risk identification and assessment to help protect our capital, liquidity, earnings and reputation. This has been supplemented by the ongoing application of our Total Risk Profiling™ methodology, which has helped to maintain our focus on the risks that matter.

Finding solutions for complex challenges

The war in Ukraine and subsequent energy crisis has added to an already difficult backdrop marked by social imbalances, large-scale public debt, cyber warfare and threats to public health. As authorities and societies continue to search for adequate solutions, challenges are heightened by inadequate preparation, competing interests and the consequences of past decisions.

Nowhere has this been more evident than in the struggle to tame high inflation. Governments and central banks are scrambling to respond – only this time without the firepower and levers once available for similar crises in the past. With limited scope to concurrently manage economic and associated societal pressures, the risk of policy error remains high.

Against this backdrop, our expertise and tools, such as dynamic scenario and sensitivity analyses, to assess and proactively manage potential impacts, are more important than ever. We continue to use the output of scenario assessments, to develop, implement and monitor actions for the benefit of our customers, shareholders and other stakeholders.

Sustainability

While the risk landscape becomes ever more complex, climate change remains the overarching challenge to be tackled in today's world. Managing the risks posed by climate change in tandem with the Group's commitment to sustainability, remains a central part of Zurich's risk management approach.

The scale of the challenge we face means a cross-society approach is required. Zurich is playing its part in responding but also aims to inspire action together with its customers and investees by continuing to promote best practices in managing the interconnectivity of environmental, social and governance (ESG) risks.

Strong financial position

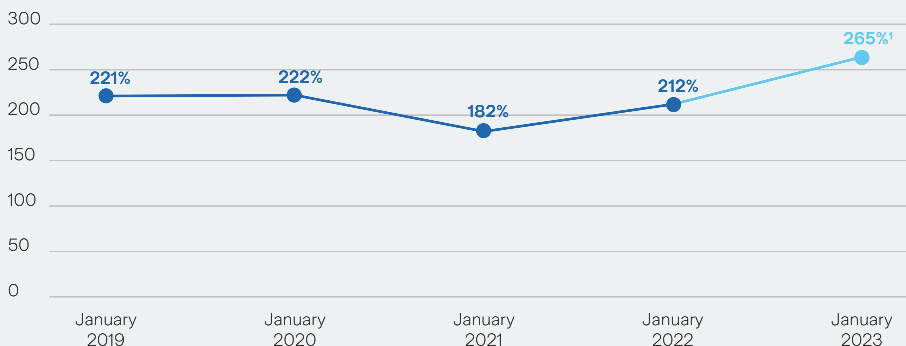
Our financial strength remained at historically strong levels during 2022 (see page 9 for Swiss Solvency Test results). This reaffirms our resilience and ability to continue to support our customers in shaping their future.

Peter Giger
Group Chief Risk Officer

Development of Swiss Solvency Test ratio

The Group Swiss Solvency Test (SST) ratio increased to 265 percent[1] as of January 1, 2023 from 212 percent as of January 1, 2022. The development of the SST ratio in 2022 reflects strong underlying capital generation, portfolio management and a significant rise in interest rates.

SST ratio
in %



1 The SST results as of January 1, 2023 are estimated and may differ from the final SST results, which will be presented in the Financial Condition Report at the end of April 2023.

Analysis of Group total risk capital
in %, as of January 1, 2023

Insurance risk	48%
Market risk, including investment credit risk	50%
Other credit risk	2%

Highlights by risk type

Insurance risk

The Group's insurance risk is diversified by geography, line of business, product and customer, supported by our centralized purchase of reinsurance which led to continued sound insurance outcomes in 2022 in the face of natural catastrophes and the inflationary environment.

Read more:
Pages 12–18

Market risk

Required capital held by the Group for investment risk taking declined during 2022. This is the result of higher interest rates affecting asset and liability market values and a resulting improvement in capital held against any asset-liability mismatch. Financial market volatilities have been stable against prior year while remaining elevated against long-term averages. Market risk has been reduced during the year as a result of the disposal of the Italian Life back book and other actions associated with the German Life back book. The Group's investment portfolio remains well diversified across risk drivers and geographies.

Read more:
Pages 19–25

Other credit risk

Credit Quality remained stable despite challenging macroeconomic and geopolitical conditions.

Read more:
Pages 25–26

Operational risk

Zurich's operational risk management approach enables the Group to focus on high-priority matters under demanding circumstances.

Read more:
Pages 27–28

Risk review

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The risk review information marked 'audited'
is an integral part of the consolidated financial statements.

Risk management

Audited

The risk review information marked 'audited' is an integral part of the consolidated financial statements.

Audited

Objectives of risk management

Taking and managing risk is an integral part of the insurance business. Zurich takes risks in order to support the achievement of its strategy and serve its customers in global and local markets. Risk management contributes to enhancing the value of Zurich by embedding disciplined and conscious risk taking, where risk-reward trade-offs are transparent and understood, and risks are appropriately rewarded.

The Group's objectives in managing risks are to:

- Support achievement of its business strategy and objectives, protect capital, liquidity, earnings and reputation by identifying, assessing, responding to, monitoring and reporting risks in line with the Group's risk appetite and tolerance.
- Enable the Board of Directors (the 'Board'), senior management and other stakeholders charged with governance and oversight, to discharge their risk management responsibilities, including risk reporting and external disclosures.
- Support transparency in decision-making processes by providing consistent, reliable and timely risk information.
- Embed a culture of risk awareness and disciplined and informed risk-taking.

Enterprise risk management framework

To achieve its risk management objectives, the Group manages risk according to an established enterprise risk management (ERM) framework. The Group's ERM framework is the structure to manage risks within the organization. It is comprised of six components: risk governance and risk culture, risk appetite and tolerance, risk identification and risk assessment, risk response, risk monitoring, and risk reporting. The Group's ERM framework is documented by both policy and non-policy documents, including the Zurich Risk Policy (ZRP) and related risk policy manuals, and is complemented by training and guidance materials.

The Group's risk appetite and tolerance statement reflects Zurich's willingness and capacity to take risks in pursuit of value creation and sets boundaries within which the businesses act. Zurich protects its capital, liquidity, earnings and reputation by monitoring that risks are taken within agreed risk appetite levels and tolerance limits. The Group regularly assesses and, as far as possible, quantifies material risks to which it is exposed.

The ZRP is a Group policy that articulates Zurich's approach to risks and sets mandatory requirements for risk management throughout the Group. The policy describes the Group's ERM framework and provides a standardized set of risk types. Risk-specific policy manuals provide requirements and procedures to implement the principles in the ZRP.

The Group identifies, assesses, manages, monitors and reports risks that have an impact on the achievement of its business strategy and objectives by applying its proprietary Total Risk Profiling™ methodology. The methodology allows Zurich to assess risks in terms of severity and likelihood, and supports the definition and implementation of mitigating actions. At Group level, this is an annual process, followed by regular reviews and updates by management.

To foster transparency about risk, the Group regularly reports on its risk profile at business, Group, and Board levels. The Group has procedures to refer risk topics to senior management and the Board of Directors in a timely manner.

The Group's solvency position is disclosed on the basis of the Swiss Solvency Test (SST) ratio. The Group's SST internal model is approved by the Swiss Financial Supervisory Authority (FINMA). Zurich's goal is to maintain capital consistent with a 'AA' financial strength rating for the Group, which translates into an SST ratio target of 160 percent or above.

The Group applies the Zurich Economic Capital Model (Z-ECM) as an internal metric. Z-ECM provides a key input into the Group's planning process as an assessment of the Group's economic risk profile.

Risk-based remuneration

Based on the Group's remuneration rules, the Board of Directors designs and structures remuneration arrangements that support the achievement of strategic and financial objectives and do not encourage inappropriate risk-taking.

Group Risk Management's role in respect of remuneration and its interaction with Board committees is described in the remuneration report.

Risk management (continued)

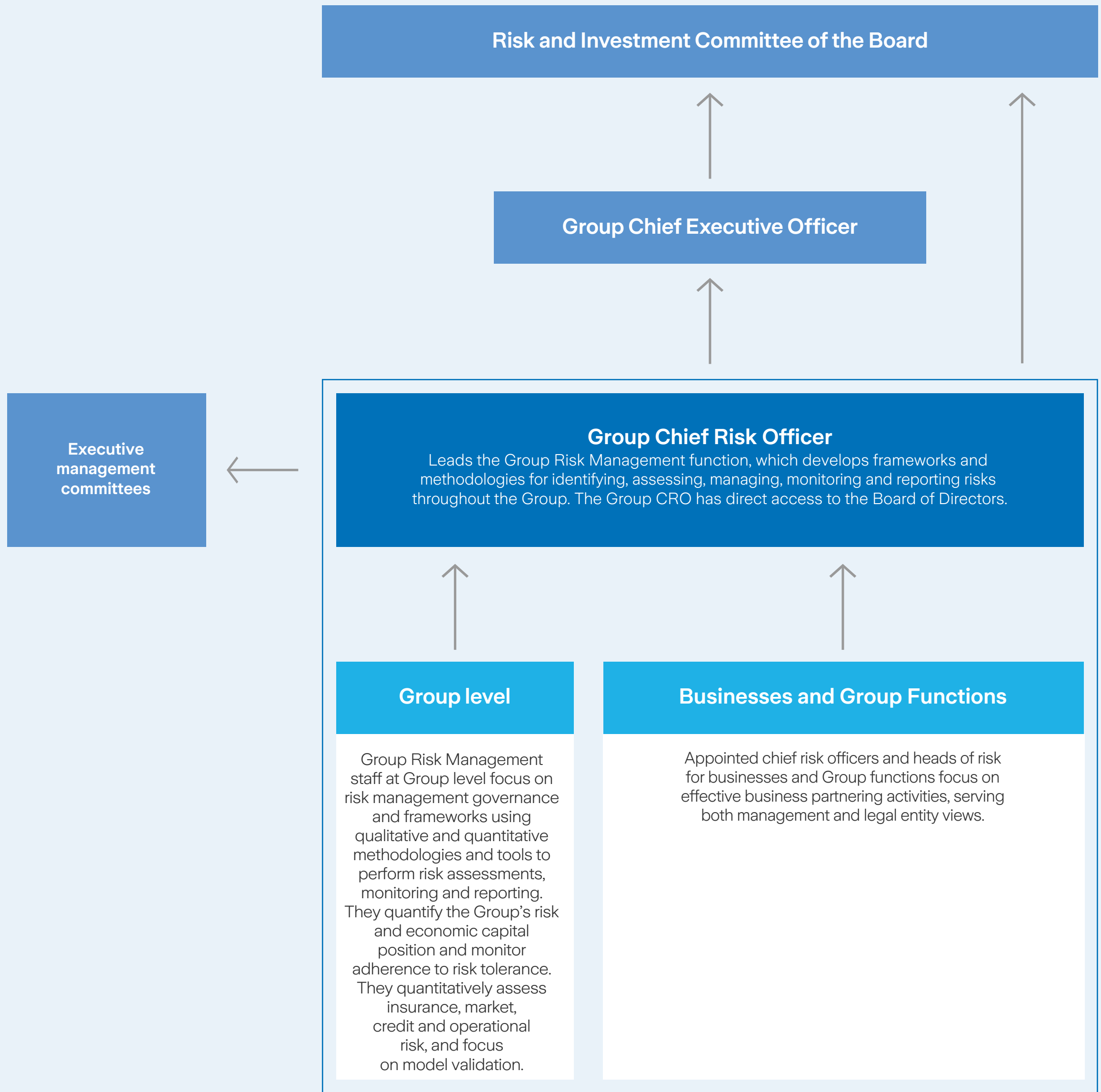
Audited

Risk governance and risk management organization

For information on the Group's overall governance, including the Board of Directors and Group executive level, see the corporate governance report (unaudited).

Risk management organization

The Group Risk Management function is a global function, led by the Group Chief Risk Officer (CRO).



The risk function is independent of the business by being a vertically integrated function. Unless otherwise required by local laws or regulations, chief risk officers and heads of risk report into the Group CRO, except for the Farmers Chief Risk Officer, who has a matrix reporting line to the Group CRO. They independently challenge, support and advise management on business decisions from a risk perspective.

Capital management

Audited

Objectives of capital management

The Group manages capital to maximize long-term value while maintaining financial strength within its 'AA' target range, and meeting regulatory, solvency and rating agency requirements.

As of December 31, 2022, International Financial Reporting Standards (IFRS) shareholders' equity of USD 26.6 billion and subordinated debt of USD 8.9 billion were part of the capital available in the Group's SST available financial resources (AFR). Further adjustments usually include items such as intangible assets, deferred tax assets and liabilities, allowing for discounting of liabilities and the value of in-force business, and market-consistent valuation of external debt according to the methodology under SST.

Zurich strives to simplify the Group's legal entity structure to reduce complexity and increase fungibility of capital.

On January 1, 2023 the Group adopted IFRS 17 'Insurance contracts' and IFRS 9 'Financial Instruments'. For more information including the transitional effects on shareholders' equity, refer to note 2 of the Group's consolidated financial statements.

Capital management framework

The Group's capital management framework forms the basis for actively managing capital within Zurich. The Group uses a number of different capital models, taking into account economic, regulatory, and rating agency constraints. The Group's capital and solvency position is monitored and regularly reported to the Executive Committee (ExCo) and Board of Directors.

Zurich's policy is to allocate capital to businesses earning the highest risk-adjusted returns, and to pool risks and capital as much as possible to operationalize its risk diversification.

The Group's executive management determines the capital management strategy and sets the principles, standards and policies to execute the strategy. Group Treasury and Capital Management executes the strategy.

Capital management program

The Group's capital management program comprises various actions to optimize shareholders' total return and to meet capital needs, while enabling Zurich to take advantage of growth opportunities. Such actions include paying and receiving dividends, capital repayments, share buybacks, issuance of shares, issuance of senior and hybrid debt, securitization and purchase of reinsurance.

The Group seeks to maintain a balance between returns for shareholders and the security that a sound capital position provides, also for our customers. Dividends, share buybacks, and issuances and redemption of debt have a significant influence on capital levels. During 2022, the Group:

- paid a dividend out of retained earnings and capital contribution reserve,
- bought own shares to reduce future dilution from share-based employee compensation plans and to offset expected earnings dilution related to the sale of a legacy traditional life insurance back book in Germany, which is subject to regulatory approval, and
- issued senior and hybrid debt to refinance maturing and callable debt and to early repay hybrid debt, as well as to finance investments in the Group's development.

The Swiss Code of Obligations stipulates that dividends may only be paid out of freely distributable reserves or retained earnings. Apart from what is specified by the Swiss Code of Obligations, Zurich Insurance Group Ltd faces no legal restrictions on dividends it may pay to its shareholders. As of December 31, 2022, the amount of the statutory general legal reserve was more than 50 times the paid-in share capital. The ability of the Group's subsidiaries to pay dividends may be restricted or indirectly influenced by minimum capital and solvency requirements imposed by insurance and other regulators in the countries in which the subsidiaries operate. Other limitations or considerations include foreign exchange control restrictions in some countries, and rating agencies' methodologies.

For more information on issuances and redemptions of debt, see note 18 of the consolidated financial statements. For more information on acquisitions and divestments, see note 5 of the consolidated financial statements.

Risk and solvency assessment

Audited

Regulatory capital adequacy

The Group endeavors to manage its capital so that its regulated entities meet local regulatory capital requirements. In each country in which the Group operates, the local regulator specifies the minimum amount and type of capital that each of the regulated entities must hold in addition to their liabilities. In addition to the minimum capital required to comply with the solvency requirements, the Group aims to hold an adequate buffer under local solvency requirements to ensure regulated subsidiaries can absorb a level of volatility and meet local capital requirements.

Regulatory solvency regimes

Regulatory requirements in Switzerland

The Swiss Solvency Test (SST) adopts a risk-based and total balance sheet approach. Insurance companies are required to provide a market-consistent assessment of the value of their assets and liabilities. Possible changes to these balance sheet positions are modelled over a one-year period to arrive at the total required capital.

Under the SST, insurance companies and insurance groups can apply to use company-specific internal models to calculate risk-bearing and target capital, as well as the SST ratio. The SST ratio must be calculated as per January 1 and submitted to the Swiss Financial Market Supervisory Authority (FINMA). Zurich filed with FINMA an SST ratio of 212 percent (unaudited) as of January 1, 2022. Zurich met the regulatory solvency requirements in Switzerland throughout 2022.

The estimated SST ratio as of January 1, 2023 stands at 265 percent (unaudited). The final SST ratio as of January 1, 2023 will be filed with FINMA by the end of April 2023 and is subject to review by FINMA.

Regulatory requirements in the European Economic Area (EEA)

The main regulatory framework governing the Group's subsidiaries in the EEA is Solvency II. This is a risk-based capital framework which covers capital requirements (pillar 1), governance and risk management (pillar 2) and reporting (pillar 3). All EEA-based legal entities of the Group use the Solvency II standard formula for their pillar 1 requirements with the exception of Zurich Insurance plc (Ireland) that applies an approved internal model. A scheduled review of the Solvency II framework is currently being conducted by the European Insurance and Occupational Pensions Authority (EIOPA) and will entail changes to the standard formula, reporting and introduces new rules around macro-prudential supervision and sustainability. The revised framework is expected to become effective from January 1, 2025.

Regulatory requirements in the UK

The United Kingdom left the EU and the EEA on January 31, 2020 and the transition period ended on December 31, 2020, meaning UK regulations can diverge from Solvency II regulatory requirements. As of December 31, 2022 the UK regulations have not materially diverged. However, a review of the regulations (now called Solvency UK) was completed by the UK government in 2022, and this identified a number of areas where the regulations should be amended to better reflect the UK market. In 2023 and 2024, the PRA and UK HM Treasury will work to enable the UK government's proposals.

Regulatory requirements in the U.S.

In the U.S., required capital is determined to be 'company action level risk-based capital' calculated using the National Association of Insurance Commissioners' risk-based capital model. This method, which builds on statutory accounts, measures the minimum amount of capital for an insurance company to support its overall business operations by taking into account its size and risk profile.

Regulatory requirements in other jurisdictions

Every country has a capital standard for insurance companies. Several jurisdictions (e.g., Brazil and Mexico) have implemented approaches similar to Solvency II.

Risk and solvency assessment (continued)

Swiss Solvency Test (SST) ratio

The SST ratio is calculated as Group's SST available financial resources (AFR) minus market value margin (MVM) divided by the net of SST target capital (TC) and MVM. Market value margin, also known as risk margin, is the cost of future regulatory risk capital stemming from the present portfolio of assets and liabilities.

In 2022, the solvency of the Group has improved by 53 ppts with an estimated SST ratio of 265 percent as of January 1, 2023, well above the Group's SST ratio target of 160 percent. The Group solvency has benefitted from the strong rise in interest rates across all currencies. Strong capital generation and M&A transactions had further positive impact of the ratio.

In the SST ratio calculations as of January 1, 2023, no allowances have been made for the sale of the German traditional life insurance back book which is subject to regulatory approval, however the announced share buy back is accounted for.

SST available financial resources

The Group's AFR are derived from the SST net asset value (NAV). The NAV represents the difference between the market-consistent value of assets and liabilities according to the market-consistent valuation methodology under SST.

During 2022, the Group's AFR reduced by USD 10.1 billion to USD 42.3 billion as of January 1, 2023, compared to USD 52.4 billion as of January 1, 2022. The main drivers of the AFR decrease in 2022 were negative equity and credit market development, USD appreciation and accounting for the announced share buy back and reduction of subordinated debt.

SST target capital

The Group uses an internal risk model to determine the required target capital (TC).

The Group's TC as of January 1, 2023 amounted to USD 18.7 billion, a decrease of USD 9.1 billion compared to USD 27.8 billion as of January 1, 2022, primarily due to a reduction in market risk following the interest rates raise and USD appreciation against major currencies.

Table 1

Group Swiss Solvency Test (SST) ratio and underlying components

in USD billions	**January 1, 2023[1]**	January 1, 2022
Total risk capital	19.1	24.3
Other effects on target capital (TC)[2]	(4.9)	(2.2)
Market value margin (MVM)	4.5	5.7
TC	18.7	27.8
TC minus MVM	**14.2**	**22.1**
Available financial resources (AFR)	42.3	52.4
AFR minus MVM	**37.7**	**46.7**
Group SST ratio	**265%**	**212%**

1 The SST results as of January 1, 2023 are estimated and may differ from the final SST results, which will be presented in the Financial Condition Report at the end of April 2023.
2 Other effects are expected business development over the forecasting horizon, additional business costs and FINMA requirements.

Risk and solvency assessment (continued)

Total risk capital by risk type

The chart below shows the total risk capital, split by risk type, as of January 1, 2023 and as of January 1, 2022. As of January 1, 2023, the largest components of total risk are market risk and premium and reserve risk, comprising 50 percent and 25 percent of the total risk capital, respectively.

The decrease in total risk capital as of January 1, 2023 compared to January 1, 2022, follows a reduction in market risk, mainly due to the substantially higher interest rate environment and appreciation of the USD against major currencies. Other risk types benefitted from the higher interest rate environment to a smaller degree.

In absolute terms premium and reserve risk remained largely unchanged, however, in relative terms its contribution to the total risk capital has increased to 25% as of January 1, 2023 compared to 16% as of January 1, 2022, following the reduction in market risk and the overall reduction of the total risk capital.

Total risk capital, split by risk type

January 1, 2023
in %

Market risk	50%
Premium & reserve risk	25%
Business risk	10%
Life insurance risk	6%
Natural catastrophe risk	7%
Other credit risk	2%

January 1, 2022
in %

Market risk	63%
Premium & reserve risk	16%
Business risk	9%
Life insurance risk	5%
Natural catastrophe risk	6%
Other credit risk	1%

Sensitivity and scenario analysis

The Group evaluates sensitivities to, and stress scenarios on, the SST ratio, and assesses results relative to Zurich's risk appetite and tolerance. The sensitivities and stress scenarios in the chart below capture two key risks to the Group: market risk and insurance risk.

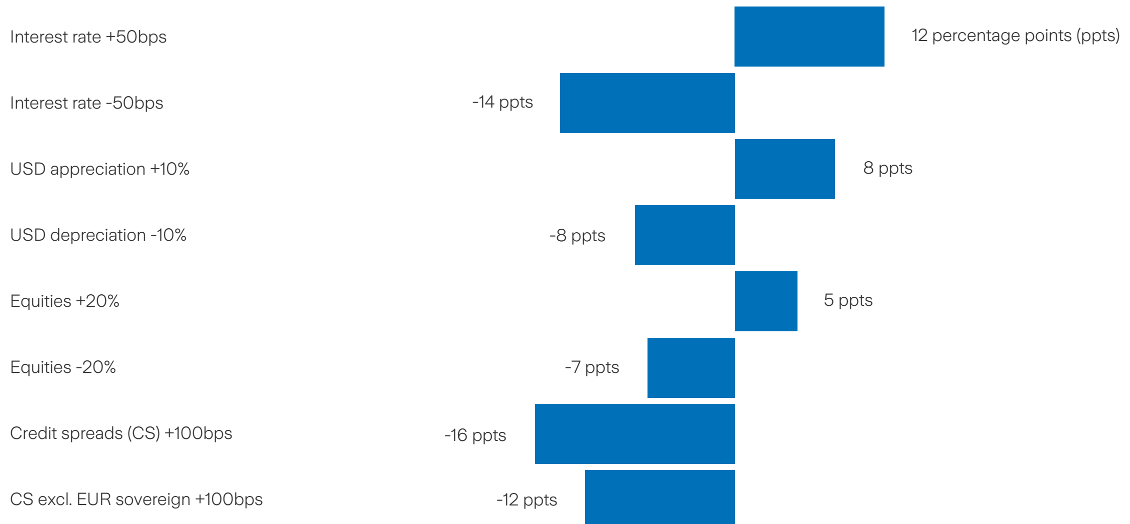
Market risk sensitivities show the estimated impact on the Group's SST ratio of a half percentage-point (50 basis points, or bps) increase or decrease in yield curves, a 10 percent appreciation or depreciation in the U.S. dollar, a 20 percent rise or decline in all stock markets, and a 100 bps increase in credit spreads, with and without euro-denominated sovereign bonds. The sensitivities are considered as separate but instantaneous shocks. They are a best estimate and non-linear, for example, a change to the size of the market movement could result in disproportionally higher (or lower) impact on the SST ratio depending on the prevailing market conditions at the time.

For insurance risk, the chart shows the three largest natural catastrophe events to which the Group is exposed. Insurance risk scenarios are defined as events that have a small probability of occurring but could, if realized, negatively affect the Group's AFR. The impact of insurance-specific scenarios on the target capital is not taken into account.

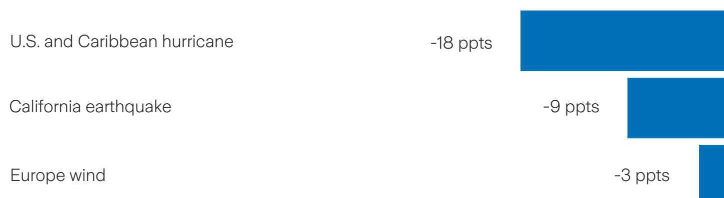
Risk and solvency assessment (continued)

SST sensitivities and scenarios
as of October 1, 2022[1]

Impact on the SST ratio from sensitivities to financial market conditions:[2]



Impact on the SST ratio due to property and casualty risk-specific scenarios:[3]



1 Base ratio and sensitivities are calculated post Italian back book transaction completed in the fourth quarter of 2022.
2 Sensitivities are best estimate and reflect the impact on the pension plans in the UK. For the interest rate sensitivities, shocks are applied to the liquid part of the yield curve. Credit spreads (CS) include mortgages, including and excluding euro sovereign spreads. CS sensitivities of available capital include changes to the volatility adjustment applied to interest rate curves.
3 The insurance risk-specific scenarios relate to natural catastrophe events that are estimated on a modeled 250-year net aggregate loss (equivalent to a 99.6 percent probability of non-exceedance).

Audited

Insurance financial strength rating

The Group has interactive relationships with three global rating agencies: S&P Global Ratings (S&P), Moody's, and AM Best. The insurance financial strength rating (IFSR) of the Group's main operating entity, Zurich Insurance Company Ltd (ZIC), is an important element of Zurich's competitive position, while the Group's credit ratings also affect the cost of debt capital.

On January 13, 2023, Moody's changed ZIC's rating outlook from Aa3 stable to positive, positioning the company as one of the first European insurers to approach the Aa2 level.

According to Moody's, "the change in outlook to positive reflects Zurich's improved profitability that has become stronger and less volatile, supported by a more balanced business mix with reduced risk in its commercial insurance business and diminished exposure to interest rate and credit risk expected on completion of its life insurance back-book sales."

As of January 2023, the IFSR of ZIC was rated 'AA/Stable' by S&P Global Ratings, 'Aa3/positive by Moody's, and 'A+ (Superior)/Stable' by AM Best. The AM Best ICR was 'aa–/positive'.

Analysis by risk type

Audited

Insurance risk

Insurance risk is the risk of deviations in the timing, frequency or severity of insured events from that expected, leading to loss, including adverse change in the value of insurance liabilities (Life and Property & Casualty (P&C)). This may result from inherent uncertainty of insured events or losses, inadequate or ineffective underwriting or accumulation management, inappropriate product development, pricing, claims management, reserving or reinsurance. The profitability of insurance business is also susceptible to business risk in the form of unexpected changes in expenses, policyholders' behavior, and fluctuations in new business volumes. Zurich manages insurance risk through:

– Specific underwriting and claims standards and controls.
– Robust reserving processes.
– External reinsurance.

Property & Casualty (P&C) insurance risk

P&C insurance risk arises from coverage provided for motor, property, liability, special lines and worker injury. It comprises premium and reserve risk, catastrophe risk, and business risk. Premium and reserve risk covers uncertainties in the frequency of the occurrence of the insured events as well as in the severity of the resulting claims. Catastrophe risk predominantly relates to uncertainty around natural catastrophes. Business risk for P&C predominantly relates to unexpected increases in the expenses relating to claims handling, underwriting, and administration.

Management of Property & Casualty (P&C) insurance risk

The Group's underwriting strategy takes advantage of the diversification of P&C risks across lines of business, customers and geographic regions. Zurich defines Group-wide governance for insurance risk including for new products. Underwriting discipline is a fundamental part of managing insurance risk. The Group sets limits on underwriting capacity and delegates authority to individuals based on their specific expertise and sets appropriate underwriting and pricing guidelines. Technical reviews assure that underwriters perform within authorities and adhere to underwriting policies.

P&C insurance reserves are regularly estimated, reviewed and monitored by qualified and experienced actuaries at local, regional and Group levels. To arrive at their reserve estimates, the actuaries take into consideration, among other things, the latest available facts, trends and patterns of loss payments. Inflation is a key challenge globally, with various factors including supply chain constraints and increased energy costs having an impact on insurance losses. Inflation is monitored with insights feeding into actuarial reserving models and Zurich's underwriting processes and pricing, and the implications of a continuing high inflation environment and mitigating actions are a key focus area. The Group's existing risk management and governance processes continue to monitor and respond to the developing environment.

To ensure a common understanding of business insights and new trends for reserve analysis, financial plans, underwriting and pricing decisions, the Group has established a culture of continuous cross-functional collaboration. For this, underwriting, actuarial (pricing and reserving), claims, finance, sales and distribution, risk engineering and risk management contribute to quarterly meetings at local and Group level.

Zurich's Emerging and Sustainability Risk Committee – with cross-functional expertise from core insurance functions such as underwriting, claims and risk management – identifies, assesses and recommends actions for emerging risks.

Governance is in place to ensure appropriate focus on top-line targets and profitability. Reinsurance is deployed to help manage insurance risk. Group Risk Management also provides independent assurance through risk reviews.

The Group is exposed to losses that could arise from natural and man-made catastrophes. The main concentrations of risks arising from such potential catastrophes are regularly reported to executive management.

Analysis by risk type (continued)

Audited

Natural catastrophes

The Group uses third-party models, adjusted to Zurich's view, to manage its underwriting, ensure accumulations stay within intended exposure limits and assess the capital requirement due to natural catastrophes. Consistent with this view on natural catastrophes, Zurich performs profitability assessments and strategic capacity allocations, and chooses the type and quantity of reinsurance it buys.

To ensure global consistency, exposures to natural catastrophes are modeled by a dedicated Group function. Potential losses from property, motor and marine policies with material exposure in hazard-prone geographical areas are probabilistically modeled, as well as worker injury policies with material exposure in U.S. seismic zones. Losses for other lines of business are estimated based on adjustments to these modeled results. Risk modeling mainly addresses weather-induced perils such as wind, flood, tornado, and hail, and geological-induced perils such as earthquake. The most important peril regions for natural catastrophes are U.S. and Caribbean hurricane, California earthquake and European windstorm. The Group has internal modelling capabilities for pandemics.

Zurich regularly reviews and expands the scope and sophistication of its modeling and strives to improve data quality. Zurich continues to invest in a diversified, multi-vendor-based catastrophe modeling ecosystem and in expanding its catastrophe research and development capabilities to complement existing expertise in natural catastrophe risk management (e.g., risks relating to climate change).

Zurich supplements internal know-how with external knowledge (e.g., the Advisory Council for Catastrophes) and is a shareholder of PERILS AG, Switzerland, a catastrophe exposure and loss data aggregation and estimation firm. Zurich is also a member of the open-source initiative, Oasis Loss Modelling Framework.

Man-made catastrophes

Man-made catastrophes include events such as industrial accidents, terrorism and cyber attacks. For terrorism, worker injury and property risk exposures are analyzed to identify areas with significant risk concentration. Other lines of business are assessed, although the potential exposure is not as significant. A vendor-provided catastrophe model is used to evaluate potential exposures in every major U.S. city. The Group's analysis for the P&C business has shown that its exposures outside of North America are lower, in a large part due to government-provided pools. Outside the modeled areas, exposure concentrations are identified in Zurich's Risk Exposure Data Store (REDS). Exposure concentrations for location-based man-made scenarios, other than terrorism, are also identified in REDS, for example, industrial explosions at global ports.

The Group uses third-party models to manage its underwriting and accumulations for cyber and casualty catastrophe risks. The Group actively monitors and manages its cyber exposure and continues to refine products to ensure their appropriateness. Improving modeling capabilities and data quality for cyber and casualty catastrophe risks are key focus areas.

Concentration of Property & Casualty (P&C) insurance risk

The Group defines concentration risk in the P&C business as the risk of exposure to increased losses associated with inadequately diversified portfolios. Concentration risk for a P&C insurer may arise due to a concentration of business written within a geographical area or of underlying risks covered.

Tables 2.a and 2.b show the Group's concentration of risk within the P&C business by region and line of business based on direct written premiums before reinsurance. P&C premiums ceded to reinsurers (including retrocessions) amounted to USD 10.3 billion and USD 9.2 billion for the years ended December 31, 2022 and 2021, respectively. Reinsurance programs are managed on a global basis, and therefore, the net premium after reinsurance is monitored on an aggregated basis. Inflation is driving exposure and rate increases in short tail lines, particularly in North America.

Analysis by risk type (continued)

Audited

Property & Casualty business – Direct written premiums and policy fees by line of business – current period

Table 2.a

in USD millions, for the year ended December 31, 2022	Motor	Property	Liability	Special lines	Worker injury	Total
Europe, Middle East & Africa	4,288	5,317	2,774	2,635	391	15,406
North America	1,871	8,873	3,783	2,712	2,794	20,033
Other regions	1,949	1,701	476	1,684	174	5,984
Total	**8,108**	**15,891**	**7,033**	**7,032**	**3,358**	**41,423**

Property & Casualty business – Direct written premiums and policy fees by line of business – prior period

Table 2.b

in USD millions, for the year ended December 31, 2021	Motor	Property	Liability	Special lines	Worker injury	Total
Europe, Middle East & Africa	4,423	5,336	2,828	2,532	406	15,526
North America	1,728	7,226	3,388	2,540	2,417	17,299
Other regions	1,823	1,634	466	1,401	165	5,489
Total	**7,974**	**14,196**	**6,682**	**6,473**	**2,988**	**38,314**

Analysis of sensitivities for Property & Casualty (P&C) risks

Tables 3.a and 3.b show the sensitivity of net income before tax and the sensitivity of net assets, using the Group effective income tax rate, as a result of adverse development in the net loss ratio by one percentage point. The sensitivities do not indicate the probability of such an event and do not consider any non-linear effects of reinsurance. Based on the assumptions applied in the sensitivity analysis in tables 3.a and 3.b, each additional percentage-point increase in the loss ratio would have a linear impact on net income before tax and net assets. The Group also monitors insurance risk by evaluating extreme scenarios, taking into account the non-linear effects of reinsurance contracts.

Insurance risk sensitivity for the Property & Casualty business – current period

Table 3.a

in USD millions, for the year ended December 31, 2022	Europe, Middle East & Africa	North America	Asia Pacific	Latin America	Reinsurance	Total
+1% in net loss ratio						
Net income before tax	(137)	(130)	(27)	(20)	(1)	(314)
Net assets	(108)	(102)	(21)	(16)	(1)	(247)

Insurance risk sensitivity for the Property & Casualty business – prior period

Table 3.b

in USD millions, for the year ended December 31, 2021	Europe, Middle East & Africa	North America	Asia Pacific	Latin America	Reinsurance	Total
+1% in net loss ratio						
Net income before tax	(137)	(112)	(25)	(19)	(1)	(295)
Net assets	(106)	(87)	(19)	(14)	(1)	(227)

Analysis by risk type (continued)

Audited

Life insurance risk

The risks associated with life insurance include:

Life liability risk

- Mortality risk – when, on average, the death incidence among policyholders is higher than expected.
- Longevity risk – when, on average, annuitants live longer than expected.
- Morbidity risk – when, on average, the incidence of disability due to sickness or accident among policyholders is higher than expected, or recovery from disability is lower than expected.

Life business risk

- Policyholder behavior risk – when, on average, policyholders discontinue or reduce contributions, or withdraw benefits prior to the maturity of contracts at a rate that is different from expected.
- Expense risk – when expenses incurred in acquiring and administering policies are higher than expected.
- New business risk – when volumes of new business are insufficient to cover fixed acquisition expenses.

Market risk

- Market risk – the risk associated with the Group's balance sheet positions where the value or cash flow depends on financial markets, which is analyzed in the 'market risk, including investment credit risk' section.

Credit risk

- Credit risk – the risk associated with a loss or potential loss from counterparties failing to fulfill their financial obligations, which is analyzed in the 'market risk, including investment credit risk' and 'other credit risk' sections.

Management of Life insurance risk

The Group's Life underwriting results are based on the assumptions relating to life insurance risks. The actual experience may differ to that expected at the time of writing the business. For example, mortality could be either higher or lower than expected due to an unexpectedly harsh or benign flu season.

To understand the potential impact of experience differing from expectations, Zurich uses models to perform sensitivity analyses. The impact of changing the assumptions is considered under different scenarios across the risk types and products. Changes relating to absolute level and trend development in assumptions are considered by product category. For example, Zurich looks at the impact of an increase in morbidity rates for protection products or changes in the level and trend of longevity for annuity products. These analyses assist in understanding how sensitive the business is to changes in various assumptions and where there are benefits of having a diversified portfolio of risks and products. Changes in the same assumption can have a positive impact on one product and a negative impact on another. For example, people living longer than expected may have a positive impact on products that offer life cover, as claims are then paid later than expected, but could have a negative impact on annuity products as payments are made for longer than expected. At Zurich, the Life liability risks are managed through established processes with requirements described in the Zurich Risk Policy.

The Group has local product development and approval committees and a Group-level committee to review potential new life products that could significantly increase or change the nature of the risks or introduce new risks. The Group also regularly reviews the continued suitability and the potential risks of existing life products open to new business to ensure sustainability of the business.

Product pricing involves setting assumptions relating to life insurance risks. Local teams have responsibility for the pricing of the products in line with the experience and emerging trends observed in each market. The emerging experience is regularly monitored and compared against expectations. Where permitted, premiums are adjusted for factors such as age, gender, and smoker status to reflect the corresponding risks. Policy terms and conditions and disclosure requirements are designed to mitigate the risk arising from non-standard and unpredictable risks that could result in a severe financial loss.

The underwriting process forms an important part of risk management and risk selection for life insurance risks. This process is supported through setting standards in the Zurich Risk Policy and providing support through additional underwriting guidelines.

Analysis by risk type (continued)

Audited

Where required and appropriate, life insurance risks are also managed using reinsurance.

Unit-linked products are designed to reduce much of the market and credit risk associated with the Group's traditional business offerings. Risks that are inherent in these products are largely passed on to the policyholder, although a portion of the Group's management fees is linked to the value of funds under management, and hence is at risk if fund values decrease. Contracts may have minimum guaranteed death benefits where the sum at risk depends on the fair value of the underlying investments. Other life insurance liabilities include traditional life insurance products, such as protection and life annuity products.

Protection products (including disability products) provide benefits linked to policyholders' life and health and mainly carry mortality and morbidity risks. Changes in medical treatments and lifestyle changes are among the most significant factors that could result in earlier or more claims than expected or customers claiming for longer than expected. Disability, when defined in terms of the ability to perform an occupation, could also be affected by adverse economic conditions. This impact could come through, for example, an increase in claims relating to mental health conditions triggered by an economic downturn.

Life annuity products provide benefits that are paid to the customer either for a selected number of years, or until they die. Therefore, these products carry longevity risk as people living longer than expected can have a material impact on these products. Medical advances and improved social conditions that lead to increased longevity are significant risk drivers for these products. Annuitant (beneficiary) mortality assumptions include allowance for future mortality improvements. The trends in mortality improvements are monitored to ensure that changes in experience are considered. The exposure to longevity risk at a Group level is measured regularly and compared against the limit set by the Group.

The Group is exposed to risks posed by policyholder behavior and fluctuating expenses. These are mitigated by designing products that, as closely as possible, match revenue and expenses associated with the contract.

The Group is also exposed to investment and surrender risks related to bank-owned life insurance contracts sold in the U.S. These risks have reduced significantly in recent years as several significant policies have switched into less risky investment divisions. See heading 'Other Loans' in note 6 of the consolidated financial statements for additional information.

In the past, low interest rates have led to an increase in both Life business risks and Life liability risks (especially longevity risk). While interest rates have recently risen, the level of interest rates remains an important factor in the evaluation of insurance risks.

Furthermore, interest rate guarantees (with concentration in traditional guaranteed business in Germany and Switzerland, and variable annuity business in the U.S. containing minimum guaranteed death benefits) expose Zurich to financial losses that may arise as a result of adverse movements in interest rates. These guarantees are managed through a combination of asset-liability management and hedging.

The Group has a dynamic hedging strategy to reduce the investment risk associated with the closed book of variable annuitants written by its U.S. subsidiary Zurich American Life Insurance Company. This exposure has fallen substantially as a result of several policy buyback programs since 2015.

Higher than expected inflation could affect Life insurance business through, for example, customer affordability issues and reduced demand. The expenses to administer Life insurance business could be higher than expected, leading to higher product expense loads. This could result in a combination of higher customer premiums and reduced profitability. Potential actions to manage the effects of higher-than-expected inflation include assumption updates, customer behavior monitoring, product reviews and design and customer retention initiatives.

Diversification across regions and businesses, as shown in table 4 below, contributes to reducing the impacts of the risks associated with the Life business described above.

Concentration of Life insurance risk

The Group defines concentration risk in the Life business as the risk of exposure to increased losses associated with inadequately diversified portfolios of assets or obligations. Concentration risk for a life insurer may arise with respect to investments in a geographical area, economic sector, or individual issuers, or due to a concentration of business written within a geographical area, of a product type, or of underlying risks covered.

Analysis by risk type (continued)

Audited

Table 4 shows the Group's concentration of risk within Life by geographic region and line of business based on reserves for life insurance on a net of reinsurance basis. The life insurance reserves also include policyholder surplus reserves with a loss absorbing capacity[1], predominantly in Germany in the amount of USD 2.5 billion in 2022 (2021: USD 9.5 billion) and in the UK in the amount of USD 0.3 billion in 2022 (2021: USD 0.5 billion). The net movement in reserves in Germany in 2022 is mainly related to an agreement entered into by the Group to sell the legacy traditional life insurance back book, which is subject to regulatory approval (see note 5 of the consolidated financial statements). The reduction in net unit-linked insurance contract reserves stems largely from the negative performance of the underlying funds and foreign exchange rate movements. The Group's exposure to life insurance risks varies significantly by geographic region and line of business and may change over time. See note 8 of the consolidated financial statements for additional information on reserves for insurance contracts.

1 Policyholder surplus reserves with loss-absorbing capacity refer to funds allocated to the policyholders that can be used by the shareholders, and which, under certain conditions, may require regulatory approval.

Reserves, net of reinsurance, by region

Table 4

in USD millions, as of December 31	Unit-linked insurance contracts		Other life insurance liabilities		Total reserves	
	2022	2021	**2022**	2021	**2022**	2021
Life						
Europe, Middle East & Africa	39,777	51,005	43,895	78,194	83,672	129,199
of which:						
United Kingdom	11,605	15,700	3,600	4,116	15,205	19,816
Germany	17,415	22,757	9,670	38,155	27,085	60,912
Switzerland	1,025	1,148	15,534	17,069	16,559	18,216
Italy	4,351	4,071	2,948	3,227	7,299	7,297
Ireland	52	976	1,547	2,052	1,599	3,028
Spain	501	602	8,841	11,428	9,342	12,031
Zurich International	4,451	5,298	230	235	4,680	5,532
Rest of Europe, Middle East & Africa	378	454	1,526	1,913	1,904	2,367
North America	12,187	11,749	1,391	1,297	13,578	13,046
Asia Pacific	644	703	4,139	4,467	4,782	5,170
Latin America	16,012	13,516	5,738	5,068	21,750	18,585
Group Reinsurance	–	–	10	9	10	9
Eliminations	–	–	(7)	(6)	(7)	(6)
Subtotal	68,619	76,973	55,166	89,030	123,785	166,003
Other businesses	**3,458**	**5,551**	**10,006**	**10,411**	**13,465**	**15,961**
Total	**72,078**	**82,524**	**65,173**	**99,440**	**137,250**	**181,965**

Reinsurance for Property & Casualty (P&C) and Life businesses

The Group's objective in purchasing reinsurance is to provide market-leading capacity for customers while protecting the balance sheet, supporting management of earnings volatility, and achieving capital efficiency. In addition, it supports the Group Underwriting strategy and risk appetite. The Group follows a centralized reinsurance purchasing strategy for both P&C and Life, and bundles programs, where appropriate, to benefit from diversification and economies of scale. In support of the Group's empowerment-based management model and to align risk-bearing capacities between the Group and individual country operations, internal reinsurance applies to all externally reinsured lines of business. The Group has specific facultative property and casualty reinsurance facilities to actively manage and reduce potential claims-recovery risks on facultative cessions and to support the strategy on operational excellence.

The Group structures and aligns its external reinsurance protection to its capital position to achieve an optimal risk-return ratio. This includes participation in the underlying risks through self-retentions in line with the risk appetite of each line of business. The cession rate for P&C was 23.7 percent (14.7 percent excluding captives, unaudited) as of December 31, 2022 and 23.0 percent (14.2 percent excluding captives, unaudited) as of December 31, 2021. The cession rate for Life was 9.3 percent as of December 31, 2022 and 10.8 percent as of December 31, 2021.

The Group uses traditional and collateralized reinsurance markets to protect itself against extreme single events, multiple event occurrences across regions, and increased frequency of events.

Analysis by risk type (continued)

Audited

The Group participates in the underlying risks through its retention and through its co-participation in excess layers. The Group reviews its reinsurance programs on an annual basis to reflect its risk appetite and market conditions. In 2022, the Group purchased:

- Several regional catastrophe treaties.
- A global property catastrophe treaty which was renewed on April 1, 2022, for a further three years
- A global aggregate catastrophe treaty

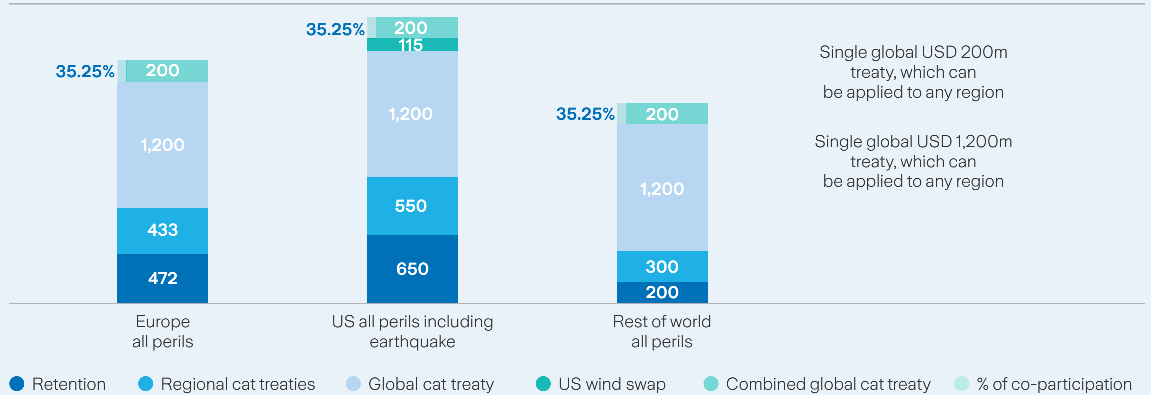
All natural catastrophe reinsurance treaties are on a loss-occurrence basis, except for the global aggregate catastrophe treaty, which operates on an annual aggregate basis.

In addition to these covers, the Group has a bilateral risk swap, and various line of business-specific risk treaties. These covers are reviewed continuously and are subject to change in the future.

To complement existing treaties, the Group purchases catastrophe reinsurance specific to life insurance for its exposure to natural and man-made catastrophes.

The reinsurance market continues to be challenging with reinsurers continuing to increase rates across most regions and lines of business. Property catastrophe and property per risk treaties are under the most pricing pressure. While reinsurance capacity has broadly been available, reinsurers are actively differentiating the best and most sophisticated insurance companies through their deployment of capacity. Strategic partnerships and long-term relationships continue to provide an effective path for Zurich to execute on its reinsurance strategy.

Catastrophe reinsurance treaties
in USD millions



Global aggregate cat treaty

- Global aggregate cat treaty renewed on January 1, 2022; US treaties renewed per April 1 2022; Global all perils cat treaty renewed on April 1, 2022 for a three year period; International & Europe all perils cat treaty renewed July 1, 2022. Please note: the retention and regional limit of the European CAT treaty are defined in EUR denomination (EUR390m exceeding EUR425m), these figures have been converted into USD using the currency exchange rate as at March 30, 2022.
- The USD 200m cover is the combined global occurrence & aggregate all perils cat treaty presiding over the global all perils cat treaty (plus over the US wind swap on the US windstorm tower). This cover can be used only once, either for aggregated losses or for an individual occurrence/event.

Analysis by risk type (continued)

Audited

Market risk, including investment credit risk

Market risk relates to the possibility of loss of value due to changes in financial market conditions. Risk factors include:

- Equity market price changes.
- Real estate market price changes.
- Interest rate changes.
- Credit and swap spread changes.
- Defaults of issuers.
- Changes in currency exchange rates.

The Group manages the market risk of assets relative to liabilities on an economic total balance sheet basis. This is done to achieve the maximum risk-adjusted excess return on assets relative to the liability benchmark, while also taking into account the Group's risk tolerance and local regulatory constraints.

The Group has policies and limits to manage market risk and keep its strategic asset allocation in line with its risk capacity. Zurich centrally manages certain asset classes to control aggregation of risk and provides a consistent approach to constructing portfolios and selecting external asset managers. It diversifies portfolios, investments and asset managers, and regularly measures and manages market risk exposure. The Group defines limits on concentration of investments in single issuers and certain asset classes, as well as the degree to which asset interest rate sensitivities may deviate from liability interest rate sensitivities. The Group regularly reviews its capacity to hold illiquid investments.

The Asset/Liability Management Investment Committee reviews and monitors the Group strategic asset allocation and tactical boundaries, and monitors Group asset/liability exposure. The Group oversees the activities of local asset/liability management investment committees and regularly assesses market risks at both Group and local business levels. The economic effect of potential extreme market moves is regularly examined and considered when setting the asset allocation.

Risk assessment reviews include the analysis of the management of interest rate risk for each major maturity bucket and adherence to the aggregate positions with risk limits. The Group follows processes to manage market risks and to analyze market risk hotspots. Actions to mitigate risks are taken, if necessary, to manage fluctuations affecting asset/liability mismatch and risk-based capital.

The Group may use derivative financial instruments to mitigate market risks arising from changes in currency exchange rates, interest rates and equity prices, from credit quality of assets, and from commitments to third parties. The Group enters into derivative financial instruments mostly for economic hedging purposes and, in limited circumstances, the instruments may also meet the definition of an effective hedge for accounting purposes.

In compliance with Swiss insurance regulation, the Group's policy prohibits speculative trading in derivatives, meaning a pattern of so-called 'in-and-out trading' activity without any reference to an underlying position. The Group addresses the risks arising from derivatives through a stringent policy that requires approval of a derivative program before transactions are initiated, and by subsequent regular monitoring by Group Risk Management of open positions and annual reviews of derivative programs.

For more information on the Group's investment result, including impairments and the treatment of selected financial instruments, see note 6 of the consolidated financial statements. For more information on derivative financial instruments and hedge accounting, see note 7 of the consolidated financial statements.

Analysis by risk type (continued)

Audited

Risk from equity securities and real estate

The Group is exposed to risks from price fluctuations on equity securities and real estate. These could affect the Group's liquidity, reported income, economic surplus and regulatory capital position. Equity risk exposure includes common stocks (including equity unit trusts), private equity, common stock portfolios backing participating-with-profit policyholder contracts, and equities held for employee benefit plans. Exposure to real estate risk includes direct holdings in property and property company shares and funds. Returns on unit-linked contracts, whether classified as insurance or investment contracts, may be exposed to risks from equity and real estate, but these risks are borne by policyholders. The Group is however indirectly exposed to market movements from unit-linked contracts with respect to both earnings and economic capital; market movements affect the amount of fee income earned when the fee income level is dependent on the valuation of the asset base. Therefore, the value of in-force business for unit-linked business can be negatively affected by adverse movements in equity and real estate markets.

The Group manages its risks related to equity securities and real estate as part of the overall investment risk management process and applies limits as expressed in policies and guidelines. Specifically, Zurich limits holdings in equities, real estate and alternative investments. To realize an optimal level of risk diversification, the strategy for equities is defined through a composite of market benchmark indices. The Group has the capability and processes in place to change the exposure to key equity markets via the use of derivatives or purchase or sale of securities within a short time frame.

For additional information on equity securities and investment property, see note 6 of the consolidated financial statements.

Risk from interest rates and credit spreads

Interest rate risk is the risk of an adverse economic impact resulting from changes in interest rates, including changes in the shape of yield curves. Yield curve changes affect the value of interest rate-sensitive investments and derivatives as well as the fair value of insurance liabilities. Other balance sheet items, such as liability investment contracts, debt issued by the Group, commercial and residential mortgages, employee benefit plans, loans and receivables, are also affected.

The Group manages credit spread risk, which is the variation in economic value due to changes in the level or the volatility of credit spreads over the risk-free interest rate. Movements of credit spreads are driven by several factors including changes in expected default probability, default losses, risk premium, liquidity and other effects.

Returns on unit-linked contracts, whether classified as insurance or investment contracts, are at the risk of the policyholder; however, the Group is exposed to fluctuations in interest rates and credit spreads insofar as they affect the amount of fee income earned if the fee income level is dependent on the valuation of the asset base.

Analysis by risk type (continued)

Audited

Analysis of market risk sensitivities for interest rate, equity and credit spread risks

Group investment sensitivities

The gross economic market risk sensitivities of the fair value of IFRS Group investments before tax as of 2022 was negative USD 3.2 billion (negative USD 6.1 billion as of 2021) for a 50 basis points (bps) increase in interest rates. For a 50 bps decrease in interest rates, the sensitivity was USD 3.5 billion in 2022 (USD 6.7 billion as of 2021). For a 10 percent decline in equity markets, Group investments drop in value by USD 0.9 billion in 2022 compared with USD 1.3 billion as of 2021. A 100 bps increase in credit spreads resulted in a decrease of USD 3.5 billion in 2022 compared with USD 6.2 billion as of 2021. When compared to prior year, higher interest rates, implementation of market risk mitigation actions, and the disposal of Life back books have reduced the Group's exposure to a drop in interest rates.

The following describes limitations of the Group investment sensitivities. Group sensitivities show the effects of a change of certain risk factors, while other assumptions remain unchanged. The interest rate scenarios assume a parallel shift of all interest rates in the respective currencies. They do not take account of the possibility that interest rate changes might differ by rating class; these are disclosed separately as credit spread risk sensitivities.

The sensitivity analysis is based on economic assets, and not on shareholders' equity or net income as set out in the consolidated financial statements. The sensitivities only cover Group investments and do not cover insurance or other liabilities. The equity market scenarios assume a concurrent movement of all stock markets. The sensitivity analysis does not take account of actions that might be taken to mitigate losses. Actions may involve changing the asset allocation, for example through selling and buying assets. Sensitivity calculations do not assign a probability to the scenario considered. The sensitivities do not indicate a probability of such events occurring in the future. They do not necessarily represent the Group's view of expected future market changes.

In addition to the gross sensitivities, management uses sensitivities and stress scenarios to assess the impact of market movements on the Group's net assets. For more information on sensitivities see 'Group economic net asset sensitivities' (unaudited), below.

Group economic net asset sensitivities

The following section presents the sensitivities of Group economic net assets under Swiss Solvency Test (SST) assumptions with respect to certain standard financial market scenarios.

The net asset impact – the difference between the impact on Group investments and liabilities – represents the economic risk related to changes in market risk factors to which the Group is exposed. Tables 5, 6 and 7 show the estimated economic market risk sensitivities of the net asset impact. Positive values represent an increase in the net assets, and values in parentheses represent a decrease. Mismatches in changes in value of assets relative to liabilities represent an economic risk to the Group.

In determining the sensitivities, investments and liabilities are fully re-valued under the given scenarios. Each instrument is re-valued separately, taking relevant product features into account. Non-linear valuation effects, where they exist, are reflected in the calculations. The sensitivities are shown before tax.

The basis of the presentation for tables 5, 6, and 7 is an economic valuation represented by the fair value of Group investments. IFRS insurance liabilities are discounted at risk-free market rates to reflect the present value of insurance liability cash flows and other liabilities, for example, own debt. The Group uses FINMA allowed risk-free curves for discounting. In the sensitivities, own debt does not include subordinated debt, which Zurich considers available to protect policyholders in a worst-case scenario.

The basis of presentation for the Life business to financial market movements uses replicating portfolios calibrated according to the methodology and cashflow models approved by FINMA. The replicating portfolios are portfolios of assets that replicate the cash flows or present values of the life insurance liabilities under stochastic scenarios from the local life valuation models. They are calibrated to match dependencies of life insurance liabilities on financial market developments in respect of interest rates, equity and property. The options and guarantees of the underlying life insurance liabilities are captured through the inclusion of options in the replicating portfolios.

Sensitivities are shown split by segment and for economic net assets net of minority interest. The heading 'Rest of the business' includes Farmers, Group Finance and Operations and Non-Core Businesses. No allowance has been made in the economic asset sensitivities for the sale of the German traditional life insurance back book, which is subject to regulatory approval.

Analysis by risk type (continued)

Analysis of economic sensitivities for interest rate risk

Table 5 shows the estimated net impact before tax of a 50 basis point (bps) increase or decrease in yield curves after consideration of hedges in place, as of December 31, 2022 and 2021.

Table 5

Economic interest rate sensitivities[1]

in USD millions, as of December 31	**2022**	2021
50 bps increase in the interest rate yield curves		
Property & Casualty	(127)	(98)
Life	(165)	(340)
Rest of the business	(34)	(31)
Economic net assets net of minority interest	(278)	(441)
50 bps decrease in the interest rate yield curves		
Property & Casualty	93	45
Life	66	239
Rest of the business	26	96
Economic net assets net of minority interest	138	354

Analysis of economic sensitivities for equity risk

Table 6 shows the estimated net impact before tax from a 10 percent decline in stock markets, after consideration of hedges in place, as of December 31, 2022 and 2021.

Table 6

Economic equity price sensitivities[1]

in USD millions, as of December 31	**2022**	2021
10% decline in stock markets		
Property & Casualty	(552)	(664)
Life	(307)	(542)
Rest of the business	(82)	(100)
Economic net assets net of minority interest	(936)	(1,299)

Analysis of economic sensitivities for credit spread risk

Table 7 shows the estimated net impact before tax from a 100 basis point increase in corporate credit spreads, as of December 31, 2022 and 2021. The sensitivities apply to all fixed-income instruments, excluding government, supranational and similar debt securities. For the Life business, the loss-absorbing capacity of liabilities for losses on credit spreads are not included, as they are not modeled in the replicating portfolios.

Table 7

Economic credit spread sensitivities[1]

in USD millions, as of December 31	**2022**	2021
100 bps increase in credit spreads		
Property & Casualty	(1,348)	(1,725)
Life	(2,454)	(3,989)
Rest of the business	(372)	(534)
Economic net assets net of minority interest	(4,066)	(6,095)

1 Limitations of the economic sensitivities: same limitations apply for Group investment sensitivities, except for the above sensitivities, which are based on economic net assets including liability representation; neither the impact of the UK pension plan nor the volatility adjustment on the insurance liabilities have been considered.

Analysis by risk type (continued)

Audited

Risks from defaults of counterparties

Debt securities

The Group is exposed to credit risk from third-party counterparties where the Group holds securities issued by those entities. Default risk is controlled by Group counterparty concentration risk limits which aim to keep the size of potential losses to an acceptable level.

Table 8

Debt securities by rating of issuer

as of December 31	2022		2021	
	USD millions	% of total	USD millions	% of total
Rating				
AAA	21,858	21.1%	28,339	19.5%
AA	29,020	28.0%	44,358	30.6%
A	19,554	18.9%	25,346	17.5%
BBB	27,903	26.9%	41,255	28.4%
BB and below	5,002	4.8%	5,411	3.7%
Unrated	327	0.3%	375	0.3%
Total	**103,664**	**100.0%**	**145,084**	**100.0%**

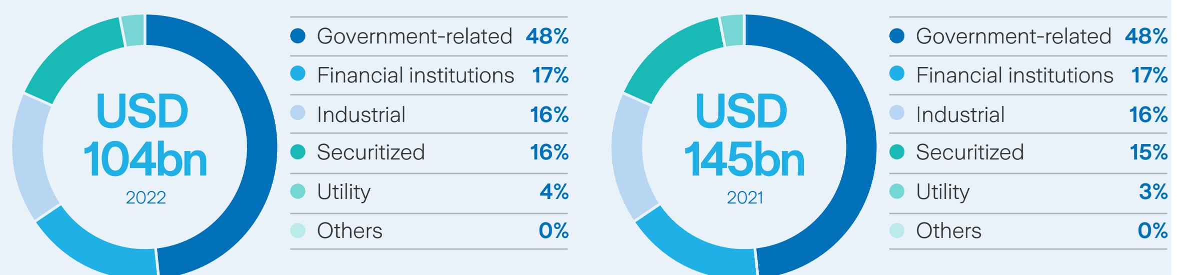
Table 8 shows the credit risk exposure of debt securities, by credit rating. The reduction of the debt securities balance is due to market movements (e.g., higher interest rates, widened credit spreads and appreciation of the U.S. dollar) and the accounting re-classification of the German traditional life insurance back book (see note 5 of the consolidated financial statements).

As of December 31, 2022, 94.9 percent of the Group's debt securities was investment grade and 21.1 percent was rated 'AAA.' As of December 31, 2021, 96.0 percent of debt securities was investment grade and 19.5 percent was rated 'AAA.'

Exposure level limits are in place and are based on default and recovery rates. Limits tighten progressively for lower-rated exposures. Where the Group identifies investments that are expected to trigger limit breaches, appropriate mitigating actions are implemented.

The risk-weighted average credit rating of the Group's debt securities portfolio is 'A–' in 2022, unchanged from 2021.

Debt securities – credit risk concentration by industry
in %, as of December 31



As of December 31, 2022, the largest concentration in the Group's debt securities portfolio was government related at 48 percent of all debt securities. In all other categories, a total of USD 21.6 billion (40 percent) was secured. As of December 31, 2021, 48 percent of the Group's debt portfolio was invested in government-related securities. In all other categories, a total of USD 28.6 billion (38 percent) was secured.

The second-largest concentration in the Group's debt securities portfolio is financial institutions, comprising investments mainly in banking, finance companies and insurance.

Analysis by risk type (continued)

Audited

Cash and cash equivalents

To reduce credit concentration, settlement and operational risks, the Group limits the amount of cash that can be deposited with a single counterparty. The Group also maintains an authorized list of acceptable cash counterparties.

Cash and cash equivalents amounted to USD 7.6 billion as of December 31, 2022 and USD 8.7 billion as of December 31, 2021. The risk-weighted average rating of the overall cash portfolio was 'A–' as of December 31, 2022 and 'A–' as of December 31, 2021. The ten largest bank exposures represent 52 percent of the total cash and cash equivalents amount, of which the risk-weighted average rating was 'A' as of December 31, 2022 and 'AA–' as of December 31, 2021.

Mortgage loans and other loans

Mortgage loans amounted to USD 5.5 billion as of December 31, 2022 and USD 6.1 billion as of December 31, 2021. The Group's largest mortgage loan portfolios are held in Switzerland (USD 2.9 billion) and in Germany (USD 0.9 billion); these are predominantly secured against residential property but also include mortgages secured by commercial property. The Group invests in mortgages in the U.S. (USD 0.5 billion); these are mainly participations in large mortgage loans secured against commercial property.

The credit risk arising from other loans is assessed and monitored together with the debt securities portfolio. As of December 31, 2022, USD 0.7 billion were rated as 'AAA' (21 percent) compared with USD 3.7 billion as of December 31, 2021; USD 0.0 billion as 'AA' (0 percent) compared with USD 1.0 billion as of December 31, 2021; USD 1.2 billion as 'A' (36 percent) compared with USD 1.2 billion as of December 31, 2021; USD 1.5 billion as 'BBB' and below (44 percent) compared with USD 1.2 billion as of December 31, 2021; and USD 0.0 billion as unrated (0 percent) compared with USD 0.0 billion as of December 31, 2021.

Derivatives

The replacement value of outstanding derivatives represents a credit risk to the Group. These instruments include interest rate and cross-currency swaps, forward contracts and purchased options. A potential exposure could also arise from possible changes in replacement values. The Group regularly monitors credit risk exposures arising from derivative transactions. Outstanding positions with external counterparties are managed through an approval process embedded in derivative programs.

To limit credit risk, derivative financial instruments are executed with counterparties rated 'BBB' or higher as per Zurich Risk Policy requirements. The Group's standard practice is to only transact derivatives with those counterparties for which the Group has in place an ISDA Master Agreement, with a Credit Support Annex. This mitigates credit exposures from over-the-counter transactions due to close-out netting and requires the counterparty to post collateral when the derivative position exceeds an agreed threshold. The Group further mitigates credit exposures from derivative transactions by using exchange-traded or centrally cleared instruments whenever possible. From September 1, 2022, the Group was in scope of the initial margin requirements for over-the-counter (OTC) derivatives.

Risk from currency exchange rates

Currency risk is the risk of loss resulting from changes in exchange rates. The Group operates internationally and therefore is exposed to the financial impact of changes in the exchange rates of various currencies. The Group's presentation currency is the U.S. dollar, but its assets, liabilities, income and expenses are denominated in many currencies, with significant amounts in euro, Swiss franc, British pound and U.S. dollar. On entity balance sheets a currency mismatch may cause a balance sheet's net asset value to fluctuate, either through income or directly through equity. The Group manages this risk by matching foreign currency positions on entity balance sheets within prescribed limits. Residual entity mismatches are reported centrally to make use of the netting effect across the Group. Zurich hedges these residual entity mismatches within an established limit through a central balance sheet. For information on net gains/losses on foreign currency transactions included in the consolidated income statements, see note 1 of the consolidated financial statements. The monetary currency risk exposure on entity balance sheets is considered immaterial.

Differences arise when functional currencies are translated into the Group's presentation currency, the U.S. dollar. The Group applies net investment hedge accounting to protect against the impact that changes in certain exchange rates might have on selected net investments.

Table 9 shows the sensitivity of total IFRS equity to changes in exchange rates for the main functional currencies to which the Group is exposed. Positive values represent an increase in the value of the Group's total equity. See notes 1, 3 and 7 of the consolidated financial statements for additional information on foreign currency translation and transactions.

Analysis by risk type (continued)

Audited

Sensitivity of the Group's total IFRS equity to exchange rate fluctuations

Table 9

in USD millions, as of December 31	**2022**	2021
10% increase in		
EUR/USD rate	260	309
GBP/USD rate	65	330
CHF/USD rate	11	520
BRL/USD rate	103	96
AUD/USD rate	320	373
JPY/USD rate	94	107
Other currencies/USD rates	478	493

The sensitivities show only the effects of a change in the exchange rates, while other assumptions remain unchanged. The sensitivity analysis does not consider management actions that might be taken to mitigate such changes. The sensitivities do not indicate a probability of such events occurring in the future. They do not necessarily represent Zurich's view of expected future market changes. While table 9 shows the effect of a 10 percent increase in currency exchange rates, a decrease of 10 percent would have the converse effect.

Other credit risk

Credit risk is the risk associated with a loss or potential loss from counterparties failing to fulfill their financial obligations. See section 'risks from defaults of counterparties' for market risk-related asset categories. The Group's exposure to other credit risk is derived from the following main categories of assets:

- Reinsurance assets.
- Receivables.

The Group's objective in managing credit risk exposures is to maintain them within parameters that reflect the Group's strategic objectives, and its risk appetite and tolerance. Sources of credit risk are assessed and monitored, and the Group has policies to manage specific risks within various subcategories of credit risk. To assess counterparty credit risk, the Group uses ratings assigned by external rating agencies, qualified third parties, such as asset managers, and internal rating assessments. If the ratings of external rating agencies differ, the Group generally applies the lowest, unless other indicators justify an alternative, which may be an internal credit rating.

The Group actively uses collateral to mitigate credit risks. Underlying credit risks are managed independently from the collateral. The Group has limits and quality criteria to identify acceptable letter of credit providers. Letters of credit enable Zurich to limit the risks embedded in reinsurance, captives, deductible programs, trade credit and surety.

The Group has counterparty limits which are regularly monitored. Exposure to counterparties' parent companies and subsidiaries is aggregated to include reinsurance assets, investments, derivatives, and certain insurance products. Group aggregate concentration limits and relevant exception approvals are monitored in line with risk policy requirements.

On-balance sheet exposures are the main source of credit risk. Off-balance sheet credit exposures are related primarily to certain insurance products, reinsurance and collateral used to protect underlying credit exposures on the balance sheet. The Group has no material amount of off-balance sheet exposures related to undrawn loan commitments as of December 31, 2022. See note 22 of the consolidated financial statements for undrawn loan commitments.

Analysis by risk type (continued)

Audited

Credit risk related to reinsurance assets

The Group's Corporate Reinsurance Security Committee oversees the credit quality of cessions and reinsurance assets. The Group typically only cedes new business to authorized reinsurers with a minimum rating of 'A–.' Of the exposure ceded to reinsurers that are rated below 'A–' or are not rated, 60 percent was collateralized as of December 31, 2022 and 54 percent as of December 31, 2021. Of the exposure ceded to reinsurers that are rated below 'A–' or are not rated, 57 percent was ceded to captive insurance companies in 2022, and 66 percent in 2021.

Reinsurance assets included reinsurance recoverables (the reinsurers' share of reserves for insurance contracts) of USD 25.7 billion and USD 25.7 billion, and receivables arising from ceded reinsurance of USD 1.9 billion and USD 1.6 billion as of December 31, 2022 and 2021, respectively, gross of allowance for impairment. Reserves for potentially uncollectible reinsurance assets amounted to USD 117 million as of December 31, 2022 and USD 119 million as of December 31, 2021. The Group's policy on impairment charges takes into account both specific charges for known situations (e.g., financial distress or litigation) and a general, prudent provision for unanticipated impairments.

Reinsurance assets in table 10 are shown before taking into account collateral such as cash or bank letters of credit and deposits received under ceded reinsurance contracts. Unsecured reinsurance assets shown are after deducting collateral. Bank issuing letters of credit for the benefit of Zurich are, on average, 'A' rated. The value of the collateral received amounts to USD 10.9 billion and USD 10.6 billion as of December 31, 2022 and 2021, respectively.

Table 10 shows reinsurance assets and unsecured reinsurance assets split by rating.

Table 10

Reinsurance assets and unsecured reinsurance assets by rating of reinsurer and captive

as of December 31	**2022**				2021			
	Reinsurance assets		**Unsecured reinsurance assets**		Reinsurance assets		Unsecured reinsurance assets	
	USD millions	**% of total**	**USD millions**	**% of total**	USD millions	% of total	USD millions	% of total
Rating								
AAA	13	0.1%	13	0.1%	26	0.1%	26	0.2%
AA	7,681	28.0%	6,981	42.0%	8,267	30.3%	7,525	45.2%
A	13,408	48.7%	6,619	39.9%	11,461	42.1%	5,630	33.8%
BBB	2,928	10.7%	1,475	8.9%	3,604	13.2%	1,642	9.9%
BB	544	2.0%	241	1.5%	652	2.4%	324	1.9%
B and below	175	0.6%	60	0.4%	206	0.8%	77	0.5%
Unrated	2,731	9.9%	1,199	7.2%	3,020	11.1%	1,416	8.5%
Total	**27,480**	**100.0%**	**16,588**	**100.0%**	**27,236**	**100.0%**	**16,640**	**100.0%**

Credit risk related to receivables

The largest amount of the Group's credit risk exposure to receivables is related to third-party agents, brokers and other intermediaries. The Group has policies and standards to manage and monitor credit risk related to intermediaries.

The Group reports internally on Group past-due receivable balances and strives to keep the balance of past-due positions as low as possible.

Receivables from ceded reinsurance are part of reinsurance assets and managed accordingly. See notes 15 and 24 of the consolidated financial statements for additional information on receivables.

Analysis by risk type (continued)

Audited

Operational risk

Operational risk is the risk of financial loss, adverse reputational, legal or regulatory impact, resulting from inadequate or failed processes, people, systems or from external events, including external fraud, catastrophes, or failure in outsourcing arrangements. Zurich has a framework to identify, assess, manage, monitor, and report operational risk within the Group. Within this framework, the Group:

- Uses a scenario-based approach to assess, model and quantify the capital required for operational risk for business units under extreme circumstances. This approach allows information to be compared across the Group and highlights the main scenarios contributing to the capital required under Zurich Economic Capital Model (Z-ECM).
- Documents and reviews operational events exceeding a threshold determined by the Zurich Risk Policy. Remedial action is taken to avoid the recurrence of such operational events.
- Conducts risk assessments where operational risks are identified for key business areas. Risks identified and assessed to be above a certain threshold must have a risk response. Risk mitigation plans are documented and tracked on an ongoing basis. In the assessments, the Group uses sources of information such as the Total Risk Profiling™ process, internal control assessments, and audit findings, as well as scenario modeling and operational event data.

The Group has specific processes and systems in place to focus on high-priority operational matters such as managing information security and business resilience (see sub-section ‘risk focus specific to digital transformation’), as well as combating fraud.

Preventing, detecting and responding to fraud are embedded in Zurich’s business processes. Both claims and non-claims fraud are included in the common framework for assessing and managing operational risks. For Zurich’s internal model calculations, claims fraud is part of insurance risk and non-claims fraud is part of operational risk.

Risk focus specific to digital transformation

Digital and technological advances have not only created a wide spectrum of benefits for society but also amplified the associated risks. Organizations are realigning their operations, forging new third-party relationships and putting data at the heart of their decision-making and analysis. All of this is happening at a rapid pace and against a backdrop of an increasingly hostile cyber threat landscape. In order to succeed, organizations need to be able to assess and understand the risks inherent in this changing environment and ensure that they are managed appropriately.

On a regular basis, the Group assesses and monitors exposure to defined information security and cyber, third-party and business resilience risk scenarios through key risk indicators (KRIs) to effectively focus on actions and adequate resource allocation.

Data risk

The strategic relevance of data as a business asset is rising at a rapid pace and the risks associated with data management are becoming more and more prominent. Preventing risks such as data losses and privacy breaches and assessing and monitoring the potential misuse of data and losses triggered by failures in data management remain in focus. Specifically, appropriate governance of data for business purposes and decision-making processes, including automation, machine-learning techniques and other advanced technologies, remains a priority. As Zurich strives to inspire confidence in a digital society with its data commitment, assurance on the ethical use of advanced technologies is provided from a risk management perspective for the protection and privacy of data of our customers and other stakeholders.

The relevance of technological risks, such as cyber risk, is rapidly increasing across all data-driven industries. Exposure to these risks has grown in lockstep with the significant rise in digital services provided directly to customers and the increasing prevalence of digital ecosystems and cloud solutions in today’s interconnected world.

Third-party risk

Outsourcing and engagement with third parties introduces risks relevant to the delivery of our strategy, such as data loss or disclosure, disruption to critical customer services and regulatory compliance. Digitalization has accelerated the complexity and changes to the Group’s third-party ecosystem. The Group addresses risks associated with third-party engagements along its supply and value chain. Applying a consistent Group-wide approach to third-party governance is among Zurich’s key priorities.

Analysis by risk type (continued)

Business resilience risk

Zurich, along with the rest of the insurance industry, is going through a period of transformation in order to meet changing customer and regulatory expectations. In addition, increasing automation of processes, development of advanced analytics capabilities, and fragmented supply chains have contributed to an increasingly complex operating environment. In response to these challenges, and to better protect the interests of stakeholders, the Group continues to evolve its business resilience capability through a number of ongoing initiatives in relation to the protection and recovery of critical services and enhancing transparency around any associated risks such as pandemics, technology failure, and potential supply chain/power interruptions.

Risk management and internal controls

The Group considers internal controls to be essential for managing operational risk. The Board has overall responsibility for the Group's risk management and internal control frameworks. The objectives of the Group's internal control system are to provide reasonable assurance that Zurich's consolidated financial statements and disclosures are materially correct, support reliable operations, and ensure legal and regulatory compliance. The internal control system is designed to mitigate rather than eliminate risks that could impact the achievement of business objectives.

The Group promotes risk awareness and understanding of controls through communication and training. Risk management and internal control systems are designed at Group level and implemented across the Group. Management, as the first line of defense, is responsible for identifying, evaluating and managing risk, and designing, implementing and maintaining internal controls. Testing effectiveness of relevant internal controls by the first line of defense, with second line oversight, also forms part of the control life cycle.

Key processes and controls in the organization are subject to review and challenge by all three lines of defense. The second and third lines of defense regularly report on observations, conclusions and recommendations that arise from their independent reviews of internal controls. Control issues of Group-level significance and associated mitigation actions are reported regularly to the Audit Committee of the Board. The Risk and Investment Committee of the Board reviews the effectiveness of the Group's risk management system, including the Group's risk tolerance and enterprise-wide risk governance framework, in accordance with the charter for each committee.

The Group's Disclosure Committee, chaired by the Head of Group Financial Accounting and Reporting, reviews the accuracy, completeness and timeliness and compliance with legal and regulatory requirements of external disclosures and the effectiveness of the respective internal controls. The conclusions result in a recommendation to the Group Chief Financial Officer to release the disclosures to the Audit Committee of the Board, who may then challenge the disclosures further. The Board reviews and approves the announcement of the results and the annual report before they are made public.

Analysis by risk type (continued)

Audited

Liquidity risk

Liquidity risk is the risk that an entity within the Group may not have sufficient liquid financial resources to meet its obligations when they fall due or would have to incur excessive costs to do so. Zurich's policy is to maintain adequate liquidity and contingent liquidity to meet its liquidity needs under normal conditions and in times of stress. To achieve this, the Group assesses, monitors and manages its liquidity needs on an ongoing basis.

Group-wide liquidity management policies and specific guidelines govern how entities plan, manage and report their entity liquidity and include regular stress tests for all major legal entities and branches within the Group. The stress tests use a standardized set of internally defined stress events, and are designed to provide an overview of the potential drain on liquidity should the Group have to recapitalize entity balance sheets. Similar guidelines apply at the Group level, and detailed liquidity forecasts are regularly conducted, based on entities' input and the Group's forecasts. As part of its liquidity management, the Group maintains sufficient cash and cash equivalents and high-quality, liquid investment portfolios to meet outflows under expected and stressed conditions.

The Group also maintains internal liquidity sources that cover the potential liquidity needs within the Group, including those that might arise in times of stress. The Group takes into account the amount, availability and speed at which these sources can be accessed. The Group has access to diverse funding sources to cover contingencies, including asset sales, external debt issuance and making use of committed borrowing facilities or letters of credit. The Group maintains a range of maturities for external debt securities. A potential source of liquidity risk is the effect of a downgrade of the credit rating of the Group. This could affect the Group's commitments and guarantees, potentially increasing liquidity needs. This risk – and mitigating actions that might be employed – are assessed on an ongoing basis within the Group's liquidity framework.

The Group regularly analyzes the liquidity of the investment assets and ensures that the liquidity of assets stays in line with liquidity requirements. In 2022, the Group's holdings in illiquid assets were within its capacity.

For more information on debt obligation maturities, see note 18 of the consolidated financial statements, and for information on commitments and guarantees, see note 22 of the consolidated financial statements.

The Group's ongoing liquidity monitoring includes regular reporting to the executive management and quarterly reporting to the Risk and Investment Committee of the Board, covering aspects such as the Group's actual and forecast liquidity, possible adverse scenarios that could affect the Group's liquidity and possible liquidity needs from the Group's main subsidiaries, including under conditions of stress.

For more information on the Group's other financial liabilities, see note 16 of the consolidated financial statements. See note 6 of the consolidated financial statements for information on the maturity of debt securities.

The Group has committed to contribute capital to subsidiaries and third parties that engage in making investments in direct private equity and private equity funds. Commitments may be called by the counterparty during the term of the investment (generally three to five years) and must be funded by the Group on a timely basis. See note 22 of the consolidated financial statements for more information.

Analysis by risk type (continued)

Audited

Strategic risk and risks to the Group's reputation

Strategic risk

Zurich defines strategy as the long-term plan of action designed to allow the Group to achieve its goals and aspirations based on Zurich's purpose and values.

Strategic risks can arise from:

- Inadequate risk-reward assessment of strategic plans.
- Improper execution of strategic plans.
- Unexpected changes to underlying assumptions, including those about the external environment.

The Group works to manage risks associated with strategic business decisions through its risk assessment processes and tools, including the Total Risk Profiling™ process. As part of the annual assessment of strategic risks, the Executive Committee assesses potential risks from both external and internal factors, looking at the current year and beyond. The Executive Committee members define actions to respond as appropriate and review changes to the key risks and their status of actions at least quarterly.

The Group evaluates the risks of merger and acquisition (M&A) transactions both from a quantitative and a qualitative perspective. The Group conducts risk assessments of M&A transactions to evaluate risks specifically related to integrating acquired businesses.

Risks to the Group's reputation

Risks include acts or omissions by the Group or any of its employees that could damage the Group's reputation or lead to a loss of trust among its stakeholders. Every risk type has potential consequences for Zurich's reputation. Effectively managing each risk type supports preventing adverse reputational outcomes.

The Group aims to preserve its reputation by:

- Adhering to applicable laws and regulations.
- Following the core values and principles of the Group's code of conduct that promote integrity and good business practice.
- Living up to its sustainability commitments.

The Group centrally manages certain aspects of risk to reputation, for example, communications, through functions with the appropriate expertise. Potential risks to Zurich's reputation are included in its risk assessment processes and tools, including the Total Risk Profiling™ process.

Sustainability risk

Zurich's ambition is to be one of the most responsible and impactful businesses in the world. Trends like globalization, the mobility of talent and funds, shifting geopolitics, reskilling for a digital workplace, demographics, and climate change all pose immensely complex social issues.

Sustainability means doing business today in a way that safeguards the future of our company and our society. Sustainability risks and opportunities emanate both from effects that environmental, social and governance (ESG) challenges have on the company, as well as from how the company handles its positive or negative impact on ESG issues. To protect against financial and reputational impacts, both perspectives are included in the identification and assessment of sustainability issues.

Climate change, as one of the most complex risks facing society today, is intergenerational, international and interdependent. As a global insurer, Zurich faces risks from climate change and discloses its climate risk in line with the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD).

Sustainability topics associated with ESG challenges are also becoming more complex and interconnected as a result of these trends. Insurers are increasingly becoming agents of change and playing a more impactful role in addressing sustainability risk.

Zurich works with its customers and investee companies to support responsible and sustainable business practices while promoting best practices in managing ESG risks. The Group has policies in place that define the sustainability positions for which Zurich has no underwriting or investment appetite. Zurich continuously works to develop relevant products and services that help solve the most pressing societal and environmental issues of today.

Analysis by risk type (continued)

Sustainability risk approach

To support the Group's businesses in applying its purpose and values, as well as mitigating reputational risk impacts, Zurich has established a systematic and integrated approach to identifying, assessing and recommending action on potential risk and opportunity areas from a sustainability perspective across all the Group's activities, in particular in investment management and underwriting.

This is a three-step process:

– Issue identification: Identify relevant issues to be considered within the risk assessment process by monitoring channels such as media, social media, information from non-governmental organizations and Zurich's businesses.
– Risk assessment: Assess issues related to public commitments, the role of insurance underwriting, market exposure and materiality. The Group Chief Executive Officer approves position statements, recommended business actions, and reputational management considerations.
– Implementation: Implement mitigation actions, including managing reputational impacts locally in the businesses. Mobilize expert support available across the Group and escalate as necessary, according to governance procedures.

Zurich applies these steps across portfolios based on stated thresholds and verified data. Wherever possible, Zurich engages and works together with customers on the margins of Zurich's thresholds to ensure responsible and sustainable business practices. This engagement may be short, or in some cases, last up to two years, depending on which part of the renewal cycle customers are in and the time required for them to demonstrate credible progress on ESG issues.

Clear roles and responsibilities, starting with the Board of Directors of Zurich Insurance Group Ltd and Zurich management, support effective oversight and action with respect to climate change and other sustainability risks.

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Certain statements in this document are forward-looking statements, including, but not limited to, statements that are predictions of or indicate future events, trends, plans or objectives of Zurich Insurance Group Ltd or the Zurich Insurance Group (the Group). Forward-looking statements include statements regarding the Group's targeted profit, return on equity targets, expenses, pricing conditions, dividend policy and underwriting and claims results, as well as statements regarding the Group's understanding of general economic, financial and insurance market conditions and expected developments. Undue reliance should not be placed on such statements because, by their nature, they are subject to known and unknown risks and uncertainties and can be affected by other factors that could cause actual results and plans and objectives of Zurich Insurance Group Ltd or the Group to differ materially from those expressed or implied in the forward-looking statements (or from past results). Factors such as (i) general economic conditions and competitive factors, particularly in key markets; (ii) the risk of a global economic downturn, in the financial services industries in particular; (iii) performance of financial markets; (iv) levels of interest rates and currency exchange rates; (v) frequency, severity and development of insured claims events; (vi) mortality and morbidity experience; (vii) policy renewal and lapse rates; (viii) increased litigation activity and regulatory actions; and (ix) changes in laws and regulations and in the policies of regulators may have a direct bearing on the results of operations of Zurich Insurance Group Ltd and its Group and on whether the targets will be achieved. Specifically in relation with the COVID-19 related statements, such statements were made on the basis of circumstances prevailing at a certain time and on the basis of specific terms and conditions (in particular applicable exclusions) of insurance policies as written and interpreted by the Group and may be subject to regulatory, legislative, governmental and litigation-related developments affecting the extent of potential losses covered by a member of the Group or potentially exposing the Group to additional losses if terms or conditions are retroactively amended by way of legislative or regulatory action. Zurich Insurance Group Ltd undertakes no obligation to publicly update or revise any of these forward-looking statements, whether to reflect new information, future events or circumstances or otherwise.

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