SFCR 2023
Solvency and Financial Condition Report
Munich Re Group

2023

Munich RE

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This document is a translation of the original German version and is intended to be used for informational purposes only. While every effort has been made to ensure the accuracy and completeness of the translation, please note that the German original is binding.

Executive summary

Part		Page
A – Business and performance	The business activities in our reinsurance and ERGO fields of business are broken down into material lines and regions. Following the initial application of IFRS 9/17, the Group's total technical result was significantly above the level of the previous year. In life and health reinsurance, very pleasing new business development contributed to an improved total technical result. The total technical result also increased in the ERGO field of business, especially in the ERGO International segment. In property-casualty reinsurance, the total technical result decreased owing to higher claims expenses. The Group's investment result was up significantly on the previous year. Thanks to a significantly improved reinvestment yield, we benefited from higher regular income in the reporting year, while the previous year had been burdened, among other things, by impairment losses on Russian and Ukrainian government bonds.	3-15
B – System of governance	The Munich Re Group has an effective system of governance that is adequate for the nature, scale and complexity of the risks inherent in its business. The remuneration system meets the relevant company and supervisory law requirements. The professional qualification, knowledge, experience and fitness of the holders of key functions within the Group are evaluated by means of self-assessment. The risk management system, including the own risk and solvency assessment (ORSA), is closely integrated into Group-wide planning, risk strategy and decision-making processes. Processes that are subject to material risks are reviewed on a regular basis as part of the internal control system. The outsourcing of operational activities and functions is monitored.	16-34
C – Risk profile	We use an internal model to quantify the solvency capital requirements (SCR) of the Munich Re Group. The SCR at Group level increased by 1.6% year on year, from €17.7bn to €18.0bn. This increase was mainly driven by extraordinarily strong growth in life reinsurance business and a moderate expansion of exposure to credit risks in reinsurance investments, amplified by a fall in interest rates. Conversely, a more well-balanced risk profile directly resulted in better diversification across risk categories, which helped to reduce risk. In addition, the SCR for property-casualty reinsurance business decreased due to an expansion of external retrocession, a more well-balanced portfolio structure and the depreciation of the US dollar. We use appropriate limit and early-warning systems to manage risks and limit risk concentrations. Risk is mitigated by means of reinsurance and retrocession, and through the transfer of risk to the capital markets.	35-49
D – Valuation for solvency purposes	We describe material differences in measurement between the solvency balance sheet and IFRS financial reporting for individual balance sheet items under assets, technical provisions and other liabilities, and explain the underlying methods and main assumptions. For the first time, this was done on the basis of the new reporting standards IFRS 9/17. The differences in measurement are mainly attributable to the fact that the solvency balance sheet is fully based on fair value, whilst IFRS uses a mixed measurement model based on fair value and amortised cost accounting. Four insurance undertakings apply a transitional deduction on technical provisions, and six primary insurance undertakings apply the volatility adjustment.	50-77
E – Capital management	We pursue active capital management, which ensures that our capitalisation is needs-based and risk-commensurate. Our total eligible own funds (EOF) were €52.5bn as at 31 December 2023. This figure takes into account the dividend of €2.0bn proposed by the Board of Management for the 2023 financial year. Purchases not yet made under the share buy-back programme for 2023/2024 at the reporting date in the amount of €0.3bn were also taken into account. Munich Re's SCR, totalling €18.0bn, is equivalent to a solvency ratio of 292%. The solvency ratio shown includes transitional measures under Solvency II. Excluding transitional measures, the solvency ratio was 267%.	78-91

Due to rounding, there may be minor deviations in totals and percentages in this report.

Business and performance

A Business and performance

A1 Business

General information

The Munich Re Group's ultimate parent entity is Münchener Rückversicherungs-Gesellschaft Aktiengesellschaft in München (Munich Reinsurance Company Joint-Stock Company in Munich), Königinstrasse 107, 80802 München. Munich Reinsurance Company is a joint-stock company (Aktiengesellschaft) within the meaning of the German Stock Corporation Act (AktG). Its registered seat is Munich, Germany. In addition to its function as a reinsurer, the parent also fulfils the function of holding company for the Group.

Munich Reinsurance Company has three governing bodies: the Annual General Meeting, the Board of Management, and the Supervisory Board. Further details about the governing bodies can be found in section B 1 "Administrative, management or supervisory bodies (AMSB)".

Owing to our international corporate structure, we are subject to a raft of national and international legal systems, standards and corporate governance regulations. Within the Group, our own Code of Conduct binds our management and staff members to engage in ethically and legally impeccable conduct in alignment with the principles of the UN Global Compact. Further information can be found at www.munichre.com/cg-en.

The external auditor EY GmbH & Co. KG Wirtschaftsprüfungsgesellschaft (Flughafenstrasse 61, 70629 Stuttgart) duly audited the Group financial statements, the combined management report and the annual financial statements of Munich Reinsurance Company as at 31 December 2023, and issued them with an unqualified auditor's opinion.

The supervision of Munich Re is conducted by the

Federal Financial Supervisory Authority
(Bundesanstalt für Finanzdienstleistungsaufsicht – BaFin)
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Legal structure

Munich Re is one of the world's leading risk carriers and provides both insurance and reinsurance under one roof. This enables the Group to cover large stretches of the value chain in the risk market. Almost all reinsurance units operate under the uniform brand of Munich Re. The ERGO Group (ERGO) is active in nearly all lines of life, health and property-casualty insurance. The majority of Munich Re's investments are managed by MEAG, which also offers its expertise to private and institutional investors outside the Group. For up-to-date information about Munich Re, visit www.munichre.com.

The reinsurance companies of the Group operate globally and in virtually all classes of business. Munich Re offers a full range of products, from traditional reinsurance to innovative solutions for risk assumption. Our companies conduct their business from their respective headquarters and via a large number of branches, subsidiaries and affiliated companies. The reinsurance group also includes specialty primary insurers, whose business requires special competence in finding appropriate solutions.

In ERGO, we combine Munich Re's primary insurance activities. Some 67% of ERGO's insurance revenue derives from Germany, and 33% from international business – mainly from central and eastern European countries. ERGO also operates in Asian markets, particularly in India, China, and Thailand.

Munich Reinsurance Company and ERGO Group AG are under unified control within the meaning of the German Stock Corporation Act (AktG). The relevant statutory regulations, control agreements and Group directives govern the distribution of responsibilities and competences for key decisions between Group management and ERGO. Control and profit-transfer agreements are in place with many Group companies, especially between ERGO Group AG and its subsidiaries.

Material lines of business and regions

Reinsurance

In reinsurance, we operate in life, health and property-casualty business. Under reinsurance, we include not only specialised primary insurance activities that are handled by the reinsurance organisation but also business from managing general agents. Organisationally, we have pooled worldwide IoT activities into the divisional unit Global IoT.

As reinsurers, we write our business in direct collaboration with primary insurers, via brokers and within the framework of strategic partnerships. In addition to traditional reinsurance business, we further operate as a primary insurer, participating in insurance pools, public-private partnerships and business in specialist niche segments. We furthermore offer our clients a wide range of special products as well as customised insurance solutions and services, which we manage from within our reinsurance organisation. Our clients thus have direct access to the expertise, innovative strength and capacity of a leading global risk carrier. Thanks to our capital management know-how, we are in demand as a partner for products geared to our clients' balance-sheet, solvency and rating-capital requirements, as well as their risk models.

We bundle our life and health reinsurance business worldwide in the life and health segment. This is split into three geographical regions, and an international unit (Markets) that offers specialised solutions for hedging capital market risks. This division focuses on traditional reinsurance solutions primarily geared to the transfer of insurance risks, mortality risk accounting for the largest share of this. Moreover, we are active in the market for living benefits products. These include insurance products for occupational disability, long-term care, and critical illness. We also provide capacity for longevity risks.

In addition, we support our customers with a wide range of services along large stretches of the value chain. These include the development of new insurance products as well as digital and automated solutions for risk assessment and claims handling.

Our Markets unit combines our global expertise and range of services for capital market risks, which are often a component of savings products. We provide our clients with comprehensive advice on product design while offering hedging for embedded options and guarantees linked to the capital markets. Our own exposure is transferred back to the capital markets.

In order to ensure proximity to our clients, we are represented in many markets with local subsidiaries and branches. We service the extremely important North American market via our Canadian branch and our subsidiary in the USA. In Europe, we have operations in Germany, the United Kingdom, Switzerland, Spain, Italy and Malta. We also operate subsidiaries in Australia and South Africa, and have a local presence in the key markets of South America, the Middle East and Asia. Asian business activities are centrally managed by a dedicated branch in Singapore, which underlines the strategic importance of this region for life and health reinsurance.

Four other divisions conduct property-casualty reinsurance. The Global Clients and North America division handles our accounts with major international insurance groups, globally operating Lloyd's syndicates and Bermuda companies. It also pools our reinsurance know-how in the North American market in the area of property-casualty business, in particular that of our Munich Reinsurance America Inc. subsidiary domiciled there, as well as in the field of global large-risk business, which is pooled in our Facultative & Corporate unit.

Our Europe and Latin America division is responsible for property-casualty business with our clients from Europe, Latin America and the Caribbean. Business units – for example, in London, Madrid, Paris and Milan – afford us market proximity and regional competence. In the Latin American markets, our Brazilian subsidiary Munich Re do Brasil Resseguradora S.A. headquartered in São Paulo and our liaison offices in Bogotá and Mexico City help to ensure client proximity. Our Europe and Latin America division also includes the credit business – where Munich Re operates as a reinsurer and primary insurer – and New Reinsurance Company Ltd., which is domiciled in Zurich.

The Asia-Pacific and Africa division conducts property-casualty reinsurance business with our clients in Africa, Asia, Australia, New Zealand and the Pacific Islands. Branches in Mumbai, Beijing, Seoul, Singapore and Tokyo, along with liaison offices in Bangkok and Taipei, as well as a subsidiary in Sydney, allow us to take full advantage of opportunities in the rapidly growing Asia-Pacific insurance market. In the African market, we are represented by our subsidiary Munich Reinsurance Company of Africa Ltd., headquartered in Johannesburg. These units and other liaison offices guarantee our competitiveness in these key markets.

The Global Specialty Insurance (GSI) division comprises worldwide special-lines business, such as marine, cyber, aviation and space, along with specialty property-casualty business. The two large subsidiaries domiciled in the USA and operating in the field of specialised insurance activities – HSB and American Modern – are allocated to this division, as are Munich Re Specialty Insurance (MRSI), and Munich Re Specialty Group (MRSG). The GSI units specialise in products for which – like in reinsurance – risk understanding as well as insightful claims handling are paramount. American Modern offers specialty personal lines products in the US. MRSI offers various specialty commercial insurance products in the North American market. HSB is a leading provider of products that depend on expertise in engineering, loss control and risk management. MRSG, in turn, through use of the Munich Re Syndicate and other subsidiaries, is a leading provider of marine insurance and insurance solutions for the aviation industry.

ERGO

Munich Re's second pillar is primary insurance business. Three separate units operate under the umbrella of ERGO Group AG: ERGO Deutschland AG, ERGO International AG, and ERGO Technology & Services Management AG. German business is concentrated in ERGO Deutschland AG. ERGO International AG manages the ERGO Group's international business. ERGO Technology & Services Management AG has a transnational mandate as a global technology and service provider for the entire ERGO Group.

Since the start of 2024, a new division within ERGO Group AG has been responsible for Group marketing, global sales partnerships and all strategic digitalisation initiatives, which were until recently handled by ERGO Digital Ventures AG.

ERGO offers products in all the main classes of insurance: life insurance, health insurance, and in nearly all lines of property-casualty insurance, including travel insurance and legal protection insurance. With these products – in combination with the provision of assistance, other services and individual consultancy – ERGO covers the needs of retail and corporate clients. ERGO serves some 39 million mostly retail customers in over 20 countries, with the focus on Europe and Asia.

In Germany, the focus is on sustainable and profitable growth. ERGO Versicherung AG is one of the largest providers of property-casualty insurance across nearly all classes of business, offering a wide range of products for retail, commercial and industrial clients. ERGO Vorsorge Lebensversicherung AG is ERGO's life insurer for capital-market-linked and biometric products. It offers solutions for all three types of old-age provision, mainly based on innovative and flexible unit-linked insurance products. ERGO Lebensversicherung AG and Victoria Lebensversicherung AG are concentrating on running off their traditional life insurance portfolios. DKV Deutsche Krankenversicherung AG offers a comprehensive portfolio in the healthcare sector: comprehensive private health insurance, products designed to supplement statutory health cover, and company health insurance. ERGO Krankenversicherung AG focuses on products that supplement statutory health insurance, especially supplementary dental plans. The specialist travel insurer ERGO Reiseversicherung AG is a market leader internationally as well as in Germany.

ERGO International AG coordinates and manages ERGO's international operations. The focus is on profitable organic growth in European core markets and selected growth markets in Asia. In the reporting year, ERGO International AG further advanced its business in core markets in Europe by growing in new fields of business and using new distribution models, thus maintaining its good position in the respective markets. ERGO International AG has operations in Asia, including in India, China and Thailand. In Thailand, ERGO concentrated in 2023 on the property insurance market, which is not only the largest in Southeast Asia but also shows good growth potential. By taking on a majority shareholding in ThaiSri Insurance Public Co. Ltd. and acquiring Nam Seng Insurance Public Co. Ltd. at the beginning of January 2023, ERGO achieved an important milestone on its path towards expanding its market position in Thailand. In the course of the acquisition of a majority stake, ThaiSri Insurance Public Co. Ltd. was renamed ERGO Insurance (Thailand) Public Co. Ltd. This rebranding is intended to give the ERGO marque greater visibility in this Southeast Asian country. The Indian joint venture HDFC ERGO General Insurance Company Ltd. performed strongly in the past year too, and improved its market position overall; it now ranks second in the private non-life insurance market. In China, ERGO increased its shareholding in the Chinese life insurance joint venture ERGO China Life Insurance Co., Ltd. to 65%. This step emphasises the Group's ambition to establish itself in this strategically important market for the long term and to exploit its growing potential. In the Chinese property insurance market, ERGO is striving for further growth and a simultaneous boost in profitability through its stake in Taishan Property & Casualty Insurance Co., Ltd.

ERGO Technology & Services Management AG is a dedicated arm of ERGO Group AG in charge of providing digital platforms, solutions and services. It has a global remit and supports ERGO in designing optimum insurance products and fostering the most effective customer channels. It consists of ITERGO GmbH in Germany, ERGO Technology & Services S.A. in Poland, and ERGO Technology & Services Private Limited in India.

From 2024, a newly created Board member division is responsible for ERGO's digital transformation within the ERGO Group. This also includes the coordination of established technologies such as robotics, artificial intelligence, voicebots, process mining and virtual reality, and the area of operation Embedded Insurance, in which we collaborate with partners like Amazon and Coolblue. From 2024, ERGO Deutschland AG is responsible for controlling the operative business of the digital insurer nexible, ERGO Reiseversicherung AG and the ERGO Mobility Solutions division, for which ERGO Digital Ventures AG was previously responsible.

Qualifying holdings in Munich Reinsurance Company

As at 31 December 2023, no shareholdings exceeded 10% of the voting rights.

Related undertakings

Related undertakings in the scope of the Group included in our solvency balance sheet can be found in the S.32.01.22 “Undertakings in the scope of the Group” quantitative reporting template in the annex to this report.

Intra-Group transactions

The main material intra-Group transactions of the reporting year were cash-pool transactions. Further new significant intra-Group transactions in the financial year involved the redemption and reissue of intra-Group loans between two subsidiaries, the capital contribution by Munich Reinsurance Company to a subsidiary, the redemption and reissue of an intra-Group loan provided to Munich Reinsurance Company, and the conclusion of derivative transactions between Munich Reinsurance Company and two Group companies.

Munich Re pools cash for the purposes of financial management, pooling excess liquidity of the participating Group units in a centralised account at MEAG Cash Management GmbH. The funds are pooled for the purposes of optimising returns on investment, while taking account of the individual investment terms stipulated by the participants. Short-term liquidity from the cash pool is also available to participating undertakings. In the reporting year, BaFin was notified of two particularly significant cash-pool transactions.

As a rule, the networking of the undertakings in our Group results in further intra-Group business relationships. Intra-Group transactions resulted from areas such as financing, reinsurance contracts, service offsetting, cost-sharing- and guarantee agreements. Regular reporting to the supervisory authority takes place by means of quantitative reporting templates provided under Solvency II. In accordance with Section 274(3) of the Insurance Supervision Act (VAG), the supervisory authority is notified immediately of particularly significant transactions.

Significant business events

The year under review was heavily influenced by major losses from natural catastrophes. The loss burden from these events totalled €2,335m. The largest individual loss for Munich Re in 2023 was the earthquake in Turkey, with a nominal value of around €0.7bn.

Determination of consolidated data (significant differences between IFRS and Solvency II)

As a general rule, under IFRS all subsidiaries over which the parent company can exercise control are fully consolidated in the IFRS consolidated financial statements, irrespective of the business they conduct. Under Solvency II, however, the nature of the business plays a role when determining which subsidiaries are included in the Group solvency balance sheet. Here, only those subsidiary undertakings that are insurance companies, insurance holding companies, special purpose vehicles and ancillary services undertakings are fully consolidated. Alternative investment funds and undertakings for the collective investment in transferable securities (UCITS[1]) over which control can be exercised are fully consolidated in the IFRS balance sheet. In accordance with the Solvency II rules, we only recognise these types of undertaking at fair value in the Group solvency balance sheet. Under IFRS, joint ventures and associates are accounted for using the equity method. As a general rule, joint ventures are included in the solvency balance sheet in accordance with the principle of proportional consolidation of data. Currently, Munich Re does not include any proportionately consolidated undertakings in the solvency balance sheet. We recognise undertakings for which we hold at least 20% of the voting rights as associates in our IFRS consolidated financial statements. In the solvency balance sheet, undertakings for which we own a 20% or greater share of the capital or voting rights are categorised as participating interests. For the most part, they are accounted for using the adjusted equity method. Where the share in capital is not equal to that of the voting rights, there are reporting differences between the balance sheets produced under Solvency II and IFRS.

Further information on the determination of consolidated data under Solvency II can be found in section D 1 “Holdings in related undertakings, including participations”, and in section E 1 “Consolidation methods for own funds”.

1 These are investment funds in statutorily defined types of securities and other financial instruments.

A2 Underwriting performance

The premiums and results shown below refer to the figures in our Group annual report in accordance with IFRS as at 31 December 2023.

Group underwriting performance

Munich Re generated a total technical result of €7,545m (7,070m) in the reporting year, driven largely by the considerable increase (of 4.5%) in insurance revenue from insurance contracts issued to €57,884m (55,385m), which was due in particular to organic growth in the property-casualty reinsurance segment and at ERGO. The largest individual loss for Munich Re in 2023 was the earthquake in Turkey, with a nominal value of around €0.7bn.

In the property-casualty reinsurance segment, the total technical result was down on the previous year's figure at €3,968m (4,224m). Major losses from natural catastrophes rose to €2,335m (2,118m). The total technical result for life and health reinsurance amounted to €1,433m (1,041m), thus falling within the adjusted expected range. New business developed very favourably and made a positive contribution to the result. The improvement in underwriting conditions for a number of current contracts coupled with the annual review of our reserve position also had a positive effect on the insurance service result. The total technical result in the ERGO field of business rose to €2,144m (1,806m). The increase is primarily attributable to the ERGO International segment. While the total technical result also increased in the ERGO Property-casualty Germany segment, it was slightly down on the previous year in the ERGO Life and Health Germany segment.

Reinsurance

Reinsurance – Life and health

The development of insurance revenue from insurance contracts issued (insurance revenue) was shaped by negative currency translation effects. We write the majority of our business in non-euro currencies (around 94%). Exchange-rate fluctuations therefore have a significant impact on revenue development. If exchange rates had remained unchanged, our insurance revenue would have remained largely constant (–0.2%) compared with the previous year. Revenue was down in our business in continental Europe, mainly due to a large-volume treaty, and also in Asia and Australia. This was largely compensated for by growth in North America and the United Kingdom.

The very pleasing growth in our financially motivated reinsurance is not reflected in the insurance revenue, as the majority of new contracts are presented in the result from insurance-related financial instruments.

Based on insurance revenue, around 50% of our reinsurance business is written in North America, with the USA accounting for approximately 35% and thus ranking before Canada. Around 25% of our insurance revenue stems from Europe, with approximately 20% generated in the United Kingdom and Ireland. Another significant share of around 20% stems from Asia and the MENA (Middle East, North Africa) region. Australia and New Zealand contribute around 5% to premium income. We are also well positioned in Africa and Latin America, but due to the small size of the markets their share of our global business is small.

In the USA, insurance revenue increased to about €4.0bn (3.8bn) despite negative currency translation effects. We therefore continue to be one of the most important reinsurers in this market, which is the largest worldwide. The insurance service result was lower than expected due to higher mortality claims. By contrast, the result from insurance-related financial instruments again showed encouraging development. We continue to be very satisfied with the development of our new business, both in terms of volume and profitability.

In Canada, insurance revenue increased slightly to €1.3bn (1.2bn). Once again, exchange rates had a negative impact on development. The insurance service result developed very well.

In Europe, on the other hand, insurance revenue dropped to €2.6bn (2.8bn), with €2.2bn (2.1bn) stemming from the United Kingdom and Ireland. Our longevity business continued to expand very pleasingly, boosting insurance revenue. By contrast, a large-volume treaty had a negative impact on insurance revenue, albeit without any material impact on profit or loss. We are highly satisfied with our total technical result.

Insurance revenue in Asia/MENA decreased to €2.0bn (2.2bn). Alongside exchange-rate developments, the deciding factor in this trend was the termination of a number of contractual relationships, which had a minor impact on profit or loss. New business was again at a very gratifying level. This included the expansion of our financially motivated reinsurance business, the majority of which is posted as part of the result from insurance-related financial instruments. The total technical result outstripped our expectations and made a disproportionately high contribution to the net result from this segment.

The insurance revenue generated by our business activities in Australia and New Zealand fell to €578m (726m). This includes negative exchange-rate effects. Our main focus remains the rehabilitation of our existing portfolio; currently, we are very selective regarding the writing of new business. The total technical result was positive and in line with our expectations. This reflects the benefits of the rehabilitation measures we have taken in recent years.

The total technical result is comprised of the insurance service result and the result from insurance-related financial instruments. The total technical result improved significantly as against the previous year, bringing it into

line with our guidance for the reporting year, which we had raised after Q3.

New business developed very favourably and made a positive contribution to the result. The improvement in underwriting conditions for a number of current contracts coupled with the annual review of our reserve position also had a positive effect on the insurance service result. Overall, claims expenditure in the US portfolio was higher than expected, driven by mortality risk business. Otherwise, underwriting performance in our core markets was positive.

The result from insurance-related financial instruments is largely determined by that part of our financially motivated reinsurance that does not transfer significant insurance risk. The portfolio continues to show very encouraging growth, with results from the contracts that are in line with expectations. The result was influenced by changing economic parameters, in particular exchange rates, which are not reported as part of the currency result for this business. During the reporting period, they produced a negative effect.

The Russian war of aggression against Ukraine did not have any direct impact on the segment's total technical result. The impact of the Hamas terrorist attack on Israel was negligible in the reporting year.

Reinsurance – Property-casualty

Our insurance revenue from insurance contracts issued (insurance revenue) in property-casualty reinsurance was up 6.9% on the previous year, although changes in exchange rates had a negative impact on revenue development. 12% of the portfolio is written in euros and 88% in foreign currency, of which around 60 percentage points is in US dollars and around 8 percentage points in pounds sterling. If exchange rates had remained unchanged, insurance revenue would have risen by 10.3% year on year.

The substantial increase in insurance revenue was due to an expansion of business across almost all lines and regions. The main drivers were the expansion of existing and acquisition of new business with selected clients – particularly in our primary insurance units in North America. We realised growth in reinsurance business with natural hazard exposure in Europe, South America, Asia and Australia in particular.

Prices at the reinsurance contract renewals in 2023 developed positively overall, and for the most part more than compensated for the significantly higher loss estimates in some areas – owing especially to inflation or other loss trends. Risk-adjusted prices rose slightly, especially in regions affected by natural catastrophes. Primary insurance prices also climbed in many markets. Overall, price gains were evident around the world to varying degrees. For Munich Re, risk-adjusted prices for the 2023 renewals increased by approximately 3.1%.

Quality continues to play an important role in the selection of reinsurers. This allows financially solid reinsurers to position themselves as reliable long-term partners. Overall, we are adhering to our clearly profit-oriented underwriting policy.

Based on insurance revenue, around 40% of our global property-casualty reinsurance business is written in North America. Around 40% of our premium comes from Europe, of which around 15% is generated in the United Kingdom. Further substantial shares were contributed by Asia and Australia/New Zealand (about 15%), and by Africa and Latin America (approximately 5%).

Prices in the US reinsurance market have continued to improve, particularly in property insurance. Major losses from natural catastrophes were below expectations due to the below-average impact of hurricanes.

In the year under review, insurance revenue for US reinsurance business decreased despite new business and the positive market environment as a consequence of selective portfolio restructuring and quota share reductions. The result for US reinsurance business was up on that of the previous year owing to higher prices and lower major losses.

In Canada, we are represented by the Munich Reinsurance Company of Canada and Temple Insurance Company. By virtue of the positive market environment, insurance revenue rose further to €551m (507m). The result for 2023 is pleasing, as in the past.

Insurance revenue in the United Kingdom and in continental Europe increased significantly year on year to €3,941m (3,061m). In many markets, the increase was driven by the targeted development of business with selected clients and additional profitable new business. Thanks to a favourable environment, high growth rates were achieved in almost all markets – particularly through the expansion of business exposed to natural hazards. We posted the greatest boosts in insurance revenue in Italy, growing to €636m (508m); in Spain, climbing to €473m (378m); and in France, rising to €216m (146m).

At our Swiss subsidiary, New Reinsurance Company Ltd., property-casualty business volume increased to €1,316m (556m). In particular, profitable traditional business was significantly supplemented by expanding existing client relationships, and by new business.

Insurance revenue in Australia and New Zealand increased considerably to €1,431m (886m), continuing the ongoing growth trend seen in recent years.

Business in Japan, which is aligned strongly with natural hazard risks, benefited from price increases that led to insurance revenue improving further to €519m (511m).

Revenue in China has been increased on an ongoing basis in recent years. Nevertheless, it dropped slightly, partially because we withdrew from unprofitable business. Insurance revenue came to €676m (699m).

India continued on its profitable growth path, with insurance revenue climbing to €626m (444m).

In the Caribbean, Central America and South America, we still provide high capacity for the coverage of risks from natural hazards, in particular windstorms and earthquakes. Owing to major losses from natural catastrophes (hurricanes, floods, earthquakes and wildfires) in recent years, demand remained elevated in the year under review. We took systematic advantage of this situation to further improve our portfolio. This enabled us to grow the already high insurance revenue attained in recent years to €1,153m (761m) and to achieve a further margin improvement.

In agricultural insurance in the North American market, our insurance revenue remained at a high level of €1,093m (987m). This line of business was expanded further in South America and India in particular. The generally positive result was negatively impacted by drought and price decreases in the USA.

Buoyed by a market that remained positive, insurance revenue in marine reinsurance increased by around 9% to €1,544m (1,411m), which was also reflected in a good result.

At €892m (732m), credit and bond reinsurance saw significant year-on-year insurance revenue growth. Whilst traditional credit business generated a moderate rise, growth was again attributable to profitable new business in specialty and niche segments.

The market environment in direct industrial insurance continues to be attractive. Renewals in the market continued to be characterised by price gains and new business. We were therefore able to maintain high insurance revenue in direct business generated by our Facultative & Corporate unit, totalling €1,721m (1,599m). The result was gratifying thanks to the price level and incurred losses that were in line with expectations.

Insurance revenue in aviation and space business grew to €866m (800m) in a positive market environment. The result this year was below that expected due to the development of major losses from previous years.

Our Capital Partners division offers clients a broad range of structured individual reinsurance and capital market products, as well as parametric and derivative solutions to hedge against weather and other risks. These solutions are applied to clients from the agricultural sector as well. We have used Capital Partners' services for our own purposes: to buy retrocession cover on the basis of our defined risk strategy and to implement the Corporate Retrocession Strategy for 2023.

Since the start of 2023, the majority of the former Risk Solutions units have been brought together in the new Global Specialty Insurance (GSI) division. Revenue increased to €7,961m (7,224m). In terms of business development, GSI benefited from its successful business expansion and heightened prices. Thanks to a low-impact hurricane season, major losses from natural catastrophes remained within the range anticipated, even though the number of storm losses in the USA moved up.

New business and higher prices also contributed to insurance revenue at American Modern growing to €1,993m (1,730m). Its result, by contrast, was below expectations as a consequence of the high number of smaller natural catastrophes that heavily impacted the entire US primary insurance market. HSB bolstered its insurance revenue somewhat to €1,315m (1,191m) while at the same time reducing its exposure to cyber risks in this recently burgeoning line of business. The HSB result waxed once again, exceeding expectations.

Owing to growth in several products and generally good market conditions, MRSI boosted its insurance revenue to €2,664m (2,354m). Despite wildfires on Maui, MRSI's result benefited from low major losses from natural catastrophes, as the 2023 hurricane season in particular was comparatively calm. MRSG was borne up by the ongoing favourable market situation and increased its insurance revenue to €2,143m (2,089m). Its result came in above that of the previous year despite high claims expenditure from several satellite losses.

The total technical result in property-casualty reinsurance worsened year on year, despite lower major losses. Adjusted for commissions, Munich Re's customary review of its provisions resulted in a reduction in the basic claims provisions for prior years of €1,308m for the full year, which is equivalent to 5.0 percentage points of the combined ratio. This positive development related to almost all lines in our portfolio. The safety margin in the provisions increased year on year.

Major losses – in excess of €30m each – totalled €3,278m (3,741m)[1] after retrocession and before tax. This amount includes run-off profits and losses for major claims from previous years, and is equivalent to 12.6% (15.4%) of net insurance revenue. Expenditure was lower than in the previous year and also less than our major-loss expectation of 14% of net insurance revenue.

Man-made major losses totalling €943m (1,623m)1 were down on the previous year. The decline is due, among other things, to expenditure from the previous year in connection with Russia's war against Ukraine. Expenditure for man-made major losses was equivalent to 3.6% (6.7%) of net insurance revenue. The number of losses above our major-loss threshold was similar to the previous year.

Major losses from natural catastrophes totalled €2,335m (2,118m)[1], equivalent to 9.0% (8.7%) of net insurance revenue. The highest natural catastrophe losses of the year occurred in Europe; the largest individual loss was the earthquake in Turkey, with a nominal amount of around €0.7bn. In addition, there were a number of flood, thunderstorm and storm events, particularly in North America, Mexico and Europe.

1 The figure is only comparable to a limited extent with the same period last year, as the major-loss threshold was raised to €30m with effect from 1 January 2023 (previous years: €10m).

ERGO

ERGO Life and Health Germany

For the ERGO Life and Health Germany segment, information about the German life, health and Digital Ventures operations is provided below. With regard to insurance revenue from insurance contracts issued (insurance revenue) approximately 62% derives from Health Germany, around 29% from Life Germany and approximately 9% from Digital Ventures.

This segment's insurance revenue in the 2023 financial year was higher than in the previous year – primarily due to positive development in the Health Germany division, in short-term and long-term health business, and in travel insurance. The Digital Ventures division also generated higher insurance revenue; the Life Germany division's contribution to insurance revenue changed little year on year.

The total technical result was virtually the same as in the previous year for the ERGO Life and Health Germany segment. While income was lower from the release of the contractual service margin in the Life Germany and Health Germany divisions, the higher result in short-term health business and the substantially higher year-on-year result generated by financial reinsurance both made positive contributions to the total technical result.

In the Life Germany division, insurance revenue of €2,898m in the past financial year was comparable to the previous year (2,984m), with the change mainly driven by income from the release of the contractual service margin. The total technical result in the past financial year rose slightly to €505m (494m).

In the Health Germany division, which includes travel insurance business, insurance revenue rose year on year by 3.0% to €6,118m (5,939m), with increases in both long-term and short-term health business. Travel insurance, which was up by 16.5% year on year, was also a contributor to higher insurance revenue in Health Germany. The total technical result amounted to €448m (491m), with the year-on-year difference mainly driven by lower income from the release of the contractual service margin. Conversely, short-term travel and health insurance boosted the total technical result thanks to very good growth.

Insurance revenue in the Digital Ventures division rose by 5.3% year on year to €926m (879m). Growth of 8.4% in health insurance was due to supplementary dental insurance business in particular. Insurance revenue in property-casualty business was down 3.5% year on year. The total technical result remained rather steady at €71m (74m).

ERGO Property-casualty Germany

In terms of insurance revenue from insurance contracts issued (insurance revenue), the ERGO Property-casualty Germany segment's main lines of business are fire and property insurance, accounting for approximately 24%; third-party liability insurance (about 20%); and motor insurance (around 18%).

Compared with the previous year, insurance revenue rose substantially – mainly on account of growth in third-party liability (15.7%), personal accident insurance (13.7%), and motor (12.5%). This segment also managed to generate higher insurance revenue in Other classes of business – especially in engineering (14.0%) and in fire and property insurance (3.4%). We experienced declines in insurance revenue of 12.9% in marine insurance and 1.5% in legal protection insurance.

Our total technical result of €495m was far above the previous year's result (400m), owing primarily to strong operational performance and a lower major-loss burden. Lower expenditure due to greater discounting effects that resulted from interest rate developments likewise boosted the total technical result.

ERGO International

With regard to the segment's insurance revenue from insurance contracts issued (insurance revenue), property-casualty insurance accounted for approximately 62%, health for about 30% and life insurance for around 8%. Our major markets are Poland, accounting for around 35% of insurance revenue, Belgium (approx. 18%), and Spain (approx. 17%).

Compared with the previous year, we posted an overall increase in insurance revenue – due especially to strong growth in Poland, improvements in health business in Spain and Belgium, and the full consolidation of the property-casualty insurer ERGO Insurance (Thailand) Public Co. Ltd. (ERGO Thailand). Adjusted for the purchase and sale of companies outside Germany and positive currency translation effects, insurance revenue in the segment rose by 11.0% compared with 2022.

In international property-casualty business, insurance revenue rose by 18.8% to €3,487m (2,934m). We generated significantly higher revenue in Poland and the Baltic states in particular. Owing to the full consolidation of ERGO Thailand, insurance revenue increased by €186m year on year.

Compared to 2022, insurance revenue in international health business rose by 15.2% to €1,687m (1,464m) thanks to the strong growth of our Spanish health insurer and positive development in Belgium.

Insurance revenue in international life insurance amounted to €444m (470m), a 5.4% decrease compared to the previous year. There were pleasing improvements in Poland and the Baltic states, but decreases in Belgium and Austria.

The total technical result improved most remarkably compared with the previous year, chiefly on account of an increase in health insurance business in Spain and Belgium as well as improved performance of property-casualty business in Poland, Greece and the Baltic states. However, income from the release of the contractual service margin was slightly lower in life and health business.

A3 Investment performance

Income and expenses with respect to investment activities

Investment result

€m	2023	Prev. year
Regular income	6,950	6,358
Write-ups/write-downs	–194	–2,811
Change in expected credit loss	–47	0
Gains/losses on disposal	–588	3,755
Fair value change	–65	–3,649
Other income/expenses	–682	–670
Total	**5,374**	**2,983**

Regular income increased on the previous year, primarily due to higher interest rates and a consequently higher reinvestment yield. Higher interest rates in the reporting year resulted in yields on new investments that were above the average return on our existing portfolio of fixed-interest investments.

The net result from write-ups and write-downs was substantially less negative than in the same period of the previous year. Impairment losses on equities, which had a very negative impact on write-downs in 2022, are recognised as changes in fair value under IFRS 9. Moreover, no further write-downs of Russian or Ukrainian bonds were made in the 2023 reporting year. Impairment losses on both property and participations was the primary reason for the negative result.

The result from the change in expected credit losses amounted to –€47m in the reporting year. Introduced in IFRS 9 as its own category, "Expected credit losses" reflect anticipated losses on interest-bearing investments that are not posted in the category "Fair-value changes".

We posted net losses in the reporting year of €588m on the disposal of investments not recognised under "Fair-value changes". These losses resulted primarily from the disposal of fixed-interest securities that were sold and whose proceeds were then invested anew so as to profit from higher interest rates. In the same period of 2022, it was possible to generate profits through the disposal of equity portfolios, which are recognised as changes in fair value under IFRS 9.

The net result from fair-value changes totalled –€65m, with the key negative variable being the result from derivatives of –€622m – in turn mainly attributable to losses from equity derivatives used to hedge against bearish equity markets. This was positively offset by a boost of €1,067m to the result owing to changes in the fair values of equities due to stronger equity markets. In the same period of the previous year, higher interest rates in particular had a detrimental impact on the relevant fixed-interest securities.

The investment result can be broken down by asset class as follows:

Investment result by type of investment

€m	2023	Prev. year
Result from non-financial investments		
Investment property	151	699
Property, plant and equipment	104	143
Intangible assets	-13	0
Biological assets	75	88
Inventories	0	0
Investments in affiliated companies, associates and joint ventures	313	95
Thereof: Associates and joint ventures accounted for using the equity method	356	52
	629	**1,024**
Result from financial investments	**5,302**	**2,480**
Expenses for the management of investments and other expenses	**-558**	**-522**
Total	**5,374**	**2,983**

The result from investment property includes €626m (601m) in rental income. The expenses for the management of investments include running costs and expenses for repair and maintenance of property totalling €89m (78m). Impairment losses on financial investments in accordance with IFRS 9 amounted to €47m.

The improved result can be traced back, in particular, to increased regular income in a year-on-year comparison. This is due primarily to the improvement in the reinvestment return.

In the previous year, by contrast, the result had been negatively impacted by impairment losses in accordance with IAS 39. These were recognised largely on equity instruments totalling €1,849m and on Russian and Ukrainian bonds and loans in the amount of €849m in total.

Gains and losses on the derecognition of financial assets measured at amortised cost amounted to €0m (3,456m).

Gains and losses recognised directly in equity

The following table provides an overview of the income and expenses recognised directly in equity in the financial year.

Income and expenses recognised directly in equity

€m	2023	Prev. year
Items where income and expenses recognised directly in equity are reallocated affecting net income	**1,105**	**–4,913**
Currency translation	–433	738
Unrealised gains and losses on financial investments	4,914	–26,283
Hedging of option contracts – cost of hedging	27	0
Hedging of forward contracts – cost of hedging	0	0
Change resulting from cash flow hedges	2	–23
Change resulting from equity method measurement	27	24
Change resulting from reinsurance contracts held	–774	–465
Change resulting from insurance contracts issued	–2,631	21,095
Other changes	0	0
Items where income and expenses recognised directly in equity are not reallocated affecting net income	**–111**	**791**
Remeasurements of defined benefit plans	–111	791
Change resulting from equity instruments designated as measured at fair value through other comprehensive income	0	0
Hedging of equity instruments designated as measured at fair value through other comprehensive income	0	0
Reclassification of owner-occupied property to investment property measured at fair value through profit or loss	0	0
Change in the credit risk of financial liabilities designated as measured at fair value through profit or loss	0	0
Other changes	0	0
Total	**994**	**–4,122**

The income and expenses recognised directly in equity were positive overall in the financial year. This was attributable primarily to the change in unrealised gains and losses on financial investments, which was driven by interest-rate developments.

Investments in securitisations

Our asset-backed securities and mortgage-backed securities at fair value totalled 3% (3%) of the investment portfolio as at the reporting date. This asset class is composed of securitised receivables (asset-backed securities or mortgage-backed securities), e.g. securitisations of real estate finance or consumer credit. Around 43% of our structured credit products had a rating of AAA.

A4 Performance of other activities

On the one hand, Munich Re is a lessee. On the other hand, Munich Re is also a lessor.

Munich Re as lessee

We have recognised liabilities arising from our lessee agreements as liabilities. These relate predominantly to rented office buildings. As at the balance sheet date, lease liabilities totalled €437m (356m).

The right-of-use assets under leases are comprised of lease liabilities, lease payments made at the time or before the asset is made available for use, initial direct costs, and restoration obligations. Right-of-use assets are depreciated on a straight-line basis over the term of the lease. Right-of-use assets came to €416m (348m) as at the balance sheet date.

Short-term leases with terms shorter than 12 months (and no purchase option) and leases for which the underlying asset is of low value are not recognised. Instead they are recognised through profit or loss as an expense of €1m (2m).

Munich Re as lessor

Operating leases mainly involve leased property.

Future minimum lease payments under operating leases

€m	31.12.2023	Prev. year
≤ 1 year	366	360
> 1 year and ≤ 5 years	1,097	1,100
> 5 years	1,118	1,245
Total	**2,581**	**2,706**

[1] The previous year's figures have been adjusted.

There were several finance leases for property at the end of the reporting period, which are listed in the following table:

Due dates

	31.12.2023			Prev. year		
€m	Gross investment	Interest element	Net investment	Gross investment	Interest element	Net investment
Minimum lease payments ≤ 1 year	1	0	0	1	0	0
Minimum lease payments > 1 year and ≤ 5 years	5	1	4	2	1	1
Minimum lease payments > 5 years	72	55	17	69	55	13
Total minimum lease payments	**78**	**57**	**21**	**71**	**56**	**15**
Unguaranteed residual values	41	29	13	41	29	12
Total	**119**	**85**	**34**	**113**	**86**	**27**

A5 Other information

There were no matters in the year under review which require disclosure under "Other information".

System of governance

B

B System of governance

B1 General information on the system of governance

Administrative, management or supervisory bodies (AMSBs)

Münchener Rückversicherungs-Gesellschaft Aktiengesellschaft in München (Munich Reinsurance Company) has three governing bodies: the Annual General Meeting, the Board of Management, and the Supervisory Board. Their functions and powers are defined by law, the Articles of Association, the Co-Determination Agreement applicable to Munich Reinsurance Company, and by rules of procedure and internal guidelines. Employee co-determination on the Supervisory Board is governed by the Co-Determination Agreement concluded pursuant to the German Act on the Co-Determination of Employees in Cross-Border Mergers (MgVG). The principle of parity co-determination on the Supervisory Board has been strengthened by taking into account staff employed in the European Union and in the European Economic Area (EU/EEA).

Additional corporate governance requirements are set out in the regulatory requirements for (re)insurance companies, especially the German Insurance Supervision Act (VAG) and the European supervisory regulations (Solvency II). They include specific and supplementary rules on various issues such as business organisation or the qualifications and remuneration of members of the Board of Management, Supervisory Board members and other individuals.

Annual General Meeting

The Annual General Meeting decides on the appropriation of net retained profits, the approval of the actions of the Board of Management and Supervisory Board, the election of the auditor, the election of shareholder representatives to the Supervisory Board, amendments to the Articles of Association and capital measures, among other things. The principle of "one share, one vote" applies at the Annual General Meeting of Munich Reinsurance Company.

The Annual General Meeting on 5 May 2023 was held as a Virtual Annual General Meeting without the physical attendance of the shareholders or their proxies (with the exception of the proxies appointed by the Company) in accordance with section 118a of the German Stock Corporation Act in conjunction with section 26n(1) of the Introductory Act to the German Stock Corporation Act (in German: EGAktG).

Board of Management

As at 31 December 2023, the Board of Management of Munich Reinsurance Company comprised ten members, including two women. The Board of Management is responsible for managing the Company, in particular for setting the Company's objectives and determining strategy. It is bound to act in the Company's best interests. It should take account of the interests of shareholders, employees, and other stakeholders of Munich Reinsurance Company, with the objective of sustainable value creation. The Board of Management is responsible for effecting adequate risk management and risk control. It must ensure that statutory requirements and internal Company rules are observed, and works to ensure compliance by Group companies and their staff members.

Working procedures of the Board of Management

The work of the Board of Management, in particular the allocation of responsibilities among the individual Board members, matters reserved for the full Board of Management, and the majority required to pass resolutions, is regulated by rules of procedure issued by the Supervisory Board. The full Board of Management decides on all matters that, either by law, or according to the Articles of Association or rules of procedure, require a resolution of the Board of Management. In particular, it is responsible for matters requiring the approval of the Supervisory Board, for items which have to be submitted to the Annual General Meeting, for tasks which constitute management functions or are of exceptional importance, and for significant personnel measures.

Meetings of the Board of Management take place as required, but generally at least once a month, and are presided over by the Chair of the Board of Management. The adoption of a resolution requires the majority of votes cast; in the event of a tie, the Chair has the casting vote. The members of the Board of Management cooperate closely for the benefit of the Company. On an ongoing basis, they inform each other about all important business transactions.

Composition and working procedures of the Board of Management committees

Three Board of Management committees ensure efficient work by the Board of Management: the Group Committee, the Reinsurance Committee, and the Strategy Committee.

Group Committee
The Group Committee is the central management committee of the Group. It decides in particular on fundamental issues concerning the strategic and financial management of the Group for all fields of business, and on the principles of general business policy and organisation within the Group. The Committee also makes decisions on all matters of fundamental importance relating to the divisions headed by its voting members. In addition, it serves as an executive committee with responsibility for

important ongoing issues, in particular the approval of significant individual transactions.

Reinsurance Committee
The Reinsurance Committee is the central management committee of the reinsurance field of business. It decides on all matters of fundamental importance for this field of business, except investments.

Strategy Committee
The Strategy Committee is the central management committee for fundamental strategic matters in the fields of business (reinsurance, primary insurance). It makes decisions on all strategic matters of fundamental importance for the fields of business, including own investments and administered (third-party) funds.

The following applies to all Board of Management committees: Where decisions within the sphere of responsibility of a committee relate to issues reserved for the full Board of Management, the respective committee will prepare these matters for decision. Committee meetings are held regularly, and as required. Only members of the Board of Management have voting rights on the committees. The committees are further governed by their respective rules of procedure, as adopted by the full Board of Management.

Subcommittees of the Board of Management Committees
All three Board committees have set up subcommittees. Specifically, the Group Committee has established the Group Risk Committee; the Reinsurance Committee has set up the Global Underwriting and Risk Committee as well as the Board Committee IT Investments; and the Strategy Committee has established the ESG Committee. These subcommittees also include senior executives from Munich Reinsurance Company and the Group who do not have voting rights.

The work of these subcommittees is governed by their own written rules of procedure. Both the Group Risk Committee and the Global Underwriting and Risk Committee deal with risk management issues, albeit with different emphases. The Board Committee IT Investments is responsible for IT investments. The ESG Committee is the central management committee for fundamental, ESG-related strategic matters in the Group.

Collaboration between Board of Management and Supervisory Board

The Board of Management and the Supervisory Board work together closely and in a spirit of trust for the benefit of the Company.

The Board of Management determines the strategic direction of the Company in conjunction with the Supervisory Board. The Board of Management reports regularly and as needed to the Supervisory Board about all questions relevant to the Company. The Chair of the Supervisory Board maintains regular contact with the Board of Management between meetings – in particular with the Chair of the Board of Management – in order to discuss issues of strategy, planning, business development, the risk situation, risk management and Company compliance. The Supervisory Board has defined the Board of Management's information and reporting obligations in detail. The Supervisory Board's consent is required before the Board of Management can conduct specific types of transactions, which include the following: annual financial planning, certain investments and divestments, the implementation of share buy-back programmes, the conclusion of inter-company agreements, and the execution of corporate restructurings in which the Company holds a stake. The Supervisory Board's approval is also required for sideline activities assumed by members of the Board of Management and for material related-party transactions as defined in Section 111b(1) of the German Stock Corporation Act (AktG).

Supervisory Board

Pursuant to the Articles of Association, the Supervisory Board of Munich Reinsurance Company comprises twenty members; half are shareholder representatives and are elected by the Annual General Meeting. The other ten members are elected employee representatives from Group companies in the EU and EEA.

The Supervisory Board advises the Board of Management and monitors the management of the Company, but it is not authorised to take management action in place of the Board of Management.

Working procedures of the Supervisory Board

The Supervisory Board has its own rules of procedure, which specify responsibilities, work processes and further modalities for the adoption of resolutions. The Audit Committee also has its own rules of procedure, which have been adopted by the full Supervisory Board.

You will find details on the main responsibilities of the committees of the Supervisory Board and their composition on the Munich Re website at www.munichre.com/supervisory-board.

Self-assessment
The Supervisory Board and its committees regularly assess how effectively the Supervisory Board as a whole and also its individual committees perform their duties. Following preparations by the Praesidium and Sustainability Committee in 2023, the Supervisory Board conducted an internal self-assessment based on a questionnaire. The Supervisory Board thoroughly discussed the findings of the self-assessment at its meeting on 26 October 2023. The self-assessment confirms that the working relationships within the Supervisory Board and with the Board of Management are professional and constructive, and characterised by a high degree of trust and candour. In addition, the findings document the efficient organisation and execution of meetings, as well as appropriate reporting by the Board of Management. There was no indication of any fundamental need for change. A few optimisation measures were identified and are being put into practice.

Work of the committees

The Supervisory Board has set up six committees from among its members: the Praesidium and Sustainability Committee, the Personnel Committee, the Remuneration Committee, the Audit Committee, the Nomination Committee and the Conference Committee.

The committees adopt decisions by the majority of votes cast. With the exception of the Conference Committee, the chair of the committee has a casting vote in case of a tie. The full Supervisory Board is regularly informed about the work of the committees by their respective chairs.

Personnel Committee

The Personnel Committee held three meetings in the reporting period. The Committee essentially prepared the resolutions on matters involving the Board of Management, unless these fell under the remit of the Remuneration Committee. One focus of the Personnel Committee's work was on preparing the confirmation of fitness and propriety required for the extension of two existing Board of Management members' appointments. In addition, it approved the assumption of mandates on supervisory, advisory and similar boards by members of the Board of Management. Under consideration of aspects of diversity, the Personnel Committee also addressed Group-wide succession planning for Board of Management positions.

Remuneration Committee

The Remuneration Committee met five times in the period under review, holding three in-person and two hybrid meetings. In particular, it prepared resolutions on matters involving the Board of Management – as already mentioned above when reporting on the work of the full Supervisory Board – as far as these resolutions concerned the determination of the target overall remuneration, the establishment of the assessment basis for variable remuneration and the corresponding evaluation, fringe benefits and remuneration in kind, as well as the sections of the Board members' contracts relating to remuneration. The Committee adopted the proposal to be made to the full Supervisory Board regarding the approval of the remuneration report of the Board of Management and the Supervisory Board for presentation at the Annual General Meeting.

Praesidium and Sustainability Committee

The Praesidium and Sustainability Committee held six meetings at which it made preparations for each Supervisory Board meeting and, in particular, addressed topics of corporate governance and sustainability strategy. The Committee prepared, among other items, the assessment of the effectiveness of the Supervisory Board as a whole and its committees (self-assessment). It also approved the resolution passed by the Board of Management on implementation of the 2023/2024 share buy-back programme. The Committee addressed relevant sustainability issues on a regular basis at its meetings. At the Committee's July meeting, the Chief Financial Officer reported on the latest sustainability reporting developments. In addition, the Praesidium and Sustainability Committee assessed related-party transactions in an internal procedure as per Section 111a(2) of the Stock Corporation Act (AktG). The Chair of the Board of Management regularly provided information to the Committee about the shareholder structure and the current share buy-back programme.

Audit Committee

In the reporting period, the Audit Committee held seven meetings: the external auditor attended all of the meetings. The Audit Committee discussed the Munich Reinsurance Company and Group financial statements, the combined management report, the auditor's reports, and obtained detailed information on the impact of the new IFRS 9 and IFRS 17 reporting standards.

At these meetings, the Audit Committee also heard regular reports on the key Solvency II figures and discussed the quarterly reporting to the supervisory authority. Other key tasks of the Audit Committee consisted in monitoring the Group's risk situation and risk management on an ongoing basis, and developing a risk strategy. In addition to the Group Chief Risk Officer (CRO)'s quarterly written reports, the Committee also obtained detailed verbal information from the Group CRO on several occasions. The Head of the Actuarial Function reported on the "Group Actuarial Function Report 2022" at the meeting held on 9 August 2023. There were regular discussions about the internal control system and compliance topics – particularly individual compliance violations that were presented to the Audit Committee. The Group Chief Auditor comprehensively informed the members of the Committee about the outcome of the audits for 2022 and, throughout the year, reported on the results of the 2023 audits and on the audit planning for 2023 and 2024. Without the Board of Management in attendance, Committee members took the opportunity to regularly confer amongst themselves or with the Group Chief Auditor, the Group Chief Compliance Officer, the Group Chief Risk Officer, or the external auditor. The Chair of the Audit Committee also held one meeting to conduct a bilateral discussion with the Group Chief Auditor.

Nomination Committee

The Nomination Committee met twice in the reporting period. The Nomination Committee prepared for the Supervisory Board elections to be held at the 2024 Annual General Meeting, prepared requirement profiles prior to the election of ten shareholder representatives, and discussed the re-election of Supervisory Board members, as well as suitable candidates to succeed Supervisory Board members who would be leaving. The Nomination Committee also prepared nominations for the election of shareholder representatives to the Supervisory Board committees.

Conference Committee

As in previous years, there was no need to convene the Conference Committee in the 2023 financial year.

Changes on the Supervisory Board
Ruth Brown left the Supervisory Board, effective 2 January 2024, upon the transfer of the British DAS companies to ARAG SE. Her successor is Andrea Maier, who was appointed by a court of law.

You will find details on the composition and responsibilities of the Board of Management, Supervisory Board and the relevant committees in Munich Re's Group Annual Report 2023 – in the Statement on Corporate Governance on pages 124 – 131. More information on corporate governance can be found at www.munichre.com/cg-en.

Compensation

Principles of the compensation policy
The "Solvency II: Munich Re Group Compensation Policy (MR GCP)" sets uniform and generally accepted standards for compensation policy at the Munich Re Group. Existing compensation policies at the undertakings of the Munich Re Group remain in force and apply in addition. The standards comprise substantive, procedural and formal requirements. The object of the MR GCP is to implement the regulatory requirements resulting from Solvency II in accordance with uniform principles for the Munich Re Group. The undertakings of the Munich Re Group that are obliged to implement these requirements must implement the requirements of the MR GCP in their own compensation policies, which take into account local conditions. Undertakings that are not obliged to implement these requirements are subject to local regulations.

Pursuant to the MR GCP, the remuneration schemes of the Munich Re Group must be established, implemented and maintained in line with the respective undertaking's business and risk management strategy, its risk profile, objectives, risk management practices and the long-term interests and performance of the undertaking as a whole. The remuneration schemes must also incorporate measures aimed at avoiding conflicts of interest. Furthermore, the remuneration schemes must promote effective risk management and must not encourage risk-taking that exceeds the risk-tolerance limits of the undertaking.

Pursuant to the MR GCP, specific agreements must be concluded for a group of individuals that includes AMSB members, persons who effectively run the business, key functions and risk takers. These agreements must take the following into account in particular:

Where the remuneration schemes for this group of individuals include both fixed and variable components, such components must be balanced so that the fixed or guaranteed component represents a sufficiently high proportion of the total remuneration. This ensures that those persons are not overly dependent on the variable components.

The payment of a substantial portion of the variable remuneration component must contain a flexible, deferred component that takes account of the nature and time horizon of the undertaking's business. This deferral period must be no less than three years and must be aligned with the nature of the business, the risks, and the activities of the persons in question. Further general requirements and specific agreements are regulated by the MR GCP.

AMSBs
The principles for the members of the administrative, management or supervisory bodies (AMSBs) of Munich Reinsurance Company are documented in the relevant local compensation policies. They are fully taken into consideration in the compensation systems of the AMSBs of Munich Reinsurance Company. With regard to the remuneration for the Board of Management of Munich Reinsurance Company, the ratio of fixed and variable remuneration components was chosen such that it is balanced as far as the amount of overall remuneration is concerned, and does not result in any misplaced incentives to take unreasonable risk.

For the members of the AMSBs of other undertakings belonging to the Munich Re Group, the principles are set out in the respective compensation policies of the individual undertakings. All compensation policies of the undertakings of the Munich Re Group required to implement these requirements must comply with the aforementioned principles of the MR GCP.

Employees
The principles of the MR GCP also apply to the employees of Munich Reinsurance Company. Further remuneration rules and supplementary remuneration regulations applicable to employees in reinsurance – such as post-employment benefits, lump-sum settlements, succession planning and staff development – are set out in the Human Resources Policy. The remuneration components for Munich Reinsurance Company employees are regulated by internal company agreements and by corresponding policies pursuant to the German Managerial Staff Committee Act (SprAuG) and on the basis of individual contracts, and they reflect the statutory and collective bargaining environment.

The undertakings from the ERGO field of business that are obliged to implement these requirements have implemented the requirements of the MR GCP in their own compensation policies. Responsibility for structuring the compensation system is generally local, and takes place in accordance with the respectively applicable legal and supervisory requirements. The principles of compensation for members of boards of management, managing directors, branch managers as well as senior executive and non-executive staff of the ERGO undertakings in Germany are described in the Compensation Policy for ERGO Group AG and its subsidiaries. The principles and policies are in line with the respectively applicable statutory, collective bargaining and company regulations.

Individual and collective performance criteria

AMSB

Details on the structure of the remuneration system for the members of the Board of Management of Munich Reinsurance Company and on the parameters used are available in the remuneration system and the remuneration report published on our website: www.munichre.com/board-of-management.

Members of the Supervisory Board of Munich Reinsurance Company receive fixed remuneration only.

For members of the AMSBs of the Munich Re Group whose variable remuneration is performance-related, the total amount of the variable remuneration is based on a combination of assessments of the performance of the individual and of the divisional unit concerned on the one hand, and the overall performance of the relevant undertaking or the Group on the other. If there is performance-related variable remuneration, both financial and non-financial criteria are taken into account as part of the assessment of an individual's performance.

The remuneration structure for risk takers in the International Organisation and risk takers on international assignments is largely geared to the remuneration scheme for members of the Board of Management.

Moreover, the variable remuneration for all staff in the reinsurance group is regulated on the basis of uniform principles in terms of its components and the way it works.

All staff are paid an annual bonus in the form of a variable remuneration component that gives employees a share in corporate success (Company result bonus). The key indicator used is the IFRS result of the Munich Re Group. The targets correspond to the Group objective for the variable remuneration of members of the Board of Management.

In addition, staff who contribute to the long-term performance of the undertaking benefit from a long-term incentive plan. This plan is a share-based remuneration component. The longer-term performance of the Company is determined on the basis of the development of the total shareholder return in comparison with that of a defined peer group. In addition, with effect from 1 January 2023, the Long-Term Incentive Plan also includes ESG targets. The Long-Term Incentive Plan provides for flexible payment deferred over a period of four years. The possibility of a downward adjustment for exposure to current and future risks is included. The Long-Term Incentive Plan largely corresponds with that of the multi-year bonus of the members of the Board of Management.

Senior executive staff

The fixed components for Munich Reinsurance Company senior executive staff (including holders of key functions) comprise a fixed annual basic remuneration, paid out as a monthly salary, plus market-standard fringe benefits and remuneration in kind (most notably a company car and a company pension scheme). The variable components are made up of the short-term Company result bonus, and the share-price-linked component Long-Term Incentive Plan. With effect from 1 January 2023, the Long-Term Incentive Plan also includes ESG targets.

The higher a manager's level is, the higher the percentage of their total remuneration consists of the Company result bonus and Long-Term Incentive Plan.

The Company result bonus ensures that the performance of the undertaking is systematically reflected in the remuneration paid to senior executive staff. The Long-Term Incentive Plan, with a duration of four years, provides senior executive staff with a share in the undertaking's longer-term success and achievement of ESG targets.

The combination of short- and long-term components is well-balanced and ensures that the participation of senior executive staff bears a reasonable relationship to overall corporate performance. In addition, negative incentives are avoided, in particular taking disproportionately high risks. The monitoring function of the control units is not impaired. By using the same key indicators as for the AMSBs, the variable remuneration is geared to achievement of the objectives defined by the strategy of the undertaking and material risks and their time horizon are taken adequate account of. No guaranteed variable remuneration components are granted.

The decision as to how performance-related variable remuneration for senior executive staff is structured at ERGO is the responsibility of the local units.

Non-executive staff

The fixed components for Munich Reinsurance Company non-executive staff comprise a fixed annual basic remuneration, paid out as a monthly salary and as a holiday and Christmas bonus, plus market-standard fringe benefits and remuneration in kind. Variable remuneration comprises the short-term component Company result bonus (see "Senior executive staff").

The decision as to how performance-related variable remuneration for non-executive staff is structured at ERGO is the responsibility of the local units.

Supplementary pension or early retirement schemes

AMSB

Members of the AMSBs of the Munich Re Group are generally entitled to pension benefits from a defined contribution plan. Early retirement schemes are geared to the respective country-specific circumstances.

Members of the Board of Management of Munich Reinsurance Company who were appointed for the first time in 2021 or thereafter no longer receive an employer-financed company pension. Details on the regulations relating to early or regular retirement of the members of the Board of Management of Munich Reinsurance Company are available in the remuneration system and report

published on our website: www.munichre.com/board-of-management.

Members of the Supervisory Board of Munich Reinsurance Company are not entitled to pension benefits.

Senior executive and non-executive staff

The pension scheme for senior executive and non-executive staff at Munich Reinsurance Company is a defined contribution plan.

In the case of disability, senior executive and non-executive staff receive an occupational disability pension. The amount of disability pension is based on a fixed percentage of the basic salary. Surviving dependants of senior executive or non-executive staff receive a lump-sum payment.

If senior executive or non-executive staff leave the service of the Company before a benefit becomes payable, the rules and regulations of the German Company Pension Act apply. In addition, senior executive and non-executive staff who joined the Company prior to 1 January 2019 are members of the Munich Re pension scheme, which is a defined contribution plan.

At ERGO, the decision as to whether a company pension scheme is provided lies with the local units in accordance with the respectively applicable legal requirements. With the exception of some legacy schemes, the pension schemes are based on defined contribution plans.

Material transactions

Munich Re publishes information of this kind on its website without undue delay at www.munichre.com/mandatory-announcements. In the reporting period, there were no material transactions with shareholders, persons who exercise a significant influence on the undertaking, members of the Board of Management or members of the Supervisory Board.

Main duties and responsibilities of the key functions

The following four Group-wide key functions conduct their activities at Group level and at Munich Reinsurance Company level:

Compliance

The Head of Group Compliance and Legal (GCL) is the Group Chief Compliance Officer (GCCO) and, as such, the holder of the compliance key function with responsibility for the compliance organisation at Munich Re. The GCCO has an unrestricted right to full disclosure of and access to all information required for the discharge of compliance duties.

The GCCO compiles a written compliance report for the Board of Management and the Audit Committee of the Supervisory Board of Munich Reinsurance Company at least once a year. This report includes an overview of the Compliance Management System (CMS) and the adequacy and effectiveness of the processes in place to comply with external requirements, as well as compliance risks and violations of Group-wide relevance.

You will find a detailed explanation of the main duties and responsibilities in section B 4.

Internal audit

As an independent control function, Group Audit is responsible for reviewing and assessing all components of the system of governance at Munich Re. It prepares independent and objective analyses and recommendations for the Board of Management and senior management, and provides information on the audited activities.

A description of the authorities and independence of the internal audit function is available in section B 5.

Risk management function

The Group Chief Risk Officer (Group CRO) is Head of Integrated Risk Management (IRM) and is responsible for the risk management function (RMF). In this role, the Group CRO is responsible for organising and implementing an adequate risk management system. This includes developing the risk strategy, monitoring all risks throughout the Group, and ensuring the adequacy of risk management processes.

The independence of the RMF is safeguarded and laid down in the Risk Management Policy, among others.

The RMF of the Group is supported by the local mirror functions in the Group undertakings and by specific risk management functions at Munich Reinsurance Company. You will find a detailed description of the main duties and responsibilities of the RMF in section B 3.

Actuarial function

The Head of IRM1.2 Risk Analytics & Reporting is responsible for the actuarial function (AF).

The independence of the AF, in particular from the RMF, is safeguarded and laid down in the Actuarial Function Policy and the Risk Management Policy, among others. To discharge its duties, the AF works in close collaboration with the internal actuarial services of the fields of business. The main duties and authorities, and basis of collaboration, are described in section B 6.

The human resources available for all key functions are adequate to meet the internal and external requirements of the respective function. We also consider the budget and non-monetary resources available to be adequate overall.

B2 Fit and proper requirements

Description of the specific requirements

The Solvency II: Munich Re Group Fit and Proper Policy lays down criteria, procedures and responsibilities that apply across the Group to ensure the fitness and propriety of persons who effectively run the undertaking or perform other key tasks.

Insurance undertakings in the EU/EEA and insurance holding companies domiciled in Germany are obliged to adopt a policy that is equivalent to the Fit and Proper Policy. Insurance undertakings outside the EU/EEA and non-insurance undertakings worldwide that are classified as risk units, as well as service undertakings within the Group to which (re)insurance activities have been outsourced, are obliged to implement the main requirements of the Fit and Proper Policy. Non-insurance undertakings worldwide that are not classified as risk units and institutions for occupational retirement provision are only obliged to comply with local legal fit and proper requirements.

Every undertaking that is obliged to implement these requirements must adapt its policy to the local legal requirements. In the event of a contradiction, local law takes precedence. If the local legal requirements are less stringent than the group-wide requirements, the latter apply.

The specific requirements of Munich Reinsurance Company concerning skills, knowledge and expertise applicable to the persons who effectively run the undertaking or have other key tasks are based on the relevant supervisory requirements.

Only persons who have the skills, knowledge and expertise necessary to perform the tasks assigned to them in an orderly manner may be employed to effectively run the undertaking or to be responsible for other key tasks. The fitness requirements set out depend on the responsibilities they have and the work they do. Where management duties are to be undertaken, experience in management should be taken into consideration.

Proportionality is to be applied in meeting the requirements concerning the skills, knowledge and expertise of the persons concerned. The assessment of whether the persons who effectively run the undertaking or perform other key tasks are deemed fit includes an assessment of their professional and formal qualifications, knowledge and relevant experience within the (re)insurance sector, in other financial sectors or in other undertakings, and takes into account the duties assigned to the persons concerned and – where relevant to the position in question – their (re)insurance, financial, accounting, actuarial and management skills.

Persons who effectively run the undertaking
The undertakings of the Munich Re Group must determine individually which persons effectively run the undertaking.

The persons who effectively run Munich Reinsurance Company include the members of the Board of Management and the heads of branches both inside and – pursuant to a decision by the Board of Management and Supervisory Board – outside the EU/EEA.

Members of the Board of Management have individual responsibility for their divisions and overall responsibility for Munich Reinsurance Company, and must be fit to assume such responsibilities. This is monitored by the Supervisory Board. They must also be able to ensure compliance with the governance requirements at the Munich Re Group level.

The responsibilities assigned to each individual member of the Board of Management are set out in the distribution of responsibilities.

Collectively, the members of the Board of Management must have appropriate qualifications, experience and knowledge in the following areas as a minimum:

- Insurance and financial markets
- Business strategy and business model
- System of governance
- Financial and actuarial analysis
- Regulatory framework and requirements
- Internal model (risk model)
- Management

Each individual member of the Board of Management must have sufficient knowledge of all areas to be in a position to understand and exercise supervision over the actions of other members of the Board of Management. When changes are made to the membership of the Board of Management, the collective knowledge of the members of the Board of Management should be maintained at an appropriate level at all times.

The members of the Board of Management of Munich Reinsurance Company in 2023 have the professional qualifications, knowledge and experience to guarantee the sound and prudent management of Munich Reinsurance Company. They therefore have the requisite fitness.

Heads of branches inside and outside the EU/EEA are subject to the aforementioned requirements concerning members of the Board of Management in proportion to

- the influence they are able to exert on decisions at Munich Reinsurance Company,
- the significance of their branch, and
- the ability of the head of a branch to exert specific influence over outcomes, results and decisions.

All heads of branches of Munich Reinsurance Company meet the fitness requirements.

Persons responsible for other key tasks
The undertakings of the Munich Re Group both inside and outside the EU/EEA must determine individually which persons perform other key tasks.

Persons who perform other key tasks at Munich Reinsurance Company include:

- members of the Supervisory Board, and
- holders of key functions (risk management, compliance, internal audit and actuarial function) and their deputies. The holders of key functions have overall responsibility for the Group.

Munich Reinsurance Company currently has not outsourced key tasks, has no staff who perform additional "other key tasks" at Group level, and it has no staff who perform tasks relating to other key tasks of Munich Reinsurance Company and tasks transferred to them that are specific to those key tasks.

Members of the Supervisory Board must at all times have the experience and expertise necessary to perform their duties, in order to adequately monitor and control the Board of Management of Munich Reinsurance Company, and to actively oversee the development of the undertaking. In order to fulfil that function, they must understand the business conducted by the undertaking and be able to assess the risks for the undertaking. Members of the Supervisory Board must be familiar with laws and regulations of relevance to the undertaking. A basic knowledge of risk management specific to insurance is useful. Collectively, the Supervisory Board must in any case have expertise in the areas of investment, underwriting and accounting. Each time a new member of the Supervisory Board is appointed, but at least once annually, it is necessary to demonstrate to the Federal Financial Supervisory Authority (BaFin) which members of the Supervisory Board have expertise in these areas.

Maintenance of fitness includes ongoing training to ensure that the members of the Supervisory Board are in a position to meet changing or increasing requirements relating to their responsibilities at the undertaking.

Notwithstanding that, each and every member of the Supervisory Board must possess sufficient theoretical and practical knowledge of all areas of the business to guarantee that appropriate control is exercised. The knowledge and experience of other members of the Supervisory Board are no substitute for the fitness of an individual member. A member of the Supervisory Board does not, in principle, have to have specialist knowledge, but must be capable of recognising when it is necessary to seek advice.

As a public-interest entity, at least one member of the Supervisory Board of Munich Reinsurance Company must have expertise in accounting or auditing (second financial expert). The members of the Supervisory Board must collectively be familiar with the sector in which Munich Reinsurance Company operates.

The skills, knowledge and expertise needed to exercise supervision may also have been acquired in the course of exercising (previous) functions in other sectors or in public administration, or political mandates, provided that such functions or mandates involved or involve dealing with economic and legal issues over a prolonged period, and were not or have not been purely secondary in nature.

Other specific requirements are defined in the sets of criteria for the shareholder and employee representatives.

The members of the Supervisory Board of Munich Reinsurance Company in 2023 have the professional qualifications, knowledge and experience to supervise and advise the Board of Management of Munich Reinsurance Company in a professional manner. They therefore have the requisite fitness.

The tasks assigned to holders of a key function arise from the current responsibilities. Collectively, the key functions must guarantee the effectiveness of the system of governance of the Munich Re Group. Deputies of holders of key functions are also deemed to have the requisite fitness.

The holders of key functions in 2023 have the professional qualifications, knowledge and experience to perform the relevant tasks. They therefore have the requisite fitness.

Assessment of fitness and propriety

The undertakings of the Munich Re Group that are obliged to implement these requirements must determine in their respective Fit and Proper Policy the applicable provisions concerning the assessment of the fitness and propriety of persons who effectively run the undertaking or perform other key tasks.

Munich Reinsurance Company carries out an internal assessment of the fitness and propriety of persons who effectively run the undertaking and perform other key tasks prior to a first appointment, election, assignment of responsibility, or necessary reassessment. A reassessment is performed after a maximum of five years if there have been no grounds for an earlier reassessment. This applies in particular when facts and circumstances give reason to believe that a person may no longer meet the fit or proper requirements, or significant changes are made to the duties assigned. In addition, a reassessment is always carried out when the appointment of a member of the Board of Management is due for renewal and a member of the Supervisory Board is due for re-election.

The assessment or reassessment is carried out on the basis of appropriate documents. When assessing professional qualifications, these documents include a detailed curriculum vitae, employer references and evidence of further training or education. With regard to propriety, these documents comprise the BaFin form "Persönliche Erklärung mit Angaben zur Zuverlässigkeit" (personal declaration with information on propriety), a police certificate of good conduct, and an excerpt from the "Gewerbezentralregister" (Central Trade Register). The result of the assessment of fitness and propriety and the reasons for the result must be documented.

Munich Reinsurance Company notifies BaFin in writing of the following persons concerned who effectively run the undertaking or perform other key tasks:

- Members of the Board of Management
- Heads of branches in the EU/EEA
- Members of the Supervisory Board
- Holders of key functions

At Munich Reinsurance Company, the following bodies and organisational units are responsible for the assessment of the fitness and propriety of the persons who effectively run the undertaking or are responsible for other key tasks:

- The Supervisory Board is responsible for assessing members of the Board of Management and – taking into account the rules of co-determination – for assessing members of the Supervisory Board.
- The Board of Management is responsible for the assessment of heads of branches inside and outside the EU/EEA and of holders of key functions.

The persons concerned have a duty towards Munich Reinsurance Company to cooperate in the assessment of their fitness and propriety. In particular, they must submit to Munich Reinsurance Company all necessary documents and declarations on time, in full and in the required form. Members of the Supervisory Board must additionally submit an annual self-assessment of their fitness for the office.

B3 Risk management system including the own risk and solvency assessment (ORSA)

Description of the risk management system: Strategies, processes and reporting procedures

Organisational structure

Munich Re set up a governance system that meets Solvency II requirements. The main elements of this system are the risk management, compliance, audit and actuarial functions. At Group level, risk management is part of the Integrated Risk Management division (IRM) and reports to the Group Chief Risk Officer (Group CRO). In addition to the Group functions, there are risk management units ("mirror functions") in the fields of business.

Risk governance

Our risk governance ensures that an appropriate risk and control culture is in place by clearly assigning roles and responsibilities for all material risks. The Board of Management must consult the risk management function on major decisions to be taken. The appropriateness of our risk governance is reviewed by the Board of Management on a regular basis.

Defining the risk strategy

The risk strategy, which is aligned with Munich Re's business strategy, defines where, how and to what extent we are prepared to incur risks. The further development of our risk strategy is embedded in the annual planning cycle, and hence in our business planning. The risk strategy is approved by the Board of Management, and discussed with both the Audit Committee of the Supervisory Board and the full Supervisory Board as a material element of the own risk and solvency assessment (ORSA) process.

We determine the risk strategy by defining risk tolerances and limits for a number of risk criteria that are based on the capital and liquidity available, and on our business strategy, and provide a frame of reference for the Group's operating divisions.

Implementation of strategy and the risk management cycle

The risk appetite defined by the Board of Management is reflected in our business planning and integrated into the management of our operations. If capacity shortages or conflicts with the limit system or regulations arise, defined escalation and decision-making processes are followed. These have been designed to ensure that the interests of the business and risk management considerations are weighed and reconciled with each other as far as possible.

Our implementation of risk management at the operational level embraces the identification, analysis and assessment of all material risks. This provides a basis for risk reporting, the control of limits and monitoring.

Risk identification is performed by means of appropriate processes and indicators, which are complemented by expert opinions. At Munich Re, the early identification of risks is primarily operationalised using the emerging risk process. We define emerging risks as new or changing risks that are characterised by a high degree of uncertainty in terms of occurrence probability, expected loss amount, and possible effects on Munich Re.

As part of the risk analysis, a quantitative and qualitative assessment of all risks at consolidated Group level is made in order to take into account possible interactions between risks across all fields of business.

Internal risk reporting provides the Board of Management with regular information on the risk situation, as regards the individual risk categories and the entire Group alike. This ensures that negative trends are identified in sufficient time for countermeasures to be taken. The purpose of our external risk reporting is to provide clients, shareholders and the supervisory authorities with a clear overview of the Group's risk situation.

Actual risk limits are derived from the risk strategy: taking the defined risk appetite as a basis, limits, rules and any risk-reducing measures required are approved and implemented. We also have a comprehensive early-warning system that draws our attention to any potential risks.

The risk management system is regularly audited by Group Audit.

Control and monitoring systems

Our internal control system is described in section B 4.

Risk management function

The RMF is one of four key functions within (re)insurance undertakings under Solvency II. The RMF at Munich Re is performed centrally in the Integrated Risk Management division and locally in the individual fields of business, at MEAG – the Group asset manager of Munich Re and ERGO – and in the individual insurance undertakings of the Group.

IRM is responsible for an integrated and Group-wide view of all risks. Its responsibility encompasses the recognition of all relevant risks, the quantification of capital requirements and a qualitative risk management process, including the development of the Group's risk strategy.

IRM is responsible for the following in particular:

- Risk identification, including emerging risk management and risk control
- Risk reporting
- Operational risk management as a key component of the internal control system
- Accumulation control
- Risk management with regard to information security, third-party risks and business continuity management
- Development and maintenance of the internal model; calculation of risk capital
- Assessment of the relevant risk categories not reflected in the internal model
- Allocation of risk capital for management purposes
- Calibration of capital market scenarios
- Risk strategy, including the definition of limit and trigger values (risk tolerance) and the ORSA
- Development of replication portfolios for measuring market risk and managing assets
- Risk governance

The Group Chief Information Security Officer (CISO), a function that is assigned to risk management, is responsible for the central and Group-wide coordination and management of all activities involving information security risks. Security risk committees have also been set up in the fields of business to assess and manage security risks. The members of the security risk committees are managers from operational units (e.g. IT Security), the control functions (e.g. Risk Management, Information Security, and Data Protection), and other representatives.

To further improve cyber security, we are working on initiatives both specific to and across the fields of business to ensure a level of protection in line with our information security strategy.

Implementation of the risk management system in the Group

We implement risk management consistently throughout the Group with the help of local mirror functions in the Group companies and specific risk management functions at Munich Reinsurance Company. The risk management objectives and principles define the basic framework for a consistent application of risk management standards throughout the Group. Feasible solutions are sought in adherence with the principle of proportionality for relatively small Group undertakings with limited human resources. This means that the minimum requirements with regard to risk management are always met – taking into account undertaking-specific risks and the nature, size and complexity of the undertaking and its operations.

There is a clear assignment of roles and responsibilities between the central RMF at Group level (central function) and the RMF at individual undertakings (local mirror functions). The central function develops a framework and sets standards, ensures consistent methods, defines risk appetite and permanently ensures a common risk culture. The local units adapt and implement the framework. They act within guidelines, incorporate local specifics (e.g. legal requirements and provisions) and utilise local knowledge. Other principles that ensure uniform implementation of the risk management system within the Group include a standardised risk management set-up and representation at Board level. We define the latter as reporting by the local RMF directly to a member of the local board of management (e.g. the Chief Financial Officer, CFO, or Chief Executive Officer, CEO) or to the local board or senior management.

In the primary insurance and reinsurance fields of business, important risk management structures, strategies and components such as the Operational Risk Control System (ORCS) and the internal model have been implemented consistently in the bigger undertakings.

Governance of the internal model

IRM informs the Board of Management and Supervisory Board of Munich Reinsurance Company on an ongoing basis about the correct functioning of the Group-wide internal model. The Group Risk Committee is informed annually by IRM about the results of the validation. It is the responsibility of the Group Risk Committee to guarantee that Munich Re has adequate systems in place for identifying and measuring risks at Group and segment level. This includes defining principles and minimum requirements that apply throughout the Group for the development of risk models and systems.

The actuarial function supports the RMF, in particular in shaping and implementing the internal model, for instance with regard to determining homogeneous risk groups or identifying significant risks. The actuarial function also provides its actuarial expertise regarding the validation of the internal model.

To ensure the necessary regular exchange of information between the key functions of the Group, the heads of the key functions regularly discuss important findings.

The results of the validation, which is largely carried out by internal staff in the RMF of Munich Reinsurance Company and ERGO Group AG on the basis of a guideline applicable throughout the Group, are included in the annual ORSA process.

Own risk and solvency assessment – ORSA

The ORSA encompasses processes in the areas of risk management, business strategy/planning, and capital management. The main task of the ORSA is to combine these processes, to collect and assess the outcome of the individual processes, and to report these results at regular intervals.

It lies within the responsibility of the Group CRO to carry out the Group ORSA. The adequacy of the ORSA framework and ORSA Policy is reviewed by the Group Risk Committee on an annual basis. The situation expected in the planning period in terms of the risk profile and capitalisation of Munich Re is a core element of the ORSA.

The regular ORSA activities associated with the business planning process are conducted annually. The risk and solvency position is monitored on a quarterly basis and documented in the internal risk report.

The ORSA report is adopted by the full Board of Management and discussed with the Audit Committee of the Supervisory Board. The main findings and conclusions of the ORSA are presented to the Supervisory Board.

Certain circumstances may require a non-regular ORSA (ad-hoc ORSA). Internal and/or external factors that lead to a fundamental change in the risk profile and/or own funds of Munich Re may trigger a non-regular ORSA. The findings of the non-regular ORSA are communicated without delay to Board committees and group supervision outside the regular reporting dates.

The ORSA results and conclusions of the business planning process are submitted to the Board of Management on an annual basis. Findings from regular risk and solvency monitoring activities that are relevant to the ORSA are included in the quarterly internal risk report. To conduct the ORSA, the results of the internal model are used and further capital requirements (such as rating capital) are taken into account.

Interaction between capital and risk management

We manage our business on the basis of a consolidated Group view, using a comprehensive internal model to determine the capital required under Solvency II (the solvency capital requirement, or SCR). The SCR is the amount of eligible own funds that Munich Re needs to have available, with a given risk tolerance, to cover unexpected losses in the following year.

Other Munich Re undertakings within the scope of application of Solvency II use either an internal risk model, or the Solvency II standard formula to calculate their solvency capital requirement.

The target capitalisation levels are set out in the risk strategy as part of the ORSA process of Munich Re. More specifically, the outcome of the ORSA feeds into the development of a capital management plan over the business planning time horizon.

To sum up, the risk strategy, business strategy and capital management of Munich Re are closely interlinked and managed.

B4 Internal control system

Our internal control system is a Group-wide integrated system for managing operational risks. Comprising two key components – the operational risk control system (ORCS) and the compliance management system (CMS) – our internal control system addresses both Group management requirements and local regulations.

Operational Risk Control System

The operational risk control system (ORCS) is an essential part of the internal control system. At Group level, the ORCS is overseen by the IRM division, which reports to the Group Chief Risk Officer (Group CRO). As part of the ORCS, risk and control self-assessments are carried out at least once a year in all fields of business, and the material operational risks, including compliance-related risks, are identified and assessed in the process. Key controls and management measures to mitigate the material operational risks are analysed and assessed. In addition, the risk management function carries out independent analyses and company-wide cross-comparisons regarding operational risks and controls (monitoring). Significant control deficiencies are addressed by means of improvement measures and/or close monitoring. The main findings derived from the risk and control self-assessments and from monitoring are reported to the Board of Management and the Audit Committee of the Supervisory Board.

The Audit Committee of the Supervisory Board regularly requests reports on the adequacy and effectiveness of the internal control system and on changes to the risk and control landscape compared with the previous year. The audit reports from Group Audit confirm the general effectiveness of the accounting-related internal control system.

The identification, management and control of risks arising out of the accounting process is indispensable for the production of reliable annual financial statements at both consolidated and solo-undertaking level. Risks significant for financial reporting from a Group perspective are integrated into the internal control system in accordance with uniform criteria. The risks are checked annually by the process owners to ascertain whether they are up to date, and the controls are amended as necessary.

The standardised methodology has been implemented on the basis of a Group-wide ORCS policy and guidelines specific to the fields of business. The decision about whether to include a Group undertaking in the standardised ORCS is taken on the basis of the principle of proportionality – with due consideration being given to the nature, scale and complexity of the risks inherent in the undertaking's operations, and to compliance with regulatory and legal requirements. The Group undertakings that have not been integrated into the ORCS Group standard control their risks in compliance with the principles of good corporate governance, Group-wide principles of risk management and relevant national laws.

No material changes were made to the ORCS in the reporting period.

Compliance Management System

The second key component of the internal control system is the compliance management system (CMS). At Group level, the Group Compliance and Legal (GCL) division is responsible for the CMS, which is managed by the Group Chief Compliance Officer (Group CCO). In addition to the Group function, there are local compliance functions within the units, as well as decentralised compliance functions for selected compliance programmes (such as Tax Compliance). The Board of Management of Munich Reinsurance Company has assigned the development, implementation, monitoring and ongoing improvement of the Group-wide Compliance Management System (CMS) to the compliance function. The CMS is the methodical framework for the structured implementation of early-warning, risk-control, consulting and monitoring functions for compliance risks.

The CMS is based on an integral compliance culture, an established compliance organisation with clearly defined roles and responsibilities, and independent, suitable and qualified human resources that enable the compliance function to work effectively and efficiently. The compliance function performs the following tasks:

- The early-warning tasks comprise an assessment of the possible effects of emerging legal changes on Munich Re. In this context, the undertakings of Munich Re regularly report on changes in their legal environment and their effects (risk of legal change). These are captured by the compliance function at Group level. Where necessary, follow-up measures are taken.
- Risk control duties include the identification and assessment of compliance risks within Munich Re. A process for identifying, assessing and mitigating risks in a structured manner is in place for that purpose.
- Monitoring duties refer to compliance with the relevant legal, regulatory and internal rules and regulations within Munich Re. The compliance function at Munich Re advises on setting up suitable compliance controls and monitors risk-based compliance with these controls.
- The compliance function of the Munich Re Group provides advice and training for top and senior management, managers and staff with regard to compliance risks.

Group Compliance and Legal manages the compliance activities of Munich Re by means of Group-wide terms of reference, and monitors their implementation on the basis of the CMS.

The scope and means of implementing compliance activities are guided by the risk profile of the respective Group company, though all entities must implement minimum compliance standards that apply throughout the Group. Compliance standards include appropriate organisational measures to ensure that external and internal requirements are complied with, including but not limited to the following compliance categories:

- Bribery/corruption
- Financial sanctions
- Antitrust law
- Data protection law

The main CMS activities cover the three pillars of prevention, detection and reaction. Written compliance standards, the consulting function and communication and training make up the prevention pillar. The management of compliance risks and legal changes, monitoring activities and internal reviews are elements of the detection pillar. Continual improvement of the CMS and internal compliance reporting to the Board of Management and its Supervisory Board's Audit Committee, as well as external reporting, pertain to the reaction pillar.

Staff can report potential compliance violations to Group Compliance and Legal or their line manager. In addition, they have the option to contact an external, independent ombudsman. The compliance whistleblowing portal is available to all staff and external parties for reporting violations. This setup allows allegations to be reported securely, anonymously and confidentially. The platform can be used to report potential violations relating to financial crime (corruption, financial sanctions, fraud), regulatory requirements, money laundering, tax law, antitrust law, insider trading, sales compliance, data protection, human rights (and other ESG matters), gender discrimination, sexual harassment, diversity and violations of equal-treatment provisions.

B5 Internal audit function

Mandate of Group Audit

Group Audit supports the Board of Management in performing its management control and monitoring tasks. It audits in particular the appropriateness and effectiveness of the system of governance and internal control system of the Munich Re Group.

Organisational set-up

Group Audit is an independent central division of Munich Reinsurance Company. The Head of Group Audit reports directly to the Chair of the Board of Management of Munich Reinsurance Company and has an indirect reporting line to the Audit Committee of the Supervisory Board of Munich Reinsurance Company.

Some undertakings of the Munich Re Group have their own audit units to carry out audits. Functionally, these are downstream audit units of Group Audit that usually have an administrative reporting line to the boards of management of the individual undertakings. These downstream audit units have a direct or indirect functional reporting line to Group Audit.

Main duties

A uniform management framework for all Munich Re audit units, including Group Audit itself, is based on the following binding requirements:

- Minimum requirements regarding the specific form of the audit function
- Minimum requirements for processes, procedures and methods, instruments, software and standards for planning and executing audits (audit reports, quarterly and annual reports), measures tracking and quality management
- Reporting duties of downstream audit units

The audit mandate of Group Audit, as the internal audit function of Munich Re, directly covers all fields of business and their subsidiaries. The audit mandate of Group Audit also encompasses topics concerning the Group as a whole, and topics that are relevant for the management and risk management of Munich Re.

Independence and objectivity

The audit activities of Group Audit are based on national and international regulatory requirements and standards for professional internal audit practice. This applies in particular to the principles and rules governing adequate independence and objectivity of the internal audit function. An appropriate position in the organisational structure, a strict segregation of duties, and comprehensive quality assurance for audits ensure that the independence and objectivity of the internal audit function are adequately maintained.

We are not aware of any undue influence on the audit function that might have compromised its independence and objectivity in carrying out its duties in the year under review.

Independence

Group Audit is not subject to any undue instructions in planning and performing audits, or in evaluating and reporting the audit results.

The right of the Board of Management or Chair of the Board of Management to request additional audits does not compromise the independence of Group Audit. Group Audit has the right to carry out ad-hoc audits outside the audit planning schedule. Group Audit is obliged to follow instructions only from the Board of Management or Chair of the Board of Management of Munich Reinsurance Company.

The Head of Group Audit has sufficient opportunity to draw attention to situations in which the independence of the internal audit function could be endangered.

Objectivity

The staff working in Group Audit are not entrusted with non-audit work. In particular, they do not perform tasks that could be incompatible with the audit function. Staff from other departments of the undertaking may not be entrusted with internal audit tasks. However, this does not rule out the temporary engagement of staff that are not permanently employed in Group Audit by the latter on the grounds of their specialist knowledge or for personal development purposes.

When assigning audit staff to audits, care is taken to ensure that no conflicts of interest arise, so that auditors are able to perform their tasks with adequate impartiality and objectivity.

B6 Actuarial function

The actuarial function (AF) of Munich Re is part of the Integrated Risk Management (IRM) central division that is within the responsibility of the Chief Financial Officer of Munich Reinsurance Company. It defines standards and basic rules for the actuarial functions of all fields of business with regard to Solvency II. The AF of Munich Re is responsible for the following:

- Coordinating the calculations of technical provisions and their regular review
- Ensuring the appropriateness of the methodologies and underlying models used, as well as of the assumptions made in the calculation of the technical provisions
- Assessing the suitability and quality of the data used to calculate the technical provisions
- Expressing an opinion on the overall underwriting and acceptance policy
- Expressing an opinion on the adequacy of the reinsurance agreements of the Group
- Preparing a written report for the management and supervisory bodies

For the property-casualty reinsurance, life and health reinsurance, and ERGO segments, individual segment AFs have been put in place that implement the requirements of the Group AF in their respective areas and cooperate with the Group AF via a direct functional reporting line.

The Group undertakings within the scope of application of Solvency II have their own AFs in place. The AFs of the undertakings allocated to the ERGO field of business have a direct functional reporting line to the segment AF; AFs for undertakings in the reinsurance field of business have a direct functional reporting line to the Group AF and also work together with the segment AFs.

The AF of Munich Re notifies the Board of Management of its main activities and their outcome in writing once a year in the Group Actuarial Function Report. Severe events regarding the aforementioned responsibilities are reported by the Group AF on an ad-hoc basis to the Group Committee of the Board of Management. The Group Actuarial Function Report is also submitted to the Audit Committee of the Supervisory Board.

B7 Outsourcing

Outsourcing policy

A Group-wide Third-Party Risk Management (TPRM) Policy defines the minimum requirements for outsourcing (re)insurance activities and functions to service providers. This outsourcing standard, which applies directly to Munich Reinsurance Company, has been communicated as a Group-wide standard throughout the Munich Re Group, and is monitored accordingly.

The TPRM Policy of Munich Reinsurance Company describes the principles, responsibilities, processes and reporting requirements to be adhered to during all stages of the outsourcing process, i.e. planning, implementation and termination (including contingency planning) of the relevant organisational measures. In accordance with the principle of materiality, and depending on the risks identified in each case, Munich Reinsurance Company may set different requirements for the granularity of the measures and processes in order to adequately ensure the continuity and unimpaired quality of the outsourced services at all times.

The TPRM Policy also regulates the contractual relationships between the Munich Re Group and/or Munich Reinsurance Company and its contractual partners (third parties), including activities relating to outsourcing and (general) services.

Outsourcing of critical or important operational activities or functions

Munich Re outsources important (re)insurance activities and functions both within the Group, and to external service providers. An indicator for important outsourcing is when a Group member outsources an essential part of its (re)insurance activities and functions to a service provider, and the respective Group member is no longer fully capable of delivering its services to policyholders without the outsourced activity or function. From the perspective of the Munich Re Group, on the other hand, the outsourcing is classified as important if it may also cause material risks for Munich Re.

The Munich Re Group has high expectations and standards regarding service provision, irrespective of whether the services are provided by internal service providers (intra-Group outsourcing) or by external service providers outside the Group. Nevertheless, different internal processes are applied for selecting and managing service providers in each case.

The table below lists the most important outsourcing activities from the perspective of the Group.

List of important outsourcing activities of the Munich Re Group

Name of service provider	Scope of outsourcing	Jurisdiction
MEAG AMG	Outsourcing of asset management of Munich Re Group	Germany
ERGO Group AG	Outsourcing of important insurance activities and functions of the German insurance undertakings in the ERGO field of business	Germany
ERGO Beratung und Vertrieb AG	Outsourcing of the sales operations of the German insurance undertakings within the ERGO field of business to a central sales entity	Germany

B8 Any other information

Assessment of the adequacy of the system of governance

The Munich Re Group has a system of governance that is adequate for the nature, scale and complexity of the risks inherent in its business. Its organisational structure is transparent, and there is a clear allocation of tasks and responsibilities. The organisational structure of the entities within the Group is documented, and updated on a regular basis.

The entities of the Group comply with the organisational principle of an adequate segregation of responsibilities. An effective internal communication system is in place. Clear functional and disciplinary reporting lines ensure the prompt transfer of information to all persons who need it in a way that enables them to recognise its importance as regards their respective responsibilities. The adequacy of Munich Re's organisational structure is reviewed on a regular basis by the organisational function at Group and field-of-business level.

The RMF, compliance, internal audit, and AF key functions are in place at the Munich Re Group. They perform their tasks in accordance with supervisory requirements for the respective key function. The responsibilities of the key functions are defined at Group level, and at the level of the individual fields of business or entities of the Group. Outsourced key functions are monitored by the entities concerned in line with requirements.

The terms of reference regarding the operational structure of the Munich Re Group, and the responsibility for meeting these terms, are defined in a policy. Processes that are subject to material risks must fulfil the requirements regarding documentation and communication set out in the policy.

The Board of Management complies with its responsibility for checking the adequacy of the system of governance on a regular basis. All Group-wide key functions perform regular self-assessments.

Any other material information regarding the system of governance

For the reporting period, there is no other material information regarding the system of governance of the Munich Re Group.

Risk profile

C Risk profile

Material risks

Our general definition of risk is possible future developments or events that could result in a negative prognosis or a negative deviation from the Group's targets. We consider three criteria when evaluating the materiality of risks. First, the extent to which a risk could influence stakeholder assessments of Munich Re. Second, the ways in which a risk could impact the solvency of Munich Re. And third, the extent to which a risk could exhaust cumulative limits or budgets. We have applied this definition consistently to each business unit and legal entity, taking account of its individual risk-bearing capacity. The assessment of whether a risk is significant or not for a business unit or legal entity according to the above definition is performed in the responsible risk management functions. We make a basic distinction between risks included in our internal model and covered by risk-based capital and other risks not quantified in the internal model. The risks included in the internal model are divided into the following risk categories: underwriting risk in property-casualty business, underwriting risk in life and health business, market risk, credit risk and operational risk. Sustainability risks can affect all of these risk categories and are therefore an integral part of the management of these risks.

Risks depicted in the internal model

Solvency capital requirement – Internal model

Munich Re has a comprehensive internal model that determines the capital needed to ensure that the Group is able to meet its commitments even after extreme loss events. We use the model to calculate the capital required under Solvency II (the solvency capital requirement, or SCR).

The SCR is the amount of eligible own funds that Munich Re needs to have available, with a given risk tolerance, to cover unexpected losses in the following year. It corresponds to the value at risk of the economic profit and loss distribution over a one-year time horizon with a confidence level of 99.5%, and thus equates to the economic loss for Munich Re that, given unchanged exposures, will be exceeded each year with a statistical probability of 0.5%. Our internal model is based on specially modelled distributions for the risk categories property-casualty, life and health, market, credit and operational risks. We use primarily historical data for the calibration of these distributions, complemented in some areas by expert judgement. Historical data covers a long period to provide a stable and appropriate estimate of our risk parameters. We continue to take account of diversification effects we achieve through our broad spread across various risk categories and the combination of primary insurance and reinsurance business. We also take into account dependencies between the risks, which can result in higher capital requirements than would be the case if no dependency were assumed. We then determine the effect of the loss absorbency of deferred taxes.

The table shows the solvency capital requirement for Munich Re and its risk categories as at 31 December 2023.

Solvency capital requirement (SCR)

	Reinsurance		ERGO		Diversification	
	31.12.2023	Prev. year	31.12.2023	Prev. year	31.12.2023	Prev. year
	€m	€m	€m	€m	€m	€m
Property-casualty	12,189	12,785	769	730	-547	-603
Life and health	6,815	5,771	999	883	-367	-329
Market	6,076	6,191	3,169	3,500	-966	-1,177
Credit	3,256	2,357	1,112	947	-58	-58
Operational risk	1,080	1,046	782	746	-235	-234
Other[1]	540	494	376	333		
Subtotal	**29,954**	**28,643**	**7,206**	**7,139**		
Diversification effect	-10,746	-9,982	-1,788	-1,586		
Tax	-3,705	-3,446	-922	-965		
Total	**15,504**	**15,215**	**4,496**	**4,588**	**-2,025**	**-2,110**

	Group			
	31.12.2023	Prev. year		Change
	€m	€m	€m	%
Property-casualty	12,411	12,911	-500	-3.9
Life and health	7,447	6,325	1,122	17.7
Market	8,279	8,514	-235	-2.8
Credit	4,309	3,245	1,064	32.8
Operational risk	1,627	1,558	69	4.4
Other[1]	915	826	89	10.8
Subtotal	**34,987**	**33,381**	**1,606**	**4.8**
Diversification effect	-12,863	-11,768	-1,095	9.3
Tax	-4,151	-3,920	-231	5.9
Total	**17,974**	**17,693**	**281**	**1.6**

1 Capital requirements for other financial sectors, e.g. institutions for occupational retirement provision.

At Group level, the SCR increased by 1.6% to €18.0bn – compared with €17.7bn as at 31 December of the previous year. This increase was mainly driven by extraordinarily strong growth in life reinsurance business and a moderate expansion of exposure to credit risks in reinsurance investments. Conversely, a more well-balanced risk profile resulted directly in better diversification across risk categories, which helped to reduce risk. In addition, the SCR for property-casualty reinsurance business decreased due to an expansion of external retrocession, a more well-balanced portfolio structure and the depreciation of the US dollar. Other information about the changes in individual risk categories and details about risk concentrations can be found in the following sections.

C1 Underwriting risk

Property-casualty

The property-casualty risk category encompasses the underwriting risks in the property, motor, third-party liability, personal accident, marine, aviation and space, and credit classes of insurance, together with special lines also allocated to property-casualty.

Underwriting risk is defined as the risk of insured losses being higher than our expectations. The premium and reserve risks are significant components of the underwriting risk. Premium risk is the risk of future claims payments relating to insured losses that have not yet occurred being higher than expected. Reserve risk is the risk of the loss provisions established potentially being insufficient to cover losses that have already been incurred. In measuring loss provisions, we follow a cautious reserving approach and assess uncertainties conservatively. In every quarter, we also compare notified losses with our loss expectancy, in order to sustain a high level of reserves.

We differentiate between large losses involving expenditure that exceeds a certain large-loss limit; losses affecting more than one risk or more than one line of business (accumulation losses); and all other losses (basic losses). For basic losses, we calculate the risk of subsequent reserving being required for existing risks within a year (reserve risk) and the risk of under-rating (premium risk). To achieve this, we use actuarial methods that are based on standard reserving procedures, but take into account the one-year time horizon. The calibration for these methodologies is based on our own historical loss and run-off data. Appropriate homogeneous segments of our property-casualty portfolio are used for the calculation of the reserve and premium risks. To aggregate the risk to whole-portfolio level, we apply correlations that take account of our own historical loss experience.

Our experts develop scientifically sound models for the accumulation scenarios that quantify the probability of occurrence and the damage potential. The models also take risk-limiting elements into consideration, such as cover limits. In addition to natural catastrophes, we include other accumulation risks such as cyber risks and pandemics, using special models. Based on these scenarios, the potential effects on our portfolio are determined using stochastic models.

Our internal model considers the resulting accumulation-risk scenarios to be independent events. Munich Re's greatest natural hazard exposure lies in the scenarios Atlantic Hurricane and Earthquake California, for which our estimates of annual loss exposure are €8.5bn (10.0bn) for Atlantic Hurricane and €6.3bn (6.3bn) for Earthquake California (before tax, retained) for a return period of 200 years.

As part of our regular validation, we look in particular at the sensitivity of results produced by the risk model for large and accumulation losses to changes in the return periods or loss amounts for events, or a change in the business volumes written. We also consider the effect of changes of dependency assumptions on the results. We regularly adapt our models on the basis of the findings from our validation.

Another measure for controlling underwriting risks is the targeted cession of a portion of our risks to other carriers via reinsurance or retrocession. Most of our companies have intra-Group and/or external reinsurance and/or retrocession cover.

In addition to traditional retrocession, we use alternative risk transfer for natural catastrophe risks in particular. Under this process, underwriting risks are transferred to the capital markets via special purpose vehicles. The purpose of these vehicles is to securitise underwriting risks and to issue catastrophe bonds (insurance-linked securities).

Munich Re mainly uses special purpose vehicles registered in Ireland and Bermuda to transfer risk to the capital markets. All special purpose vehicles are properly licensed and registered by the respective supervisory authorities. Underwriting liabilities are always fully funded. In order to minimise potential credit risk, investors' collateral is regularly invested in securities with the highest credit rating – for example, in US treasuries or World Bank bonds. The value of the collateral is ensured regularly by a trustee and by means of regular reporting.

Solvency capital requirement – Property-casualty

The solvency capital requirement decreased by around 3.9% at Group level, mainly owing to expanded external retrocession and a more well-balanced portfolio structure in reinsurance business. The depreciation of the US dollar also contributed to the drop in SCR, which was partially offset by an update to the basic loss model.

Solvency capital requirement (SCR) – Property-casualty

	Reinsurance		ERGO		Diversification	
	31.12.2023	Prev. year	31.12.2023	Prev. year	31.12.2023	Prev. year
	€m	€m	€m	€m	€m	€m
Basic losses	5,685	4,790	657	630	-476	-448
Large and accumulation losses	11,420	12,261	438	420	-335	-312
Subtotal	**17,105**	**17,051**	**1,095**	**1,050**		
Diversification effect	-4,916	-4,266	-327	-319		
Total	**12,189**	**12,785**	**769**	**730**	**-547**	**-603**

→	Group			
	31.12.2023	Prev. year		Change
	€m	€m	€m	%
Basic losses	5,866	4,972	894	18.0
Large and accumulation losses	11,523	12,369	-846	-6.8
Subtotal	**17,389**	**17,340**	**49**	**0.3**
Diversification effect	-4,978	-4,429	-549	12.4
Total	**12,411**	**12,911**	**-500**	**-3.9**

Life and health

The underwriting risk is defined as the risk of insured benefits payable in life or health insurance business being higher than expected. Of particular relevance are biometric risks and policyholder-behaviour risks, such as lapses and lump-sum options. We differentiate between risks that have a short-term or long-term effect on our portfolio. In addition to the simple risk of random fluctuations resulting in higher claims expenditure in a particular year, the adverse developments with a short-term impact that we model notably include rare –but costly –events such as pandemics. To this end, we model losses and the sum at risk – taking into particular consideration excess mortalities in connection with, for instance, the pandemics of the 20th and 21st centuries.

Life insurance products in particular, and a large part of our health primary insurance business, are long-term in nature, and the results they produce are spread over the entire duration of the policies. This can mean that negative developments in risk drivers with long-term effects sustainably reduce the value of the insurance portfolio (trend risks). The risk drivers mortality and disability are dominated by the life and health reinsurance segment, particularly by exposure in North America and the Asia-Pacific region. We also underwrite longevity risk in the life and health reinsurance segment, especially in the United Kingdom. The longevity risk driver can additionally be found in the products marketed by ERGO in Germany, together with typical risks related to policyholder behaviour, such as the lapse risk. To a lesser extent, we write risks connected with the increase in treatment costs.

Risk modelling attributes probabilities to potential modified assumptions. We use primarily historical data extracted from our underlying portfolios to calibrate these probabilities, and additionally apply general mortality rates for the population to model the mortality trend risk. To enable us to define appropriate parameters for the modelling of the range of areas in which we operate, portfolios with a homogeneous risk structure are grouped together and individual comprehensive profit and loss distributions determined. We then aggregate these distributions, taking account of the dependency structure to obtain an overall distribution.

Our largest short-term accumulation risk in the life and health risk category is a severe pandemic. We counter this risk by examining our overall exposure in detail using scenario analysis, and by deploying appropriate measures to manage the risks.

In reinsurance, we control the assumption of biometric risks by means of a risk-commensurate underwriting policy. Interest-rate and other market risks are frequently ruled out by depositing the provisions with the cedant, with a guaranteed rate of interest from the deposit. In individual cases, these risks are also hedged by means of suitable capital-market instruments. We also limit our exposure to individuals and groups of persons in life insurance.

For primary insurance, substantial risk minimisation is achieved through product design. In case of adverse developments, parts of the provision for premium refunds – which are recognised and released depending on performance – are of great significance for risk-balancing. In health primary insurance, most long-term contracts include the possibility and/or obligation to adjust premiums. Practically, however, there are limits to the resilience of policyholders.

Limits are laid down for the pandemic scenarios, which affect the portfolio in the shorter term, and for the longevity scenarios and their longer-term effects in conformity with the risk strategy. We continue to analyse the sensitivity of the internal model to the input parameters on a regular basis. This relates to the interest rate, the biometric risk drivers and customer behaviour.

Solvency capital requirement – Life and health

The solvency capital requirement decreased by around 3.9% at Group level, mainly owing to expanded external retrocession and a more well-balanced portfolio structure in reinsurance business. The depreciation of the US dollar also contributed to the drop in SCR, which was partially offset by an update to the basic loss model.

Solvency capital requirement (SCR) – Life and health

	Reinsurance		ERGO		Diversification		Group	
	31.12.2023	Prev. year	31.12.2023	Prev. year	31.12.2023	Prev. year	31.12.2023	Prev. year
	€m	€m	€m	€m	€m	€m	€m	€m
Health	242	343	634	597	–68	–82	808	857
Mortality	5,023	4,343	221	176	–35	–15	5,209	4,504
Disability	3,786	3,111	193	175	–18	1	3,961	3,287
Longevity	1,150	942	518	409	–25	–17	1,644	1,333
Other	380	298					380	298
Diversification	–3,766	–3,266	–568	–474			–4,554	–3,955
Total	**6,815**	**5,771**	**999**	**883**	**–367**	**–329**	**7,447**	**6,325**

C2 Market risk

We define market risk as the risk of economic losses resulting from price changes in the capital markets. It includes equity risk, general interest-rate risk, specific interest-rate risk, property-price risk and currency risk. The general interest-rate risk relates to changes in the basic yield curves, whereas the specific interest-rate risk models changes in credit risk spreads – for example, on euro government bonds from various issuers, or on corporate bonds. We also include in market risk the risk of changes in inflation rates and implicit volatilities (cost of options). Fluctuations in market prices affect not only our investments, but also the underwriting liabilities – especially in life primary insurance. Due to the long-term interest-rate guarantees given in some cases and the variety of options granted to policyholders in traditional life insurance, the amount of the liabilities can be highly dependent on conditions in the capital markets.

Market risks are modelled by means of Monte Carlo simulation of possible future market scenarios. We revalue our assets and liabilities for each simulated market scenario, thus showing the probability distribution for changes to basic own funds.

We use appropriate limit and early-warning systems in our asset-liability management to manage market risks. Derivatives such as equity futures, options and interest-rate swaps – which are predominantly used for hedging purposes – also play a role in our management of the risks. The impact of derivatives is taken into account in the calculation of solvency capital requirements.

Solvency capital requirement (SCR) – Market

	Reinsurance		ERGO		Diversification	
	31.12.2023	Prev. year	31.12.2023	Prev. year	31.12.2023	Prev. year
	€m	€m	€m	€m	€m	€m
Equity risk	3,399	2,943	1,337	1,736	-123	-219
Interest-rate risk	2,844	2,654	1,763	1,970	-923	-968
General interest-rate risk	2,163	2,002	1,171	1,280	-631	-459
Specific interest-rate risk	1,387	1,145	1,246	1,518	-309	-432
Diversification interest-rate risk	-706	-492	-654	-828	18	-77
Property risk	1,631	1,724	630	767	-67	-137
Currency risk	4,207	4,234	239	211	-83	-45
Subtotal	**12,082**	**11,555**	**3,970**	**4,685**		
Diversification effect	-6,006	-5,363	-801	-1,185		
Total	**6,076**	**6,191**	**3,169**	**3,500**	**-966**	**-1,177**

→	Group			
	31.12.2023	Prev. year		Change
	€m	€m	€m	%
Equity risk	4,614	4,461	153	3.4
Interest-rate risk	3,685	3,656	29	0.8
General interest-rate risk	2,703	2,822	-119	-4.2
Specific interest-rate risk	2,324	2,230	94	4.2
Diversification interest-rate risk	-1,342	-1,397	55	-3.9
Property risk	2,195	2,354	-159	-6.8
Currency risk	4,363	4,400	-37	-0.8
Subtotal	**14,856**	**14,870**	**-14**	**-0.1**
Diversification effect	-6,578	-6,356	-222	3.5
Total	**8,279**	**8,514**	**-235**	**-2.8**

Solvency capital requirement – Market

The solvency capital requirement declined by 2.8% at Group level. Detailed information on the changes in the individual subcategories is available in the following sections.

Equity risk

The minor increase in the equity risk was due to a rise in equity exposure.

Interest-rate risk

The general interest-rate risk in the reinsurance field of business rose slightly. The specific interest-rate risk rose on account of higher exposure to fixed-interest securities with credit risk exposure, which was attributable, among other things, to the restructuring of portfolios and to higher market values caused by lower interest rates.

The interest-rate risks in the ERGO field of business were down, mainly owing to the restructuring of portfolios and more dynamic modelling of volatility adjustments. The decrease in interest-rate risks was partially offset by lower interest rates.

In the reinsurance field of business, the market value of interest-sensitive investments as at 31 December 2023 was €74.0bn (70.1bn). Measured in terms of modified duration, the interest-rate sensitivity of those investments was 4.7 (4.8), while that of the liabilities was 4.5 (5.0). A decrease in interest rates of one basis point led to a change in available own funds amounting to around €9.0m (6.4m).

In the ERGO field of business, the market value of interest-sensitive investments was €109.3bn (105.9bn). The modified duration was 7.8 (7.6) for interest-sensitive investments and 7.1 (6.9) for liabilities. A decrease in interest rates of one basis point led to a change in available own funds amounting to around €2.4m (6.0m).

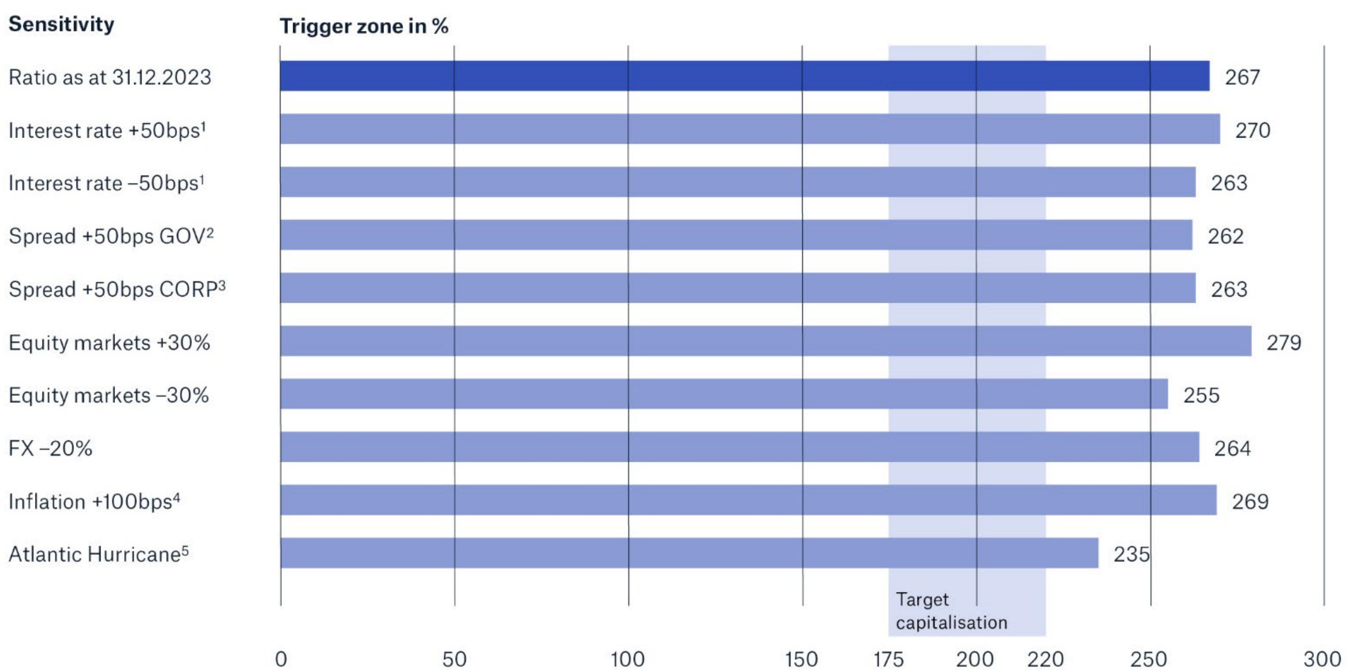
Property risk

The property risk decreased slightly, mainly on account of lower market values.

Currency risk

The currency risk sank slightly due to modified positions in foreign currencies.

Sensitivities of SII ratio



1 Parallel shift until last liquid point, extrapolation to unchanged ultimate forward rate (UFR).
2 Sensitivity to changes of government bonds +50 basis points.
3 Sensitivity to changes to corporate bonds +50 basis points.
4 Sensitivity to changes of the consumer price index (CPI) only, which can be hedged on the capital markets.
5 Based on 200-year event for original own funds.

We regularly determine how sensitively the basic own funds, the solvency capital requirement and ultimately also the solvency ratio react to major changes in specific capital market parameters and in other defined stress scenarios. The impact of selected scenarios on the solvency ratio of the Munich Re Group is shown in the chart above.

While we take account of the volatility adjustment to the risk-free interest-rate curve both in the basic case and the scenarios depicted, transitional measures are not taken into account. The Atlantic Hurricane scenario is a 1-in-200-year stress on basic own funds. For scenarios concerning risk-free interest rates, we employ a parallel shift of SII interest-rate curves until the last liquid point used by EIOPA. Subsequently, the currently valid extrapolation method used by EIOPA is applied up to the unchanged ultimate forward rate for the valuation of underwriting liabilities.

For all evaluated stress scenarios, Munich Re's capitalisation at Group level remained comfortably above the target corridor.

In similar analyses for Munich Reinsurance Company, the solvency ratios for the scenarios investigated were about 30 percentage points higher. This difference is mainly due to the transitional measures applied at individual related undertakings. In calculating own funds for Munich Reinsurance Company, the respective adjustments for long-term guarantees for related undertakings were taken into account in the valuation of shareholdings.

Prudent person principle

A number of guidelines and internal processes ensure that we invest in accordance with the prudent person principle.

- We invest only if defined security, quality, profitability and liquidity criteria are met, taking account of adequate mix and diversification requirements. In addition, we ensure that we receive early warning if we are in danger of not meeting our strict liquidity requirements.

- We invest in products only if we understand the risks they involve. To ensure compliance with this principle, every single new investment product is subject to the new-product process for investments.

- We invest for the purpose of covering our underwriting liabilities. To do so, we replicate important features of these liabilities – such as maturity patterns, currency structures and inflation sensitivities – on the assets side. We apply our own risk criteria to define the maximum deviation between our investments and the expected underwriting cash flows.

- We use derivative financial instruments to reduce our risks and manage our investment portfolio efficiently. All financial derivatives are recorded in our systems and taken into account in our risk measurement.

- We invest in instruments that are not admitted to a regulated financial market within the framework of our investment strategy for alternative investments. Furthermore, the asset class mandates we give to our asset managers prescribe benchmarks and investment universes.

- We seek to avoid risk concentration where possible, using various risk criteria and early-warning indicators to avoid unwanted concentrations of risk on individual counterparties or sectors.

C3 Credit risk

We define credit risk as the financial loss that Munich Re could incur as a result of a change in the financial situation of a counterparty. In addition to credit risks arising out of investments in securities and payment transactions with clients, we actively assume credit risk through the writing of credit and financial reinsurance and in corresponding primary insurance business.

When determining credit risks, Munich Re uses a portfolio model that is calibrated over a longer period (at least one full credit cycle); it also takes account of changes in fair value caused by rating migrations and debtor default. The credit risk arising out of investments (including government bonds and credit default swaps, or CDSs), deposits retained on assumed reinsurance and reserves ceded is calculated by individual debtor. If the credit risk does not exclusively depend on the debtor's creditworthiness, but also on other factors (such as subordination, guarantees or collateralisation), these are also taken into account. We use historical capital-market data to determine the associated migration and default probabilities. Correlation effects between debtors are derived from the sectors and countries in which they operate, and sector and country correlations are based on the interdependencies between the relevant stock indices. The calculation of the credit risk in "Other receivables" is based on internal expert assessments. We also capitalise the credit risk for highly rated government bonds.

Risk concentrations are mainly in government bonds issued by countries inside and outside the European Union. In addition, corporate bonds, pfandbriefe and similar covered bonds account for a large proportion of the investments.

We use a cross-balance-sheet counterparty limit system valid throughout the Group to monitor and control our Group-wide credit risks. The limits for each counterparty (a group of companies or country) are based on its financial situation as determined by the results of our fundamental analyses, ratings and market data, and the risk appetite defined by the Board of Management. The utilisation of limits is calculated on the basis of risk-weighted exposures. There are also volume limits for securities lending and repurchase transactions. Group-wide rules for collateral management – for example, for over-the-counter derivatives and catastrophe bonds issued – reduce the resultant credit risk.

In monitoring the country risks, we do not simply rely on the usual ratings, but perform independent analyses of the political, economic and fiscal situation in the countries issuing bonds in which Munich Re is most heavily invested. In this regard, climate-change-related risks are also considered. On this basis, and taking account of the investment requirements of the fields of business in the respective currency areas and countries, limits or action to be taken are approved. These are mandatory throughout the Group for investments and the insurance of political risks.

The sensitivities in the credit risk model are regularly checked against the most important input parameters. This primarily concerns the recovery rates from insolvent debtors, the probabilities of debtor migration between rating classes, and the parameters for correlations between debtors. All validations demonstrated the appropriateness of the modelling approaches used.

We manage credit default risk in retrocession and external reinsurance with the assistance of limits determined by the Retro Security Committee.

More information on our credit default risk in the insurance business, and on reinsurance contracts held that are assets, can be found on pages 297 ff. of the Munich Re Group's annual report for the 2023 financial year, under "Disclosures on further risks from insurance contracts" in the Notes to the consolidated financial statements.

Solvency capital requirement – Credit

The solvency capital requirement rose by 32.8% at Group level, resulting primarily from a moderate increase in investments with credit risk exposure in reinsurance. In addition, slightly lower interest rates for longer maturities led to higher market values of fixed-interest securities.

C4 Liquidity risk

Our objective in managing liquidity risk is to ensure that we are in a position to meet our payment obligations at all times.

The liquidity risk is managed within the framework of our holistic risk strategy, with the Board of Management defining limits on which short- to long-term minimum liquidity requirements for our operations are based. Compliance with these minimum requirements, and the development thereof, are continually monitored and regularly reported to the Board of Management, so that any necessary adjustments can be made in due time.

Using quantitative risk criteria, we ensure that Munich Re has sufficient liquidity available to fully meet all its payment obligations on time, even under adverse scenarios. For this purpose, we consider extreme insurance scenarios such as losses from major natural catastrophes, or increased requirements for providing collateral in life business. We also assess the impact of difficult capital market conditions such as strong interest-rate volatility.

Our material liquidity risks change almost proportionally in relation to our business volume, which is why we have observed an increase in liquidity risk in recent years. We monitor our liquidity risks based on our respective extreme scenarios and when investing, we ensure that we have a sufficient buffer available, in the form of very liquid assets, to cover sudden and short-term needs.

We apply the following four liquidity risk criteria:

Criterion 1: Known and expected liquidity requirements:
At the relevant Munich Re solo undertaking level, coverage of the known and expected payments arising from the liquidity planning is required for the current and following financial year. Local liquidity planning is complemented by central monitoring by Corporate Finance & Performance.

Criterion 2: Large underwriting losses (insurance claims shock):
In addition to the requirements under criterion 1, Munich Reinsurance Company must ensure that for Munich Re as a whole sufficient fungible and liquid investments are available to meet claims payments following a large underwriting loss event.

Criteria 1 and 2 are deemed to be fulfilled if there is a minimum of 100% cover of the liquidity requirements for various time horizons.

Criterion 3: Margin and collateral requirements for derivatives:
The criterion defines for each investment fund a cushion of fungible, liquid investments to ensure that collateral requirements for outstanding derivative positions, measured as the daily VaR of 99.9%, can be met at all times.

Criterion 4: Liquidity stress testing:
This stress test is applied to all important solo undertakings of Munich Re. It depicts outflows of liquidity that may result from a combined stress event within a period of three months. The stress event comprises stresses in non-life business, life business and losses from investments, and it takes into account payments due and requirements for providing collateral. Liquidity requirements in the event of a possible fall in Munich Re's ratings are also taken into account.

Expected profit included in future premiums (EPIFP)

For the Munich Re Group, the total amount of expected profit included in future premiums, calculated pursuant to Article 260(2) of Delegated Regulation (EU) 2015/35, amounted to €18,686m for life and health insurance and €3,329m for property-casualty insurance as at 31 December 2023.

For Munich Reinsurance Company, the total amount of expected profit included in future premiums, calculated pursuant to Article 260(2) of Delegated Regulation (EU) 2015/35, amounted to €9,173m for life and health insurance and €2,033m for property-casualty insurance as at 31 December 2023.

C5 Operational risk

We define operational risk as the risk of losses resulting from inadequate or failed internal processes, incidents caused by the actions of personnel or system malfunctions, or external events. This includes criminal acts committed by employees or third parties, insider trading, infringements of antitrust law, business interruptions, inaccurate processing of transactions, non-compliance with reporting obligations, and disagreements with business partners.

We use scenario analyses to quantify operational risks. The results are fed into the modelling of the solvency capital requirement for operational risks and are validated using various sources of information, such as the ORCS findings and both internal and external loss data.

The sensitivity in the internal model is regularly checked against the most important input parameters. This mainly relates to the dependence of the result on frequency and loss amounts and the parameters for the correlations between scenarios. The analyses showed no anomalies in the year under review.

Solvency capital requirement – Operational risk

At Group level, the solvency capital requirement for operational risks increased slightly by 4.4% owing to updated assessments in selected scenarios.

Security risk

Security risk is an integral component of operational risk. We define security risks as risks resulting from threats to the security of our employees, data, information, and property. We have intensified our monitoring of cyber risks in recognition of the increasing importance of information technology for Munich Re's core processes and the dynamic environment of cyber crime.

The Group Chief Information Security Officer (CISO), a function that is assigned to risk management, is responsible for the central and Group-wide coordination and control of all activities involving information security risks. Security risk committees have also been set up in the fields of business to assess and manage security risks. The members of the security risk committees are managers from operational units (e.g. IT Security), the control functions (e.g. Risk Management, Information Security, and Data Protection), and representatives from the divisional units.

To further improve cyber security, we are working on initiatives both specific to and across the fields of business to ensure a level of protection in line with our information security strategy.

C6 Other material risks

As is typical throughout the industry and in accordance with regulatory requirements, the risk types specified below are not explicitly capitalised in our internal model. Qualitative risk management is very important for dealing with these risks.

Reputational risk

We define reputational risk as the risk of loss that may result from a deterioration in the Group's public image among clients, shareholders or other parties. Our reputation is affected by our behaviour in a number of areas, such as client relationships, product quality, corporate governance, earnings power, our treatment of employees, and corporate responsibility. Reputational risk is closely intertwined with all other risk categories. The assessment of individual business transactions in terms of their reputational risk is performed at field-of-business level by reputational risk committees. Where a reputational risk could potentially have an impact across fields of business, other central divisions may be involved in the assessment if required.

Strategic risk

We define strategic risk as the risk of making wrong business decisions, implementing decisions poorly, or being unable to adapt to changes in the operating environment. Existing and new potential for success in the Group and the fields of business in which it operates creates strategic risks. At Munich Re, strategic risks are identified, assessed and managed in a recurring process comprising a strategic dialogue in the Strategy Committee of the Board of Management (StratC) and annual planning. Furthermore, the Group-wide annual (financial) planning process is integrated into the strategic dialogue within the StratC. This annual planning process includes analysing financial sensitivities and risks as well as assessing the capital management and risk strategy. These process steps are mirrored in the primary insurance and reinsurance fields of business and in investment management. In doing so, we put our strategy to the test in close dialogue with the various stakeholders at different levels (Group, primary insurance and reinsurance, investment management). The above processes ensure that the Board of Management addresses the strategic risks in detail and is well placed to monitor and manage them. The Group CRO is involved in both the strategic and operational business planning as well as in significant company sales, mergers and acquisitions.

C7 Other risks

Economic and financial-market developments and regulatory risks

Munich Re is heavily invested in the eurozone and, in reinsurance in particular, in the US dollar currency area, a consequence of our global business activities in these currency areas. We prioritise maintaining a correspondingly broad diversification of investments to cover our technical provisions and liabilities. We take various risk management measures to counter fluctuations in the capital markets that can lead to volatilities in the Group's own funds.

There was moderate growth overall in the global economy in 2023. However, the eurozone and especially Germany stood out negatively, as high inflation, higher interest rates and sustained elevated energy prices in particular burdened households and manufacturers. In the United States, strong consumer spending fuelled by a persistently worker-friendly job market helped to boost the economy. There was also more investment in fixed assets – despite higher refinancing costs and thanks in part to government assistance as part of the Inflation Reduction Act and other programmes. Growth momentum remained weak in China, where problems in the real-estate and shadow-banking sectors still threaten to spread.

Inflation rates have decreased compared with the previous year. Despite sustained high forecast uncertainty, we expect inflation in the USA and the eurozone to continue easing. However, demographic change in Germany is exacerbating the shortage of labour and fostering high wage pressure, which could in turn contribute to prolonged inflation.

For Munich Re, above-average inflation rates can have a particularly adverse effect on its provision for outstanding claims. However, we believe that expected inflation rates are adequately taken into account by applying the standard actuarial methods, which address the effects of inflation, and by our conservative reserving approach. Nevertheless, there is a risk that inflation exceeds forecasts and remains high for longer than anticipated, in turn impacting the business operations, financial position and performance of the Group. Although Munich Re protects itself against accelerated inflation by holding inflation-linked bonds and inflation-linked assets such as property, commodities and infrastructure, these measures would not be sufficient to fully mitigate the repercussions of inflation. Conversely, the pronounced increase in interest rates in the eurozone associated with high inflation has been a significant relief for life insurance companies with guaranteed minimum interest rates. Although the number of lapses could increase as soon as interest rates rise significantly above the guaranteed interest rate, Munich Re life insurance companies have not on the whole observed such a trend. Thus far, both the positive impact on earnings capacity and the solvency ratio of life insurance companies significantly outweigh the lapse risk.

In this environment, the general risk of insolvency is also elevated and risks could worsen in the real-estate and banking sectors. Higher interest rates also make refinancing more costly for governments and necessitate budgetary consolidation. Lower real income, reduced discretion for the allocation of money, and plans for economic transformation can trigger social unrest, more protests, more labour strikes and political instability. A lack of stability will likely pervade upcoming elections, consequently increasing the risk of abrupt changes in ruling parties and the risk of political deadlock. The US general election in November could lead to economic policy that is more isolationist and protectionist.

We regard geopolitical risks in our planning period as very relevant. In addition to the war in Ukraine, which continues to be fought with the same intensity, and the shifts in the balance of power, with China as the key player, 2023 was marked by a further increase in geopolitical crises. These included clashes and coups, both attempted and successful, in sub-Saharan Africa (Sudan, Niger, Sierra Leone, Gabon, Burkina Faso), Azerbaijan's seizure of Nagorno-Karabach, the tensions on the Kosovan–Serbian border and, first and foremost, Hamas' attack on Israel. Munich Re is observing the developments closely and is analysing the risks in regions where it has substantial exposures.

We have conducted detailed analyses of potential losses in various war scenarios (particularly China/Taiwan, Russia and the Baltic states, and a nuclear escalation of the war between Russia and Ukraine), with a focus on direct war cover. We regard any potential indirect consequential losses or collateral damage or implications for capital markets as extremely dependent on a given assumption. Our analyses indicate that the direct exposures are manageable and do not necessitate any modifications to our risk strategy. Although the indirect consequences – particularly capital market upheavals – could be material and exceed the direct losses, they are subject to considerable uncertainty, which severely restricts the scope for taking preventive measures or recommending courses of action.

Global players such as Munich Re are subject to increased fiscal pressure nationally and internationally, as well as a higher audit intensity. Given the current political emphasis on an appropriate taxation of international companies and the introduction of a global minimum tax rate, which has applied in the EU since 1 January 2024, this trend will continue and intensify.

Climate change

Climate change is an emerging risk that represents the central sustainability risk in relation to the environment. Climate-related risks arise in the form of physical and transition risks, with interdependencies between both risk types. Physical risks arise from the increasing frequency and severity of extreme weather events (hurricanes, wildfires, severe convective storms, floods, etc.) and chronic changes such as sea level rise. Transition risks arise particularly as a consequence of political or economic measures to shift to a low-carbon economy or reactions to changing living conditions in certain regions. Both types of risks involve medium-term and long-term effects, but can also have disruptive, short-term consequences. Any assessment of how these risks will impact Munich Re's exposures in the long term is subject to a high degree of uncertainty. This is because the transition path and the way it affects other emerging risks are uncertain, as are the resulting impacts on known risk drivers such as premium and reserve risks or the impact of changes in share prices, interest rates or exchange rates on investments. We are therefore working intensively on the impact of climate change on our Group. Consequently, we have performed cross-balance-sheet scenario analyses in order to estimate how resilient the Group is in the event of various climate change scenarios and in order to devise specific actions to be taken.

On the basis of these scenario analyses, we more closely assessed potential risks arising from climate suits (lawsuits in connection with climate change). In the process, potential exposures to litigation risk in our insurance portfolio were identified as a material risk. To counter this risk, we have issued/updated a range of topic papers and best practices that provide underwriters with standard clauses and update them on developments in case law. Corresponding training is also offered. Furthermore, the new product process criteria were expanded to include ESG aspects such as greenwashing risk.

We do not see any material additional risk in property insurance arising from climate change. This is due to our ability to regularly adapt risk and natural-hazard models to take the effects of climate change into appropriate consideration. For the majority of our underwriting portfolio, the annual renewals process provides the opportunity to react at short notice to negative developments and negotiate premium adjustments and/or new contractual terms such as limits.

In the long term, however, a material strategic risk could arise. For example, at some point the risk-commensurate prices for insurance products could exceed what customers are willing to pay, which would make insuring against certain types of risk unaffordable for customers or unfeasible for insurers (financial limits of insurability). Munich Re counters this risk by generally ensuring that its risk strategy includes a diversified insurance portfolio.

In the life and health reinsurance segment, we have analysed the potential effects of climate change on the mortality and health of insureds in our portfolios. Climate change scenarios relate to much longer periods than our usual scenarios for potential trend risks. Reliable quantitative information is only available to a limited extent and depends heavily on a variety of potential climate change pathways. The effects are dependent on climate forecasts and a population's demographic and geographic composition. Older people and socio-economically disadvantaged groups are at greatest risk. It is very difficult to identify deaths in which climate was a contributing factor. Furthermore, the insured population may be less severely impacted by the effects of climate change than the overall population. Our analyses indicate that the two greatest potential physical risks for life and health insurance are extreme heat events in the United States and Asia as well as the unabated increase in average temperatures, which may ultimately lead to more frequent epidemics/pandemics. Although the quantitative information on these topics is subject to considerable uncertainty, we do not currently anticipate climate change to have any material effects on our exposures.

With reference to our investments, we see a relevant risk in illiquid investments with long maturities. The due diligence process for alternative investments therefore includes analysing potential location-specific threats due to climate change. In addition, we continually monitor and limit the concentration and liquidity risks affecting our investments. We therefore consider the impacts of climate change on our investments not to be a material risk overall.

Legal risks

As part of the normal course of business, Munich Re companies are involved in court, regulatory and arbitration proceedings in various countries. The outcomes of those or possibly imminent proceedings are neither certain nor predictable. However, we believe that none of these proceedings will have a significant negative effect on the financial position of Munich Re. Such proceedings are dealt with using combined expertise within the individual departments and units.

Emerging risks

We define emerging risks as trends or sudden events that are characterised by a high degree of uncertainty in terms of occurrence probability, expected loss amount, and potential impact on Munich Re. They are difficult to identify and analyse because historical events are only of limited use for predicting the potential consequences of the risks or estimating quantitative probabilities and loss amounts.

Legislative, socio-political, scientific, ecological, economic or technological changes or progress can give rise to new risks. As a result of high global interdependencies and interactions, these risks may escalate, for instance due to a rapid spread around the world. This increases the relevance and immediacy of the direct and indirect consequences for Munich Re.

At Munich Re, emerging risks are identified based on the findings of the CRO Forum's Emerging Risk Initiative. Munich Re is a member of the ERI, which convenes several times a year and regularly publishes the Emerging Risk Radar, which offers us an excellent source of information for adequately assessing risks.

In 2023, a particular focus was placed on risks connected with geopolitical conflicts and their effects, which currently have a major impact on the global economic and political environment. Moreover, we consider the following risks to be highly relevant and consequently subject their potential effects on Munich Re to intensive analysis: cyber risks, climate change, failure of critical infrastructure, and a global debt crisis.

Valuation for solvency purposes

D Valuation for solvency purposes

D1 Assets

Valuation of assets

Pursuant to Article 75(1)(a) of Directive 2009/138/EC, all assets are valued at the amount for which they could be exchanged between knowledgeable and willing parties in an arm's length transaction – that means at their fair values. In contrast, IFRS uses a mixed measurement model. That means that some assets are measured at fair value, and others are measured at amortised cost or at nominal value. If the valuation basis for Solvency II and IFRS is the same, we use the same fair values for both purposes.

Assets

€m	Solvency II value	Statutory accounts value
Goodwill		3,184
Deferred acquisition costs		0
Intangible assets	0	900
Deferred tax assets	289	2,743
Pension benefit surplus	314	0
Property, plant & equipment held for own use	4,310	2,952
Investments (other than assets held for index-linked and unit-linked contracts)	207,706	209,213
Property (other than for own use)	8,873	9,384
Holdings in related undertakings, including participations	8,242	6,895
Equities	2,527	15,110
Equities – listed	389	15,110
Equities – unlisted	2,138	0
Bonds	124,547	164,856
Government bonds	70,340	164,856
Corporate bonds	46,560	0
Structured notes	3,891	0
Collateralised securities	3,756	0
Collective investment undertakings	57,022	0
Derivatives	1,819	1,459
Deposits other than cash equivalents	2,679	2,975
Other investments	1,997	8,533
Assets held for index-linked and unit-linked contracts	8,115	8,280
Loans and mortgages	12,245	9,250
Loans on policies	0	0
Loans and mortgages to individuals	3,123	9,250
Other loans and mortgages	9,122	0
Reinsurance recoverables from:	5,479	3,577
Non-life and health similar to non-life	2,878	3,003
Non-life excluding health	2,807	2,878
Health similar to non-life	71	125
Life and health similar to life, excluding health and index-linked and unit-linked	2,601	574
Health similar to life	576	404
Life excluding health and index-linked and unit-linked	2,025	170
Life index-linked and unit-linked	0	0
Deposits to cedants	17,602	0
Insurance and intermediaries receivables	16,791	0
Reinsurance receivables	477	0
Receivables (trade, not insurance)	6,088	17,015
Own shares (held directly)	701	0
Amounts due in respect of own fund items or initial fund called up but not yet paid in	0	0
Cash and cash equivalents	3,396	5,595
Any other assets, not elsewhere shown	622	3,456
Total assets	**284,133**	**266,164**

If the valuation basis for IFRS and Solvency II is different, we explain the differences in greater detail for the respective assets. If the differences between fair values according to Solvency II and IFRS values are immaterial, assets are measured at their IFRS values.

In addition to the differences in the valuation of individual items, the structure of the solvency balance sheet also differs from that of the IFRS balance sheet. Not all balance sheet items are therefore directly comparable. Even where the valuations are identical, the figures within items may not be the same due to differences in composition. The differences are particularly significant for assets shown under investments. There are also differences in the classification of receivables and other assets, which are described under the individual items. Where it was possible to reclassify assets as per the IFRS balance sheet in order to comply with the structure prescribed for the solvency balance sheet, we made this reclassification for comparison purposes.

Use of judgements and estimates in recognition and measurement

Where measurement has to be based on models because no market prices are available for the calculation of the fair values required, judgement must be exercised and estimates and assumptions used. These affect both the assets and the other liabilities shown in the solvency balance sheet.

Our internal processes are geared to determining amounts as accurately as possible, taking into account all the relevant information to the best of the management's knowledge. Nevertheless, it is in the nature of these items that estimates may have to be adjusted in the course of time to take account of new knowledge.

In the sections below, we provide a separate description of the bases, methods and main assumptions used for the recognition, measurement and reporting of each material class of assets in the solvency balance sheet and in financial reporting under IFRS.

Goodwill

No goodwill is shown in the solvency balance sheet.

Under IFRS, goodwill resulting from the first-time consolidation of subsidiaries is reported and tested for impairment at least annually. We carry out additional impairment tests during the year if there are indications of impairment.

Deferred acquisition costs

Deferred acquisition costs are not shown as an asset in the solvency balance sheet, but are taken into account in the valuation of the technical provisions.

With the introduction of IFRS 17, certain items that have previously been presented separately in our consolidated financial statements will be omitted, since the resulting cash flows are now recognised as part of the measurement models. This also concerns the item previously reported as deferred acquisition costs.

Intangible assets

Intangible assets are only shown in the solvency balance sheet if they are accounted for under IFRS and traded in an active market. The latter requirement is deemed to be met if an active market exists for similar assets. Since Munich Re's intangible assets currently do not meet this requirement, no amount is reported for this item in the solvency balance sheet.

Under IFRS, other intangible assets largely include software assets, as well as acquired distribution networks and client bases.

Software assets are carried at cost and are amortised on a straight-line basis over a useful life of three to five years. If necessary, impairment losses on the assets are recognised or reversed up to a maximum of the amortised cost.

Client bases and distribution networks are carried at cost and are generally amortised on a straight-line basis over their useful life. If necessary, impairment losses are recognised or reversed up to a maximum of the amortised cost.

Intangible assets related to our investments in infrastructure and renewable energies are reported separately under non-financial investments. These assets relate primarily to licences, concessions and right-of-use assets relating to the operation of investments in renewable energies.

Deferred tax assets

Under Solvency II, deferred taxes are determined pursuant to Article 15 in conjunction with Article 9 of Delegated Regulation (EU) 2015/35.

In accordance with Article 9(1) and (2) of the Delegated Regulation, assets and liabilities must be recognised and valued in accordance with IFRS requirements, provided that these are consistent with Article 75 of Directive 2009/138/EC. Therefore, under Solvency II, deferred tax assets are recognised and valued in accordance with IAS 12. In addition, the relevant interpretative decisions issued by BaFin are taken into account.

Deferred tax assets are calculated on the basis of the difference between the values ascribed to assets recognised and valued in accordance with Article 75 of Directive 2009/138/EC, and the values ascribed to assets recognised and valued for tax purposes. Deferred taxes are determined on the basis of the tax rates of the countries concerned. Changes in tax rates and tax legislation that have already been adopted at the balance sheet date are taken into account.

Deferred tax assets are recognised in cases where asset items have to be valued lower, or liability items higher, in the solvency balance sheet than in the tax accounts of the Group company concerned, and these differences will be eliminated at a later date with a corresponding effect on taxable income (temporary differences). Also included are deferred tax assets deriving from tax loss carry-forwards and tax credits.

Deferred tax assets are recognised if there are sufficient taxable temporary differences which are expected to reverse in the same period as the deductible temporary differences. For any additional deductible temporary differences, deferred tax assets are recognised only to the extent that it is probable that future profits will be available in the same period in which the deductible temporary differences are expected to reverse. This is generally based on a five-year result plan, although a longer or shorter planning horizon may be required in particular circumstances.

Deferred tax assets and deferred tax liabilities are reported on a net basis, provided that they refer to the same taxable entity and the same tax authority. Netting out is done here if it is generally possible to offset the underlying tax assets and tax liabilities. In 2023, deferred tax assets and deferred tax liabilities amounting to €11,830m were offset against each other. After offsetting assets and liabilities, Munich Re’s net deferred tax assets amounted to €289m as at 31 December 2023. Net deferred tax liabilities came to €7,993m.

For investments, there is a net surplus of deferred tax assets of €1,332m in the solvency balance sheet. Differences in recognition and measurement between the solvency balance sheet and the tax accounts resulted in a net surplus of deferred tax assets of €134m derived from provisions for post-employment benefits. Intangible assets are not recognised in the solvency balance sheet, while expenses incurred for internally developed IT products and acquired intangible assets are recognised as assets in the tax accounts. As a result, deferred tax assets amounted to €204m. Furthermore, deferred tax assets of €514m arose from loss carry-forwards and tax credits.

For technical provisions, there was a net surplus of deferred tax liabilities of €6,371m, taking into account a reduction of deferred tax assets of €2,088m resulting from the application of transitional measures for technical provisions, and €102m resulting from the application of volatility adjustments. Deferred tax liabilities of €2,364m arose from the claims equalisation provision, which is shown in the tax accounts but not in the solvency balance sheet. Net deferred tax liabilities for other balance-sheet items amounted to €1,153m.

As at 31 December 2023, deductible temporary differences not recognised as deferred tax assets in the solvency balance sheet amounted to €272m.

Loss carry-forwards and tax credits totalled €5,010m in 2023, resulting in deferred tax assets of €514m.

Tax loss carry-forwards and tax credits break down as shown in the table “Tax loss carry-forwards and tax credits”.

Tax loss carry-forwards and tax credits

€m	For which deferred tax assets are recognised	For which deferred tax assets are not recog-nised	Total
Corporation tax loss carry-forwards	**1,578**	**2,511**	**4,089**
Expiring in up to three years	33	4	37
Expiring in over three years and up to ten years	460	23	483
Expiring in over ten years	110	3	114
Not expiring	975	2,481	3,455
Trade tax loss carry-forwards	**491**	**289**	**780**
Not expiring	491	289	780
Tax loss carry-forwards from capital losses	**22**	**20**	**42**
Expiring in up to three years	0	0	0
Expiring in over three years and up to ten years	22	19	41
Expiring in over ten years	0	0	0
Not expiring	0	1	1
Tax credits	**98**	**1**	**99**
Expiring in up to three years	55	0	55
Expiring in over three years and up to ten years	42	1	43
Expiring in over ten years	0	0	0
Not expiring	1	0	1

Pension benefit surplus

Details about how we recognise the pension benefit surplus are set out in connection with pension benefit obligations in section D 3.

Property, plant & equipment held for own use

Property held for own use

In the solvency balance sheet, owner-occupied property is recognised under “Property, plant & equipment held for own use”. In the IFRS accounts, it is shown under “Other assets”.

Under Solvency II, we measure land and buildings at fair value. Valuations for the directly held portfolio are performed by valuers within the Group, and those for the indirectly held portfolio are carried out by external valuers. Determining the sustainability of cash inflows and outflows, taking into account the market conditions at the property location, is material for valuation. The fair value is determined individually per item by discounting the future cash flow to the valuation date.

Under IFRS, we measure land and buildings at amortised cost (cost model) in reinsurance and non-participating primary insurance. Depreciation on buildings is mainly on a straight-line basis. Impairment losses are recognised for owner-occupied land and buildings accounted for using the cost model if the recoverable amount has fallen below the carrying amount on the reporting date. If necessary, impairment losses are reversed up to a maximum of the amortised cost.

If owner-occupied property is held as underlying items for insurance contracts with direct participation features under the variable fee approach (VFA), we recognise these properties using the fair value model. They are measured at cost, including incidental expenses, on initial recognition. Subsequent measurement is at fair value, recording any changes in value in the net result.

Plant & equipment held for own use

For reasons of simplification, plant and equipment is recognised at its IFRS value in the solvency balance sheet, i.e. at amortised cost. Items are depreciated over their useful lives to reflect the decline in utility, unless they are written down to a lower value for impairment.

Our lease agreements are recognised in the solvency balance sheet and in accordance with IFRS. Further details on leases can be found in section A 4 “Performance of other activities”.

Finance lease agreements – which are disclosed in our IFRS consolidated financial statements – are not material for our solvency position.

Investments (other than assets held for index-linked and unit-linked contracts)

Property (other than for own use)

For both solvency balance sheet and IFRS purposes, land and buildings not held for own use are measured in the same way as owner-occupied property, i.e. fair values are used for the solvency balance sheet. Under IFRS, investment properties are measured using the cost model or – if they are held as underlying items for insurance contracts with direct participation features under the VFA – in accordance with the fair value model.

Holdings in related undertakings, including participations

This item comprises the following holdings in related undertakings:

- Subsidiary undertakings not fully consolidated: These include certain collective investment undertakings having separate legal personality (investment companies), financial or credit institutions, investment firms, institutions for occupational retirement provision, alternative investment fund managers, UCITS management companies, non-regulated undertakings carrying out financial activities and ancillary services undertakings classified as immaterial from a Group perspective; and
- Jointly controlled entities not proportionally consolidated: These include certain collective investment undertakings having separate legal personality (investment companies), financial or credit institutions, investment firms, institutions for occupational retirement provision, alternative investment fund managers, UCITS management companies, non-regulated undertakings carrying out financial activities and ancillary services undertakings classified as immaterial from a Group perspective; and
- Any Munich Re participations.

Not included in this item are related undertakings taken into account in the consolidated data for the calculation of Group solvency in accordance with Article 335(1)(a–c) of the Delegated Regulation. These include interests in special purpose vehicles as well as subsidiary undertakings and jointly controlled entities that are insurance or reinsurance undertakings (whether or not the latter are from the EEA), insurance holding companies, mixed financial holding companies or material ancillary services undertakings, as these interests must be fully or proportionally consolidated for the calculation of Group solvency. For holdings in jointly controlled entities not included through proportional consolidation, Munich Re uses the valuation hierarchy explained below.

Holdings in related undertakings that are financial or credit institutions, investment firms, institutions for occupational retirement provision, alternative investment fund managers, UCITS management companies or non-regulated undertakings carrying out financial activities are valued on the basis of the proportional share of the undertaking's own funds calculated in accordance with the relevant sectoral rules.

For any other holdings in related undertakings included in this item, Munich Re applies the following valuation hierarchy for determining fair value as at the balance sheet date:

- The default valuation approach is the use of quoted market prices in active markets for the same assets.
- If the use of quoted market prices in active markets for the same assets is not possible because the relevant related undertaking is not listed on a stock exchange, Munich Re measures its holdings:
  - based on the share of the excess of assets over liabilities in accordance with the Solvency II valuation rules, if the relevant related undertaking is a collective investment undertaking having separate legal personality or an insurance or reinsurance undertaking from the EEA;
  - based on the equity method pursuant to IAS 28, Investments in Associates and Joint Ventures, if the relevant related undertaking is not a collective investment undertaking having separate legal personality and not an insurance or reinsurance undertaking from the EEA, but is valued based on the equity method in Munich Re's consolidated financial statements pursuant to IFRS as it is considered material. Contrary to IAS 28, goodwill and other intangible assets valued at zero pursuant to Solvency II valuation rules are deducted from the value determined under IFRS using the equity method;
  - based on an alternative valuation method if the relevant related undertaking is not a collective investment undertaking having separate legal personality and not an insurance or reinsurance undertaking, and in addition it is not valued based on the equity method in Munich Re's consolidated financial statements pursuant to IFRS as it is considered immaterial.

Taking into consideration the principles of materiality, Munich Re uses

- the equity method for related undertakings not listed on a stock exchange that are not subject to supervision at individual entity level, and where the share of the excess of assets over liabilities in accordance with Solvency II valuation rules would therefore have to be calculated for Group solvency purposes only;
- an alternative valuation method for related undertakings not listed on a stock exchange that are considered immaterial under IFRS and thus are not valued using the equity method in Munich Re's consolidated financial statements.

In contrast to IFRS, where any material subsidiary is fully consolidated (irrespective of the business activity or type of undertaking), for the calculation of the Group solvency balance sheet, subsidiary undertakings are subject to full consolidation only if they are insurance or reinsurance undertakings (whether or not the latter are from the EEA),

insurance holding companies, mixed financial holding companies or material ancillary services undertakings.

Under IFRS, interests in material associates and joint ventures are always accounted for using the equity method, while interests in immaterial subsidiaries, associates and joint ventures are measured at quoted market prices if available. If quoted market prices are not available, the alternative valuation method outlined above is applied, i.e. the undertaking's net asset value or local equity value is normally used.

The complete list of holdings in related undertakings of Munich Re can be found in QRT S.32.01.22 (Undertakings in the scope of the Group).

Other financial assets

In the solvency balance sheet, we value all other financial assets at fair value. Where a price is quoted in active markets (i.e. at market value), that price should be used. If no market price is available, valuation models are used in which observable market inputs are applied as far as possible. The same valuation principles are followed as under IFRS.

Where financial assets are also to be valued at fair value under IFRS, the valuation is exactly the same as for the solvency balance sheet.

Determining fair values

Since market values are not available for all assets and liabilities, IFRS has a valuation hierarchy with three levels. Though Solvency II does not explicitly name the levels, it does provide for equivalent differentiation in the assessment of the fair values used. The allocation reflects which of the fair values derive from transactions in the market and where valuation is based on models because market transactions are lacking.

In the case of Level 1, valuation is based on quoted prices in active markets for identical financial instruments which Munich Re can refer to at the valuation date. The financial instruments we have allocated to this level mainly comprise equities, equity funds and exchange-traded derivatives.

Assets allocated to Level 2 are valued using models based on observable market data. The inputs used for valuation must be observable throughout the instrument's contract period. In addition, Level 2 includes assets and liabilities for which valuation and the market data required for valuation are provided by price quoters, but for which it is not possible to completely determine to which extent the data used is observable in the market. The financial instruments we have allocated to Level 2 mainly comprise bearer bonds, bond funds, promissory note loans, covered bonds, subordinated securities, specified credit structures, derivatives not traded on the stock market and subordinated liabilities. Moreover, we have allocated a majority of our financial receivables and liabilities to Level 2.

We allocate to Level 3 assets and liabilities for which unobservable market inputs have a significant impact on valuation. The inputs used reflect Munich Re's assumptions regarding the factors which market players would consider in their pricing. To this end, we use the best available market information, supplemented with internal company data. The assets allocated to this level of the fair value hierarchy largely comprise investment property and real estate funds. Funds that mainly invest in theoretically valued instruments, and investments in infrastructure and in private equity are also allocated to Level 3, along with investments in subsidiaries, associates and joint ventures measured at fair value, and insurance-related financial instruments.

In the case of instruments not traded on an active market, we decide on a case-by-case basis to which level of the fair value hierarchy to allocate the respective fair values.

The following table provides an overview of the models used to measure the fair values of our investments when market prices are not available.

Valuation techniques for assets and liabilities

Bonds and notes	Pricing method	Inputs	Pricing model
Interest-rate risks			
Promissory note loans/ registered bonds	Theoretical price	Sector-, rating- or issuer-specific yield curve	Present-value method
RUB-denominated Russian government bonds	Theoretical price	Issuer-specific yield curve	Present-value method
Mortgage loans	Theoretical price	Sector-specific yield curve considering the profit margin included in the nominal interest rate	Present-value method
Derivatives	**Pricing method**	**Inputs**	**Pricing model**
Equity and index risks			
OTC stock options	Theoretical price	Listing of underlying shares Effective volatilities Money-market interest-rate curve Dividend yield	Black-Scholes (European) Cox, Ross and Rubinstein (American)
Equity forwards	Theoretical price	Listing of underlying shares Money-market interest-rate curve Dividend yield	Present-value method
Interest-rate risks			
Interest-rate swaps	Theoretical price	Swap and CSA curve[1]	Present-value method
Swaptions/interest-rate guarantee	Theoretical price	At-the-money volatility matrix and skew OIS/swap curve	Bachelier/ Normal Black
Interest-rate currency swaps	Theoretical price	Swap and CSA curve[1] Currency spot rates	Present-value method
Inflation swaps	Theoretical price	Zero-coupon inflation swap rates OIS curve	Present-value method
Bond forwards (forward transactions)	Theoretical price	Listing of underlying OIS curve	Present-value method
Currency risks			
Currency options	Theoretical price	Volatility skew Currency spot rates Money-market interest-rate curve	Garman-Kohlhagen (European)
Currency forwards	Theoretical price	Currency spot rates Currency forward rates/ticks Money-market interest-rate curve	Present-value method
Other transactions			
Insurance derivatives (natural and weather risks)	Theoretical price	Fair values of cat bonds Historical event data Interest-rate curve	Present-value method
Insurance derivatives (variable annuities)	Theoretical price	Biometric rates and lapse rates Volatilities Interest-rate curve Currency spot rates	Present-value method
Credit default swaps	Theoretical price	Credit spreads Recovery rates CSA curve[1]	ISDA CDS Standard Model
Total return swaps on commodities	Theoretical price	Listing of underlying index	Index ratio calculation
Commodity options	Theoretical price	Listing of underlying Effective volatilities Money-market interest-rate curve Cost of carry	Black-Scholes (European) Cox, Ross and Rubinstein (American)

Bonds and notes with embedded derivatives	Pricing method	Inputs	Pricing model
Callable bonds	Theoretical price	Swap curve Issuer-specific spreads Volatility matrix	Hull-White model
CMS floaters	Theoretical price	Swap curve Issuer-specific spreads Volatility matrix and skews	Replication model (Hagan) Stochastic volatility model Hull-White model
CMS floaters with variable cap	Theoretical price	Swap curve Issuer-specific spreads Volatility matrix and skews	Replication model (Hagan) Stochastic volatility model Hull-White model
Inverse CMS floaters	Theoretical price	Swap curve Issuer-specific spreads Volatility matrix and skews	Replication model (Hagan) Stochastic volatility model Hull-White model
CMS steepeners	Theoretical price	Swap curve Issuer-specific spreads Volatility matrix and skews Correlation matrix	Replication model (Hagan) Stochastic volatility model Hull-White model
Convergence bonds	Theoretical price	Swap curve Issuer-specific spreads Volatility matrix Correlation matrix	Replication model (Hagan) Stochastic volatility model
Multi-tranches	Theoretical price	At-the-money volatility matrix and skew Swap curve Sector-, rating- or issuer-specific yield curve	Bachelier/ Normal Black, Present-value method, Hull-White model
FIS promissory note loans	Theoretical price	At-the-money volatility matrix and skew Swap curve Sector-, rating- or issuer-specific yield curve	Bachelier/ Normal Black, Present-value method
Swaption notes	Theoretical price	At-the-money volatility matrix and skew Swap curve Money-market interest-rate curve Sector-, rating- or issuer-specific yield curve	Bachelier/ Normal Black, Present-value method
Cat bonds	Theoretical price	Fair values of cat bonds Historical event data Interest-rate curve	Present-value method

Funds	Pricing method	Inputs	Pricing model
Real estate funds	–	–	Net asset value
Alternative investment funds (e.g. private equity, infrastructure, forestry)	–	–	Net asset value

Other	Pricing method	Inputs	Pricing model
Real estate	Theoretical market price	Interest-rate curve Market rents	Present-value method or valuation
Alternative direct investments (e.g. infrastructure, forestry)	Theoretical market price	Interest-rate curve (among others) Electricity price forecast and inflation forecast Timber price	Present-value method or valuation
Insurance contracts that do not transfer significant insurance risk	Theoretical market price	Biometric rates and lapse rates Historical event data Interest-rate curve Currency spot rates	Present-value method

1 The OIS curve is used if the quotation currency is the CSA currency.

Insurance derivatives and insurance contracts that do not transfer significant insurance risk are mostly allocated to Level 3 of the fair value hierarchy, as observable market inputs are often not available. The decision is made on a case-by-case basis, taking into account the characteristics of the instrument concerned. In this case, observable market inputs are not exclusively available, so that biometric rates (including lapse rates) and historical event data are used for valuations on the basis of the present-value method.

The derivative components of catastrophe bonds are measured based on the values supplied by brokers for the underlying bonds, which is why the extent to which unobservable inputs were used cannot readily be assessed.

The inputs requiring consideration in measuring variable annuities are derived either directly from market data (in particular volatilities, interest-rate curves and currency spot rates) or from actuarial data (especially biometric and lapse rates). The lapse rates used are modelled dynamically, depending on the specific insurance product and current situation of the capital markets. The assumptions with regard to mortality are based on client-specific data or published mortality tables, which are adjusted with a view to the target markets and the actuaries' expectations. The dependency between different capital market inputs is modelled by correlation matrices. Where the valuation of these products is not based on observable inputs, which is usually the case, we allocate them to Level 3 of the fair value hierarchy.

The other investments allocated to Level 3 are mainly external fund units (in particular, private equity, real estate and funds that invest in a variety of assets that are subject to theoretical valuation). Since market quotes are not available for these on a regular basis, net asset values (NAVs) are provided by the asset managers. The NAVs are determined by adding up all the fund assets and subtracting all the fund liabilities. The NAV per fund unit is calculated by dividing the NAV by the number of outstanding fund units. We thus do not perform our own valuations using unobservable inputs. We regularly subject the valuations supplied to plausibility tests on the basis of comparable investments.

IFRS 9 measurement

Unlike in the solvency balance sheet, pursuant to IFRS 9 financial assets are classified for the purpose of subsequent measurement as measured at "amortised cost", "fair value through other comprehensive income" or "fair value through profit or loss".

The classification and subsequent measurement are determined on the basis of the business model for managing the financial assets and the contractual cash flow characteristics of the financial assets.

Business model

An entity's business model refers to how the entity manages the financial assets in order to generate cash flows. A distinction is made between the following business models:

In the business model "hold to collect", the financial assets are held with the objective to collect contractual cash flows.

The objective of the business model "hold to collect and sell" is achieved by both collecting contractual cash flows and selling financial assets.

The business model "other" applies to financial assets that are managed neither under the "hold to collect" nor under the "hold to collect and sell" business models.

Contractual cash flow characteristics

If financial assets are held within the business model "hold to collect" or "hold to collect and sell", an additional assessment as to whether they pass the solely payments of principal and interest (SPPI) test is necessary for the classification for subsequent measurement.

Contractual cash flows that are solely payments of principal and interest on the principal amount outstanding are consistent with a basic lending arrangement and pass the SPPI test.

Classification according to IFRS 9

Financial assets managed within the business model "hold to collect" that pass the SPPI test are measured at amortised cost.

Financial assets subject to the business model "hold to collect and sell" that pass the SPPI test are measured at fair value through other comprehensive income. This includes the major part of our financial investments.

Financial assets that are managed under the business model "other" or that do not pass the SPPI test are measured at fair value through profit or loss.

At Munich Re, this relates in particular to insurance-related financial instruments. These are not utilised for asset-liability management. They are managed based on their fair value within the business model "other", meaning they are measured at fair value through profit or loss.

In particular, insurance-related financial instruments include insurance derivatives, derivative components of variable annuities, derivatives for hedging variable annuity contracts and, on a limited scale, loans.

Insurance-related financial instruments, where they are not exclusively derivative financial instruments, are to be measured and reported as insurance contracts as part of the technical provisions for solvency purposes.

Impairment according to IFRS 9
IFRS 9 specifies the use of an expected credit loss model for the recognition of impairment losses; this requires recognising expected credit losses even before they arise as an expense. These impairment requirements primarily affect financial assets measured at amortised cost or at fair value through other comprehensive income, as well as lease receivables.

To measure expected credit losses, we use the probability of default, the loss given default and the exposure at default.

As all assets in the solvency balance sheet are shown at fair value, no impairment rules are required.

Equities
Under IFRS, we measure equities at fair value through profit or loss. As a result, there are no measurement differences as against the solvency balance sheet.

Bonds
Bonds are mostly used to back insurance liabilities and are managed as part of the business model “hold to collect and sell”. If they also pass the SPPI test, they are measured at fair value through other comprehensive income under IFRS. If they do not, measurement is at fair value through profit or loss. There are no measurement differences as against the solvency balance sheet.

Undertakings for collective investment in transferable securities
Under IFRS, undertakings for collective investment in transferable securities are generally fully consolidated, whereas under Solvency II, fund units that are not part of the item “holdings in related undertakings, including participations” are reported under “Undertakings for collective investment in transferable securities”.

Derivatives
Under Solvency II and IFRS, derivatives are measured at fair value.

Due to fair value measurement, however, no rules exist under Solvency II regarding the unbundling of embedded derivatives or hedge accounting.

Deposits other than cash equivalents
Deposits with banks are managed within the business model “hold to collect” and pass the SPPI test, meaning that they are measured at amortised cost under IFRS.

Other investments
Other investments are managed within the business model “hold to collect and sell”. If they also pass the SPPI test, they are measured at fair value through other comprehensive income under IFRS. If they do not, measurement is at fair value through profit or loss. There are no measurement differences as against the solvency balance sheet.

The classification of investments in the solvency balance sheet is fundamentally different from that under IFRS. For supervisory purposes, investments are classified into different types on the basis of the Complementary Identification Codes. In financial reporting under IFRS, they are broken down on the basis of the measurement categories of IFRS 9 in accordance with the business model and the result of the SPPI test. Therefore, the differences in valuation are not directly evident from the solvency balance sheet structure (or from a comparison of the Solvency II values against the IFRS values). The main measurement differences arise in respect of financial assets measured at amortised cost. As at 31 December 2023, these came to €12,376m compared with a fair value of €12,425m.

Assets held for index-linked and unit-linked contracts
These are investments for policyholders under unit-linked life insurances. We recognise these at their fair value in the solvency balance sheet. In our IFRS consolidated balance sheet, we report these investments under “Investments for unit-linked life insurance”. The investments for unit-linked life insurance are stated at their fair value, as they are managed within the business model “other” based on their fair value.

Loans and mortgages

In the solvency balance sheet, loans and mortgages – including loans on policies – are shown as a separate line item outside the investments. They are measured at fair value.

Under IFRS, loans are reported under financial investments, and to a lesser extent also as insurance-related financial instruments. The management strategy for financial investments is aimed at both collecting contractual cash flows and selling financial assets. As a result, they are managed within the business model "hold to collect and sell" (see section D 1 "Measurement categories according to IFRS"). If the loans reported under financial investments also pass the SPPI test, they are measured at fair value through other comprehensive income. Loans that do not pass the SPPI test are measured at fair value through profit or loss.

In the case of loans under insurance-related financial instruments, contractual wording largely waives the right to reimbursement triggered by the occurrence of insurance events. Similar agreements also exist for quasi-equity instruments. Pure policy loans are included in the insurance items under IFRS 17.

Reinsurance recoverables

Reinsurance recoverables are dealt with in section D 2 "Technical provisions".

Deposits to cedants

Deposits to cedants serve as collateral for technical provisions covering business assumed. The amount of and changes in these deposits derive from the values for the changes in the related technical provisions. Deposits to cedants thus do not have a fixed maturity date, their release generally being dependent on the run-off of the corresponding provisions.

In the solvency balance sheet, deposits to cedants are measured at fair value.

In the IFRS consolidated balance sheet, deposits retained are not presented separately, but are included in the insurance items.

Insurance and intermediaries receivables

In the solvency balance sheet, insurance and intermediaries receivables are measured at fair value, taking counterparty default risk into account.

In the IFRS consolidated balance sheet, insurance and intermediaries receivables are not presented separately, but are included in the insurance items.

Reinsurance receivables

In the solvency balance sheet, reinsurance receivables are measured at fair value, taking counterparty default risk into account.

In the IFRS consolidated balance sheet, reinsurance receivables are not presented separately, but are included in the insurance items.

Receivables (trade, not insurance)

In the solvency balance sheet, the receivables (trade, not insurance) include in particular receivables from dividends, receivables from profit pooling or transfer agreements, receivables from taxes, and other receivables. These receivables must be measured at fair value. However, for reasons of simplification, receivables from dividends and receivables from profit pooling or transfer agreements are recognised at their IFRS carrying amount, i.e. at amortised cost. Doubtful receivables are written down to the estimated recoverable amount.

Receivables from taxes and other receivables are discounted, taking into account the actual risk-free interest rates and relevant interest-rate spreads. The individual business partner's credit risk is also taken into consideration.

In the IFRS consolidated balance sheet, the item "Receivables" comprises tax receivables, financial receivables and other receivables. Current tax receivables and other receivables are accounted for at amortised cost. The financial receivables are financial instruments and are subject to the IFRS 9 impairment model. As they are managed within the business model "hold to collect", they are measured at amortised cost provided they pass the SPPI test. Otherwise, they are measured at fair value through profit or loss for subsequent measurement purposes.

The impairment test of our non-financial receivables that are not carried at fair value in subsequent periods is performed in a two-stage process, firstly at the level of individual items, and then on the basis of groups of similar receivables. The impairment is recognised as an expense. If, in a subsequent period, the reasons for the impairment cease to apply, the impairment is reversed, with impact on the income statement. The resultant carrying amount may not exceed the cost.

Own shares (held directly)

This item includes own shares held by Munich Reinsurance Company. Under Solvency II, own shares are measured at fair value. When determining own funds, this amount has to be deducted from basic own funds. Under IFRS, own shares are not recognised as a separate asset item; instead, they have to be deducted from shareholders' equity.

Amounts due in respect of own fund items or initial funds called up but not yet paid in

This item is currently not relevant for Munich Re.

Cash and cash equivalents

Under Solvency II, the nominal value of cash is considered to be the fair value. Transferable deposits (including cheques) are valued at amortised cost (usually this is the nominal value). Credit risk is taken into account by valuing doubtful deposits and doubtful cheques at the estimated recoverable amount.

Under IFRS 9, cash and cash equivalents are financial instruments, and are managed within the business model "hold to collect". As a result, they are measured at amortised cost, or at their nominal value due to their short-term nature. If they do not pass the SPPI test, they are measured at fair value through profit or loss.

Any other assets, not elsewhere shown

"Any other assets, not elsewhere shown" covers all assets that cannot be allocated to any other class of assets. In contrast to our IFRS financial reporting, hedging derivatives (€1m) are reclassified as derivatives in the solvency balance sheet.

As a basic principle, in the solvency balance sheet all other assets are to be measured at fair value. Similar to IFRS, prepayments are calculated pro rata temporis and cover the period between the reporting date and the date the corresponding benefit is earned or becomes due. In contrast to IFRS, prepayments are discounted under Solvency II taking into account the relevant risk-free effective interest rates and relevant interest-rate spreads, unless the effect from discounting is immaterial.

In the solvency balance sheet, inventories are measured using the relevant IFRS carrying amounts, i.e. the estimated realisable value. If, in the normal course of business, the value falls below the value of the acquisition costs, inventories are to be written down to this value.

D2 Technical provisions

Description of the valuation methodologies used for solvency purposes

Overall requirements for technical provisions
Insurance and reinsurance undertakings have to establish technical provisions with respect to all of their insurance and reinsurance obligations towards policyholders, cedants and beneficiaries. The value of the technical provisions corresponds to the current amount the undertakings would have to pay if they were to transfer their insurance and reinsurance liabilities immediately to another insurance or reinsurance undertaking. The calculation of technical provisions must make use of and be consistent with information provided by the financial markets and generally available data on underwriting risks (market consistency). Technical provisions must be calculated in a prudent, reliable and objective manner. Following the principles set out above, the calculation of technical provisions is carried out as described below.

Calculation of technical provisions
Technical provisions are calculated using established principles for actuarial valuation. Manuals of methods for Solvency II – and for the calculation of technical provisions in particular – ensure consistent valuation approaches throughout Munich Re. In this context, we set out requirements regarding segmentation of business, data used, economic and operational (e.g. biometric) assumptions, and methods and models.

In general, the value of technical provisions is equal to the sum of a best estimate and a risk margin as explained below.

Technical provisions

€m	Solvency II value
Technical provisions – non-life	80,241
Technical provisions – non-life (excluding health)	77,357
TP calculated as a whole	0
Best estimate	75,111
Risk margin	2,246
Technical provisions – health (similar to non-life)	2,884
TP calculated as a whole	0
Best estimate	2,777
Risk margin	107
Technical provisions – life (excluding index-linked and unit-linked)	105,563
Technical provisions – health (similar to life)	57,537
TP calculated as a whole	0
Best estimate	52,678
Risk margin	4,860
Technical provisions – life (excluding health and index-linked and unit-linked)	48,026
TP calculated as a whole	0
Best estimate	42,700
Risk margin	5,325
Technical provisions – index-linked and unit-linked	8,184
TP calculated as a whole	79
Best estimate	7,969
Risk margin	137
Technical provisions total	**193,989**

The best estimate corresponds to the probability-weighted average of future cash flows, taking account of future developments and uncertainties. It also takes discount effects into account and uses the relevant risk-free interest-rate term structure. As at the reporting date, we do not make use of any transitional measures regarding the relevant risk-free interest-rate term structure. The volatility adjustment (pursuant to Article 77(d) of Directive 2009/138/EC) is used in the models of the portfolios of six primary insurance companies: the German undertakings ERGO Lebensversicherung AG and Victoria Lebensversicherung AG; the Belgian undertakings ERGO Insurance N.V. and DKV Belgium S.A.; the Austrian undertaking ERGO Versicherung AG; and the Greek undertaking ERGO Insurance Company S.A. Matching adjustments are not used. Four insurance companies (ERGO Lebensversicherung AG; Victoria Lebensversicherung AG; ERGO Versicherung AG, Vienna; and ERGO Insurance Company S.A., Athens) apply a transitional deduction to their technical provisions (Article 308(d) of Directive 2009/138/EC).

The calculation of the best estimate is based upon up-to-date and credible information and realistic assumptions, and is performed using adequate, applicable and relevant actuarial and statistical methods. To ensure consistency where possible, most of the economic assumptions are derived at Group level. Non-economic assumptions are mostly based on the characteristics of the insurance portfolio. Expenses are assessed on a going-concern basis. The cash-flow projection used in the calculation of the best estimate takes account of all the cash inflows and outflows required to settle the insurance and reinsurance obligations over their lifetime. The best estimate is calculated gross, without deduction of the amounts recoverable from reinsurance contracts and special purpose vehicles (e.g. retrocession to the capital market via a cat bond). Those amounts are calculated and reported separately.

For property-casualty (re)insurance, the best estimate is calculated separately for the premium provision and the provision for claims outstanding. Premium provisions are established for future claim events covered by insurance and reinsurance obligations falling within the contract boundary. Provisions for claims outstanding are established for claim events that have already occurred, regardless of whether the claims arising from those events have been reported or not.

The risk margin is set at such a level as to ensure that the value of the technical provisions as a whole (best estimate plus risk margin) is equivalent to the amount that insurance and reinsurance undertakings would be expected to require in order to take over and meet the insurance and reinsurance obligations.

The general principle for the calculation of the risk margin assumes that the whole portfolio of insurance and reinsurance obligations of the entity that calculates the risk margin (the [re]insurance undertaking) is taken over by another undertaking (the reference undertaking). The risk margin covers the following risk categories: underwriting risk, credit risk with respect to reinsurance contracts, arrangements with special purpose vehicles, intermediaries, policyholders and any other material exposures which are closely related to the insurance and reinsurance obligations, and operational risk. The risk margin is calculated by projecting the SCR; the risk categories above are covered and suitable risk drivers are used for the projection. The present value of the projected SCR is then multiplied by the cost-of-capital rate of 6% prescribed under Solvency II.

The risk margin is allocated to the lines of business on a proportional basis, taking into account both the risk and the best estimate of the technical provisions in the line of business concerned. The best estimate and the risk margin are valued separately. However, where future cash flows associated with insurance or reinsurance obligations can be reliably replicated using financial instruments for which a reliable market value is observable, the value of technical provisions associated with those future cash flows is determined on the basis of the market value of those financial instruments. In this case, separate calculations of the best estimate and the risk margin are not required.

Under Solvency II, we segment our insurance and reinsurance obligations into homogeneous risk groups, and as a minimum by line of business, when calculating technical provisions.

In the reporting year, there was a material change to the models and their underlying assumptions used to calculate the technical provisions. In life and health reinsurance, the mortality assumptions in the US life insurance portfolio were adjusted based on experience in recent years.

Valuation of financial guarantees and contractual options

When calculating technical provisions, we take account of the value of financial guarantees and contractual options included in insurance and reinsurance policies. Any assumptions made with respect to the likelihood that policyholders will exercise contractual options, including lapses and surrenders, are based on current and credible information. The assumptions take account, either explicitly or implicitly, of the impact that future changes in financial and non-financial conditions may have on the exercise of those options.

Simplifications used in the calculation of technical provisions

To calculate the best estimates, Munich Re makes use of the simplifications described in Title I, Chapter III, Section 6 of the Delegated Regulation in Article 58(a) and Article 59. The simplified calculation of the risk margin pursuant to Article 58(a) of the Delegated Regulation is applied for standard-model entities in primary insurance and a small number of non-EEA reinsurance subsidiaries only. These simplified calculations account for less than 2.0% of our total technical provisions.

Article 59 of the Delegated Regulation allows the risk margin to be fully recalculated only at the end of the year and to be updated to scale for the quarterly closings. In the property-casualty reinsurance segment, we scale the risk margin according to the best estimates of net technical provisions, as illustrated in the Guidelines on valuation of technical provisions (EIOPA-BoS-14/166, Technical Annex VI).

In addition to these simplifications, Munich Re applies the proportionality principle as set out in Article 29(4) of Directive 2009/138/EC.

Impact of the transitional deduction on technical provisions and of the volatility adjustment

In line with the requirements defined in Directive 2009/138/EC, at the end of every year, the transitional deduction described in Article 308(d) (i.e. the impact of the transitional measure involving a temporary deduction on technical provisions) will decrease on a straight-line basis from 100% during the year beginning on 1 January 2016 to 0% on 1 January 2032. The use of the transitional deduction on the technical provisions of the four above-mentioned insurance undertakings has no impact on the SCR at Group level.

Six life and health primary insurance companies already mentioned apply a (static) volatility adjustment to the risk-free interest-rate term structure in accordance with Article 77(d) of Directive 2009/138/EC. The volatility adjustment decreases the technical provisions and increases the eligible own funds of the relevant individual undertakings, which has an effect at Group level. The adjustment also has an effect on the calculated SCR of the relevant undertakings and the Group.

The quantitative effects of the transitional deduction on technical provisions and the volatility adjustment on eligible own funds and the SCR are illustrated in QRT S.22.01.22 (impact of long-term guarantees and transitional measures) in the annex to this report.

The use of the transitional measures and volatility adjustment results in an immaterial reduction of the minimum capital requirement (MCR).

Uncertainty associated with the amount of technical provisions

The assessment of the best estimate of technical provisions is largely based on available data and actuarial models in conjunction with expert judgements. In view of the uncertainties involved, different experts may arrive at different assumptions based on their individual background, professional experience, or field of discipline. As a result, a certain degree of uncertainty in the models and parameters used is inevitable. Such uncertainty is taken into account in the validation of the technical provisions by identifying sensitivities and developing and examining scenarios.

Compared with the uncertainty involved in determining best estimates, the determination of the risk margin as part of the technical provisions is not characterised by a high degree of freedom when selecting assumptions. The risk margin is based on the present value of the projected solvency capital requirement and is largely prescribed by regulatory requirements. Some uncertainty is involved – for example, in selecting the specific projection patterns or the degree of diversification.

Description of methods used for IFRS valuation

We began recognising insurance contracts as per the provisions set out in IFRS 17, Insurance Contracts, in the 2023 financial year.

IFRS 17 is applicable to all primary insurance contracts, reinsurance contracts and investment contracts with discretionary participation features.

A contract is classified as an insurance contract within the scope of IFRS 17 if it transfers significant insurance risk.

Recognition and measurement of gross technical provisions according to IFRS

IFRS 17 provides a consistent accounting model for all insurance contracts. A distinction is made here between insurance contracts issued if significant insurance risk is assumed, and reinsurance contracts held if significant insurance risk is ceded.

The basic measurement approach consists in applying the general measurement model (GMM), which is mainly used in life reinsurance and in parts of property-casualty primary insurance business. The measurement rules for the general measurement model are essentially based on a "building block approach", which is made up of a fulfilment cash flow, which comprises the discounted expected future cash flows and a risk adjustment for non-financial risk, and a contractual service margin.

In view of the GMM's high complexity, IFRS 17 provides the option of using – primarily for short-term contracts – a simplified measurement model known as the premium allocation approach (PAA). We apply this simplified measurement approach particularly for our property-casualty reinsurance business and for a substantial part of our property-casualty primary insurance business.

IFRS 17 also provides for a modified measurement model, the variable fee approach (VFA), for certain participating primary insurance contracts. We apply the VFA for eligible life and health primary insurance contracts. Contracts fall within the VFA scope if they provide for policyholder participation in the performance of a reference value for the underlying items. This is the case for our German participating life and health primary insurance business and a substantial part of our international life and health primary insurance contracts. Unit-linked life insurance is another case for application of the VFA. However, both reinsurance contracts held and reinsurance contracts issued are excluded from the scope of this measurement approach.

For all measurement models, there is a distinction between a pre-claims stage (liability for remaining coverage – LRC) and a claims stage after the occurrence of an insured event (liability for incurred claims – LIC).

Measurement is not made at the individual contract level, but on the basis of portfolios that are subdivided into specified groups based on their profitability and on contracts concluded in annual cohorts. Nearly all cash flows resulting from the rights and obligations under the insurance contracts must be taken into account.

Following the application of IFRS 17, deposits retained are no longer presented separately, but are included in the insurance items.

Liability for remaining coverage

The carrying amount of the LRC is – at the end of each reporting period – the sum of the present value of expected future net cash flows, the risk adjustment for non-financial risk and the contractual service margin in the GMM. If at initial recognition the present value of expected inflows exceeds the present value of expected outflows plus the risk adjustment for non-financial risk, the expected profit from the insurance cover is initially recognised as a contractual service margin, and taken into account when measuring the liability for remaining coverage. On subsequent measurement, the change in the contractual service margin is recognised in the consolidated income statement as part of insurance revenue. By contrast, for groups of insurance contracts where the sum of the present value of the cash outflows and the risk adjustment for non-financial risk exceeds the present value of expected cash inflows, the expected loss is recognised directly as an expense in the loss component that is part of the present value of the expected net cash flows and the risk adjustment for non-financial risk.

Because of the special characteristics of insurance contracts with direct participation features, we consider our share of the income from the underlying items to be a variable fee, which we recognise in accordance with the requirements of the VFA. This variable fee comprises our share of the fair value of the underlying items, and is our compensation for administering and managing them. While the initial measurement of participating contracts is the same as under the GMM, special rules apply under IFRS 17 for subsequent measurement of the LRC. For example, we offset against the contractual service margin any and all effects that have an impact on the fair value of the underlying items and consequently on our variable fee.

The LRC in the PAA is determined by recognising an LRC for a group of insurance contracts, equal to the premiums received less acquisition costs paid, on initial recognition. For subsequent measurement of a profitable group of insurance contracts, the carrying amount of the LRC is updated as follows. First, the carrying amount is either increased with no impact on profit or loss by adding the further premium payments received, or decreased by subtracting directly attributable acquisition costs paid – provided that we do not make use of the option to recognise the acquisition costs as an expense. The LRC is

reduced by the amount of insurance revenue earned as insurance contract services are provided. We earn the insurance revenue by spreading the expected total premium for the coverage period within the contract boundaries over the accounting periods in a risk-commensurate manner. For business classified as profitable, neither the present value of the future net cash flows nor the risk adjustment for non-financial risk nor the contractual service margin is explicitly determined and recognised. By contrast and consistent with the GMM, we explicitly determine risk-adjusted net cash flows for onerous groups of insurance contracts, and following the occurrence of an insured event.

Liability for incurred claims

The LIC comprises the payment obligations for incurred claims that have not yet been settled, and for other insurance contract services already provided. All three measurement approaches involve calculating the present value of the risk-adjusted future cash flows: it therefore comprises net cash flows, discounting and a risk adjustment for non-financial risk.

Explanation of the main differences between valuation methods under Solvency II and IFRS

Definition of insurance contract and scope

In line with Solvency II, technical provisions (and reinsurance recoverables, respectively) are established for all (re)insurance contracts independent of the level of insurance risk underlying a particular contract. This means that Solvency II covers all insurance business.

Under IFRS, contracts that do not transfer significant insurance risk are generally financial instruments and are accounted for in accordance with IFRS 9 requirements. An exception here are investment contracts with discretionary participation features, which fall under the scope of IFRS 17.

In cases where it can be verified that the basis risk is not material, technical provisions (and reinsurance recoverables, respectively) may be established for insurance-related non-indemnity contracts (e.g. cat bonds and client-specific insurance-linked derivatives) under Solvency II.

Separating components from an insurance contract

Insurance contracts can contain one or more of the following components:

- embedded derivatives;
- investment components;
- non-insurance services.

If an insurance contract contains embedded derivatives that are themselves not contracts within the scope of IFRS 17, IFRS 9 requirements are applied when assessing the obligation to separate components and accounting for the given derivative.

Under Solvency II, components may not be separated.

Recognition

Under IFRS 17, a group of insurance contracts issued is recognised from the earliest of the following: the beginning of the coverage period, the date when the first payment becomes due, or the date when a group of underlying insurance contracts becomes onerous.

A group of reinsurance contracts held is recognised either at the beginning of the coverage period of the group of reinsurance contracts held, or as of the date when an onerous group of underlying insurance contracts is recognised.

Solvency II requires initial recognition at the date the (re)insurer becomes a party to the contract or the date the (re)insurance contract begins, whichever date occurs earlier.

Deposits retained, as well as receivables from, and liabilities to, reinsurers and primary insurers, are presented separately under Solvency II, whereas under IFRS 17, they are included in the insurance items for the groups and portfolios set up.

Measurement of insurance contracts

Contract boundary

Cash flows are within the boundary of an insurance contract under IFRS if they arise from substantive rights and obligations that exist during the reporting period in which the entity can compel the policyholder to pay the premiums or in which the entity has a substantive obligation to provide the policyholder with services.

The obligation to provide services ends when the entity can reassess the risks and can set a new premium that reflects those risks.

As a result, differences in the actuarial approach between IFRS 17 and Solvency II relate primarily to initial recognition, but can also affect the end of the contract for some insurance products.

Cash flows

Under IFRS 17, measuring groups of insurance contracts is based on a current estimate of all cash flows required to fulfil the contract within the contract boundary. Cash flows that need to be taken into account include premium payments, expenses for claims and benefits, acquisition and administration costs, and loss adjustment expenses.

Whereas under IFRS 17, deposits retained, as well as receivables from, and liabilities to, reinsurers and primary insurers, are not presented separately and are included in the cash flows, these are presented separately under Solvency II.

Additional differences may occur resulting from the inclusion of general overhead expenses in Solvency II technical provisions.

Discounting
Under Solvency II, we use the basic risk-free interest rates, depending on currency and maturity, when discounting technical provisions (EIOPA interest rate). As at the reporting date, we do not make use of any transitional measures regarding the relevant risk-free interest-rate term structure. Six life and health primary insurance companies make use of a volatility adjustment pursuant to Article 77(d) of Directive 2009/138/EC.

Under IFRS 17, discounting under the general measurement model to calculate technical provisions is also based on the EIOPA interest rates. At each reporting date, the fulfilment cash flows for the LRC and LIC are remeasured using the current discount rates. Most of the companies in the ERGO Life and Health segment use yield curves with an illiquidity premium in the order of magnitude of the Solvency II volatility adjustment.

This means that there are only minor differences regarding discounting, as the scope of the volatility adjustment applies largely to those companies that apply the illiquidity premium under IFRS 17.

Risk adjustment for non-financial risk
We base the risk adjustment for non-financial risk under IFRS 17 on the risk capital requirements of our internal risk model. We apply a cost-of-capital method with a cost-of-capital rate of 6% at present, as for the risk margin under Solvency II.

Unlike in the calculation of the risk margin, the Group-wide risk diversification is included in the calculation of the risk adjustment for non-financial risk. It should also be noted that neither operational nor credit risks are taken into account in the calculation of the risk adjustment for non-financial risk under IFRS 17.

There are also differences in the classification of insurance contracts and financial instruments compared with Solvency II.

Contractual service margin
For groups of insurance contracts classified as profitable at initial recognition, a contractual service margin which represents the unearned profit is recognised under IFRS 17 in the GMM and VFA. The latter is recognised over time as insurance contract services are provided over the coverage period.

By contrast, for groups of insurance contracts where the sum of the present value of future cash outflows and the risk adjustment for non-financial risk exceeds the present value of expected future cash inflows, a loss component that is part of the LRC and reflects the expected loss on initial recognition is recognised directly as an expense.

The carrying amount of the LRC is – at the end of each reporting period – the sum of the present value of expected future net cash flows, the risk adjustment for non-financial risk and the contractual service margin.

For subsequent measurement of the LRC, the discounted cash flows and risk adjustment for non-financial risk are remeasured using updated assumptions and inputs. The contractual service margin is adjusted to reflect changes in non-financial assumptions (for example assumptions regarding biometric risks or claims development) of future coverage and new business margins, among other things, and is amortised as insurance contract services are provided over time.

In Solvency II, the expected profit and expected loss from the discounted cash flows and the risk margin are recognised directly in the excess of assets over liabilities.

Short-term contracts
IFRS 17 provides for use of the simplified measurement model PAA to measure short-term insurance contracts. We use this in parts of the property-casualty business.

First, the carrying amount is either increased with no impact on profit or loss by adding the further premium payments received, or decreased by subtracting directly attributable acquisition costs paid – provided that we do not make use of the option to recognise the acquisition costs as an expense. The LRC is reduced by the amount of insurance revenue earned as insurance contract services are provided. We earn the insurance revenue by spreading the expected total premium for the coverage period within the contract boundaries over the accounting periods in a risk-commensurate manner.

Under Solvency II, there is a similar concept for the premium provision in the property-casualty business. A risk margin, however, is determined for the premium provision, whereas the IFRS LRC in the PAA is not risk-adjusted.

Transitional deduction on technical provisions
Four insurance undertakings apply a transitional deduction on technical provisions. There is no corresponding deduction under IFRS.

Quantification of the main differences between IFRS and Solvency II technical provisions

In addition to the qualitative assessment of differences between IFRS and Solvency II, the table "Reconciliation of technical provisions, IFRS vs. Solvency II" provides a quantitative overview. The starting point is IFRS technical provisions.

The item "Reclassification of balance sheet items" includes, as a key component, surplus funds recognised as a component of own funds under Solvency II, as well as receivables and liabilities and also general costs not accounted for as insurance under Solvency II/IFRS.

The adjustment for quantified methodological differences contains, as substantial contributions, methodological differences in contract boundaries and resulting from the modelling of short-tail business pursuant to the IFRS premium allocation approach. In addition, under IFRS, deposits retained are not presented as a separate item as in the Solvency II balance sheet, but rather as part of the technical provisions.

Differences in scope and other differences result, among other things, from contracts that do not transfer significant insurance risk and that are recognised under IFRS 9 as financial instruments outside of technical provisions. In addition, some insurance companies, e.g. the corporate pension scheme ERGO-Pensionskasse, are not covered by the Solvency II rules.

The risk adjustment for non-financial risk under IFRS is lower than the risk margin under Solvency II. This is mainly due to the fact that – unlike in the calculation of the risk margin – the Group-wide risk diversification is included in the calculation of the risk adjustment for non-financial risk. It should also be noted that neither operational nor credit risks are taken into account in the calculation of the risk adjustment for non-financial risk under IFRS.

The contractual service margin for unearned profit is part of the technical provisions under IFRS, unlike under Solvency II.

Reconciliation of technical provisions, IFRS vs. Solvency II[1]

31.12.2023	Reinsurance		ERGO			
€m	Life and health	Property-casualty	Life and Health Germany	Property-casualty Germany	International	Total
IFRS technical provisions	**10,910**	**61,589**	**112,808**	**6,328**	**15,325**	**206,960**
SII best estimate vs. IFRS present value of expected net cash flows	9,720	8,620	−7,536	−392	822	11,234
Reclassification of balance sheet items	3,106	8,288	1,110	−56	519	12,967
Quantified methodological differences	12,686	−187	−4,160	−110	−29	8,201
Differences in scope and other differences	−6,073	519	−4,486	−227	333	−9,934
SII risk margin vs. IFRS risk adjustment	3,555	1,629	1,922	109	660	7,875
IFRS contractual service margin	−12,530	−88	−9,569	−385	−2,868	−25,439
SII technical provisions without transitionals	**11,654**	**71,751**	**97,625**	**5,660**	**13,940**	**200,630**
Impact of transitionals	0	0	−6,229	0	−413	−6,642
SII technical provisions with transitionals	**11,654**	**71,751**	**91,396**	**5,660**	**13,527**	**193,988**

1 Solvency II figures on technical provisions include long-term guarantee measures.

Reinsurance recoverables under Solvency II

General requirements for calculation

The calculation of amounts recoverable from reinsurance contracts and special purpose vehicles by insurance and reinsurance undertakings complies with the rules relating to technical provisions. The amounts recoverable from reinsurance contracts and special purpose vehicles are calculated consistently within the boundaries of the insurance or reinsurance contracts to which they relate.

Under Solvency II, separate calculations are carried out for

- the amounts recoverable from special purpose vehicles,
- the amounts recoverable from finite reinsurance contracts, and
- the amounts recoverable from other reinsurance contracts.

Furthermore, a separate calculation is carried out for the amounts recoverable from reinsurance contracts and special purpose vehicles for non-life insurance obligations regarding premium provisions and provisions for claims outstanding.

When calculating amounts recoverable from reinsurance contracts and special purpose vehicles, the time difference between recoverables and direct payments is taken into account.

Where cash flows from the special purpose vehicles to the insurance or reinsurance undertaking do not directly depend on the claims against the insurance or reinsurance undertaking ceding risks, the amounts recoverable from those special purpose vehicles for future claims are only taken into account to the extent that it can be verified in a prudent, reliable and objective manner that the structural mismatch between claims and amounts recoverable is not material.

For the purpose of calculating the amounts recoverable from reinsurance contracts and special purpose vehicles, cash flows only include payments in relation to compensation of insurance events and unsettled insurance claims. Payments in relation to other events or settled insurance claims are accounted for outside the amounts recoverable from reinsurance contracts and special purpose vehicles and other elements of the technical provisions. Where a deposit has been made for the cash flows, the amounts recoverable are adjusted accordingly to avoid a double counting of the assets and liabilities relating to the deposit.

The cash flows relating to provisions for claims outstanding include the compensation payments relating to the claims accounted for in the gross provisions for claims outstanding of the insurance or reinsurance undertaking ceding risks. The cash flows relating to premium provisions include all other payments.

Counterparty default adjustment

The result from the calculation of the best estimate is adjusted to take account of expected losses due to default of the counterparty. That adjustment is based on an assessment of the probability of default of the counterparty and the average loss resulting therefrom.

The adjustment to take account of expected losses due to default of a counterparty is calculated as the expected present value of the change in cash flows underlying the amounts recoverable from that counterparty that would arise if the counterparty defaulted – including as a result of insolvency or dispute – at a certain point in time. For that purpose, the change in cash flows does not take into account the effect of any risk-mitigating technique that reduces the credit risk of the counterparty, other than risk-mitigating techniques based on collateral holdings. The risk-mitigating techniques that are not taken into account are recognised separately, without increasing the amounts recoverable from reinsurance contracts and special purpose vehicles.

The calculation takes into account possible default events over the lifetime of the reinsurance contract or arrangement with the special purpose vehicle, and whether and how the probability of default varies over time. It is carried out separately by each counterparty and for each line of business. In non-life insurance, it is also carried out separately for premium provisions and provisions for claims outstanding.

The valuation of amounts recoverable from reinsurance under IFRS 17 largely corresponds to the measurement of reinsurance contracts held.

D3 Other liabilities

According to Article 75(1)(b) of Directive 2009/138/EC, all other liabilities are to be valued at fair value in the solvency balance sheet. When valuing liabilities, no adjustment is made to take account of the own credit standing of the insurance or reinsurance undertaking.

Under IFRS 9, the financial liabilities are measured either at amortised cost or at fair value through profit or loss. Financial liabilities are assigned to the latter category if they are held for trading or if the fair value options was exercised upon initial recognition. Details on the categories to which financial liabilities are allocated at Munich Re can be found under “Financial liabilities including derivatives and debts owed to credit institutions” in this section. As the valuation basis for Solvency II and IFRS is different, we explain the differences in greater detail for each of the liability items mentioned below. Where the differences between the fair values in the solvency balance sheet and the IFRS values are immaterial, we use the latter to measure other liabilities, as explained in more detail below.

In addition to the differences in valuation, the structure of the solvency balance sheet also differs from that of the IFRS balance sheet. Therefore, the balance sheet items are not directly comparable. Where such differences in allocation exist, they are explained for the individual items. Where it was possible to reclassify liabilities as per IFRS in order to comply with the structure prescribed for the solvency balance sheet, we made this reclassification.

Contingent liabilities

In the solvency balance sheet, contingent liabilities are to be recognised as a liability if they are material, i.e. if information about the current or potential amount or nature of the liability could influence the decision-making or judgement of the intended user of that information. As a further precondition for recognition, an outflow of resources must be more than a remote possibility.

We measure such contingent liabilities based on the expected present value of future cash flows that would have to be paid to a qualified third party to assume the financial risks involved in the liability. At Munich Re, valuation is made on a market-consistent basis in accordance with CDS spreads observable in the capital markets. It is assumed that the (present) value of a contingent liability is the same as the present value of the (probability-weighted) CDS premium payable in order to hedge against the financial risks arising from the contingent liability. Contingent liabilities that do not meet the recognition criteria are not recognised.

Under IFRS, contingent liabilities are generally not recognised if it is deemed unlikely that an outflow of resources will occur in connection with a present obligation, it is not possible to make a sufficiently reliable estimate of the amount of the obligation or there is only a potential obligation. With the entry into force of IFRS 9, loan commitments that were previously accounted for as contingent liabilities in accordance with IAS 37 are now classified as “at fair value through profit or loss”, provided the financial instruments arising from these loan commitments added later are accounted for at fair value.

Other liabilities

€m	Solvency II value	Statutory accounts value
Contingent liabilities	22	0
Provisions other than technical provisions	1,180	1,249
Pension benefit obligations	1,500	1,517
Deposits from reinsurers	1,323	0
Deferred tax liabilities	7,993	2,241
Derivatives	2,446	3,828
Debts owed to credit institutions	550	912
Financial liabilities other than debts owed to credit institutions	2,558	266
Insurance & intermediaries payables	9,278	0
Reinsurance payables	633	0
Payables (trade, not insurance)	4,813	7,201
Subordinated liabilities	4,852	4,713
Subordinated liabilities not in BOF	539	0
Subordinated liabilities in BOF	4,313	4,713
Any other liabilities, not elsewhere shown	141	7,504
Other liabilities total	**37,287**	**29,432**

Provisions other than technical provisions

Both in the solvency balance sheet and under IFRS, our valuation of other provisions is based on a best estimate of the amount that would be required to settle the liabilities as at the balance sheet date, i.e. the amount we would reasonably have to pay to satisfy the liabilities or transfer them to a third party as at the balance sheet date. If there is a range of possible estimates having an equal degree of probability, the midpoint of the range is used. If the interest-rate effect is material, we value the provision at the present value of the expected expenditure. If it is immaterial, we disregard it.

Pension benefit obligations

The following explanations do not relate exclusively to pension benefit obligations, but also take into account other material employee benefits.

Under Solvency II, we measure obligations for employee benefits in accordance with IAS 19. According to IAS 19, there are two different types of pension obligations: defined contribution plans and defined benefit plans.

Under defined contribution plans, the undertakings pay fixed contributions to an insurer or a pension fund. This covers the undertakings' obligations in full. Therefore, under both IFRS and Solvency II, a defined contribution plan is not recognised as an obligation in the balance sheet. In 2023, the contributions paid to defined contribution plans totalled €107m.

Under defined benefit plans, the staff member is promised a particular level of retirement benefit either by the undertakings or by a pension fund. The undertakings' contributions needed to finance this are not fixed in advance. If pension obligations are covered by assets held by a legally separate entity (e.g. a fund or a contractual trust arrangement in the form of a two-way trust) – assets that may only be used to cover the pension commitments given and are not accessible to creditors – the pension obligations are shown less the amount of these plan assets. If the fair value of the assets exceeds the related outsourced pension commitments, this reimbursement right must be recognised and is presented under "Other receivables".

Actuarial gains or losses from obligations for employee benefits and plan assets result from the deviation of actual risk experience from estimated risk experience. Since under IFRS, Munich Re recognises actuarial gains and losses directly in the period in which they occur, there is no difference to Solvency II.

In accordance with the definitions in IAS 19, the obligations for employee benefits recognised in the balance sheet break down as follows:

Major benefits for employees

€m	Solvency II value
Short-term obligations (provisions for holidays and overtime, bonuses)[1]	409
Defined benefit plans (including medical cover)[2]	1,517
Other long-term benefits (semi-retirement and early retirement, provisions for anniversary benefits, multi-year performance)[3]	339
Benefits on termination of employment contract (semi-retirement, severance payments)	14

1 Part of SII balance sheet item "Payables (trade, not insurance)".
2 Net amount of pension obligations.
3 Part of SII balance sheet item "Provisions other than technical provisions".

Munich Re undertakings generally give commitments to their staff in the form of defined contribution plans or defined benefit plans (within the meaning of IAS 19). The type and the amount of the pension obligation are determined by the conditions of the respective pension plan.

The most important plans are the following:

The pension obligations of Munich Reinsurance Company include disability and old-age pensions, and pensions for surviving dependants. The amount of the pensions generally depends on salary and length of service. The defined benefits granted up to 31 December 2007 are financed through a fund. New members on or after 1 January 2008 receive pension commitments in the form of defined contribution plans financed by means of insurance contracts securing the obligations under pension schemes. The fund and insurance contracts have been grouped in a contractual trust arrangement (CTA).

The pension obligations of the ERGO Group include disability and old-age pensions, and pensions for surviving dependants. The amount of the pensions generally depends on salary and length of service. The commitments are generally funded through pension provisions, although in the case of ERGO significant portions have been funded through a pension fund since 1 April 2022. New members receive pension commitments in the form of defined contribution plans financed by means of intra-Group insurance contracts securing the obligations under pension schemes. There are also medical-care benefit obligations.

The pension obligations of Munich Reinsurance America, Inc. include pensions for employees and surviving dependants. The amount of the pensions generally depends on includable compensation and length of service. The plan is financed through a fund and pension provisions. The plan was closed to new members effective 1 January 2006, and to all remaining members effective 31 December 2011. With

effect from 1 January 2012, all members now receive pension commitments in the form of defined contribution plans. There are also retiree medical-care benefit obligations.

Under Solvency II, pension obligations are recognised in accordance with IAS 19 Employee Benefits, using the projected unit credit method. The calculation includes not only the pension entitlements and current pensions known at the balance sheet date, but also their expected future development. The assumptions for the future development are determined on the basis of the circumstances in the individual countries.

The discount rate applied to the pension obligations is based on the yields for long-term, high-quality corporate bonds

Pension obligations are measured using assumptions about future developments. The consolidated companies used the following actuarial assumptions (weighted-average values):

Actuarial assumptions

%	2023	Prev. year
Discount rate	3.5	3.8
Future increases in entitlement/salary	1.7	1.8
Future pension increases	1.4	1.4
Medical cost trend rate	3.5	3.5

Munich Re uses generally recognised biometric actuarial assumptions, adjusted as a rule to take account of company-specific circumstances.

Breakdown of the fair value of plan assets for defined benefit plans

%	31.12.2023	Prev. year
Quoted market price in an active market		
Fixed-interest securities	28	29
Non-fixed-interest securities		
Equities	2	2
Investment funds	14	15
Other	0	0
	16	**17**
Others	0	0
No quoted market price in an active market		
Cash and cash equivalents	0	0
Real estate	1	1
Fixed-interest securities	0	0
Non-fixed-interest securities		
Equities	0	0
Investment funds	2	3
Other	0	0
	2	**3**
Insurance contracts	52	49
Others	1	1

Deposits from reinsurers

Deposits from reinsurers are collateral for technical provisions covering business ceded to reinsurers and retrocessionaires. As a rule, the changes in these deposits derive from changes in the relevant technical provisions covering ceded business. Deposits from reinsurers thus do not have a fixed maturity date, their release generally being dependent on run-off of the corresponding provisions.

In the solvency balance sheet, we measure deposits from reinsurers at fair value. Following the application of IFRS 17, deposits retained are no longer presented separately in the consolidated balance sheet, but are included in the insurance items.

Deferred tax liabilities

Under Solvency II, deferred taxes are determined pursuant to Article 15 in conjunction with Article 9 of Delegated Regulation (EU) 2015/35.

In accordance with Article 9(1) and (2) of the Delegated Regulation, assets and liabilities must be recognised and valued in accordance with IFRS requirements, provided that these are consistent with Article 75 of Directive 2009/138/EC. Therefore, under Solvency II, deferred tax liabilities are recognised and valued in accordance with IAS 12.

Deferred taxes are calculated on the basis of the difference between the values ascribed to liabilities recognised and valued in accordance with Article 75 of Directive 2009/138/EC, and the values ascribed to liabilities recognised and valued for tax purposes. Deferred tax liabilities are recognised in cases where asset items have to be valued higher, or liability items lower, in the solvency balance sheet than in the tax accounts of the Group company concerned, and these differences will be eliminated at a later date with a corresponding effect on taxable income (temporary differences).

Further information on the recognition of deferred taxes can be found in section D 1 "Deferred tax assets".

Financial liabilities including derivatives and debts owed to credit institutions

In the solvency balance sheet, financial liabilities including derivatives and debts owed to credit institutions are to be measured at fair value. After initial recognition, no adjustments are made to take account of the own credit standing of the insurance or reinsurance undertaking. Thus, financial liabilities are measured at fair value at the reporting date without taking account of any improvement or deterioration in Munich Re's own credit risk. If the impact of such an improvement or deterioration is immaterial, we do not adjust the fair values accordingly.

For Munich Re bonds and derivatives traded on a stock exchange, the fair values are the stock-market prices, if available. For the other financial liabilities, we determine the fair values using net present-value methods with observable market inputs. Further details are set out below:

- With regard to the valuation models used for determining the fair value of derivatives, reference is made to the table "Valuation techniques for assets and liabilities" and the corresponding explanations given in section D 1 "Determining fair values".
- For bonds that we have issued, we use the market prices provided by external providers for the corresponding assets to determine fair value.
- The fair values of our debts owed to credit institutions are determined using the present-value method, in part exclusively using observable market inputs, and partly also taking into account non-observable inputs.
- The fair value of insurance contracts with non-significant risk transfer, which are consequently recognised as financial instruments, is primarily based on biometric and lapse rates, and on historical event data.

For subsequent measurement, IFRS 9 specifies that financial liabilities must be classified as "measured at amortised cost" or "measured at fair value through profit or loss".

Most of our financial liabilities are measured at amortised cost using the effective interest method. These primarily include subordinated liabilities as well as bonds and liabilities to credit institutions.

The category of financial liabilities at fair value through profit or loss at Munich Re includes predominantly derivative liabilities. Due to fair value measurement, no rules exist under Solvency II regarding the unbundling of embedded derivatives or hedge accounting.

In addition, we have made loan commitments to a small extent. Since the financial instruments arising from these loan commitments are subsequently measured at fair value, we recognise the loan commitments at fair value through profit or loss.

Moreover, most financial liabilities resulting from insurance contracts that do not transfer significant insurance risk are managed on a fair value basis. Changes in fair value are considered when evaluating the performance of these contracts, which then serves as the basis for reporting to management. For these contracts, we exercise the option to designate them as measured at fair value through profit or loss. Insurance-related liabilities, where they are not exclusively derivative liabilities, are to be measured and reported as insurance contracts as part of the technical provisions for solvency purposes. More details on fair value measurement, the different measurement hierarchy levels and the models used for determining fair values can be found in section D 1 under "Determining fair values".

Insurance and intermediaries payables

In the solvency balance sheet, insurance and intermediaries payables must be recognised at fair value; Following the application of IFRS 17, insurance and intermediaries payables are also no longer presented separately in the IFRS consolidated balance sheet, but are included in the insurance items.

Reinsurance payables

In the solvency balance sheet, reinsurance payables must be recognised at fair value; Following the application of IFRS 17, reinsurance payables are also no longer presented separately in the IFRS consolidated balance sheet, but are included in the insurance items.

Payables (trade, not insurance)

In the solvency balance sheet, the item "Payables (trade, not insurance)" covers in particular payables from dividends, payables from profit pooling or transfer agreements, payables from taxes, and other payables. These payables are measured at fair value at the reporting date without taking account of any improvement or deterioration in the undertaking's own credit risk. However, for reasons of simplification, we measure payables from dividends and payables from profit pooling or transfer agreements at their IFRS carrying amount, i.e. at amortised cost.

Payables from taxes and other payables are discounted, taking into account the actual risk-free interest rates and relevant interest-rate spreads.

Both reinsurance payables and insurance and intermediaries payables are included in the measurement models for the insurance items under IFRS via the cash flows, but are shown as separate items in the solvency balance sheet.

Under Solvency II, all insurance contracts are recognised under technical provisions irrespective of the level of insurance risk involved in the individual contracts. Therefore, payables resulting from insurance or reinsurance contracts with non-significant risk transfer are – notwithstanding IFRS – not reported as insurance-related liabilities, but as part of the technical provisions.

Subordinated liabilities

Subordinated liabilities are liabilities which, in the event of liquidation or insolvency, are only satisfied after the claims of other creditors.

They are recognised at fair value in the solvency balance sheet. For Munich Re subordinated bonds, we take the stock market prices as fair values. Credit spreads relevant for Munich Re are obtained from an external provider and are based on CDS. For the purposes of calculating the Solvency II value, the quoted stock-market prices are adjusted to reflect the effect of changes in our own credit risk since the date of issuance.

For the other subordinated liabilities, we determine the fair values using net present-value methods with observable market inputs. Whether or not subordinated liabilities are eligible for inclusion in own funds is of no importance for valuation purposes.

Under IFRS, we value all subordinated liabilities at amortised cost using the effective interest method.

Any other liabilities, not elsewhere shown

This item includes liabilities from prepayments received prior to the reporting date that are not earned or due until after the balance sheet date. Liabilities for these prepayments are recognised at the reporting date to take into account that the prepayments received relate to outstanding obligations of the undertaking. Thus, recognition is mandatory to represent the correct amount of own funds as at the reporting date.

In our financial reporting we show derivatives (€1,379m) as a separate sub-item of liabilities.

Any other liabilities generally have to be measured at fair value in the solvency balance sheet. Where the discounting effect is immaterial, we do not discount the liabilities concerned.

D4 Alternative methods for valuation

Detailed information on determining the fair values of the individual assets and other liabilities can be found in section D 1 under “Determining fair values”. The valuation techniques described therein are regularly tested by our asset managers as regards their suitability for valuation of the assets and liabilities concerned, and adapted if necessary.

D5 Any other information

We do not know of any other material information not already covered in the other sections of Part D.

Capital management

E Capital management

E1 Own funds

Aims, policies and processes to manage own funds

Optimising our capital structure is one of the main objectives of our active capital management system, with which we also strive to ensure that Munich Re's capital satisfies all applicable standards. In addition to the capital requirements determined using our internal risk model, more far-reaching requirements by regulatory authorities, rating agencies and our key insurance markets must be met. We aim to ensure that our financial strength is such that it enables us to take advantage of profitable opportunities for growth, is not significantly affected by normal fluctuations in capital market conditions, and remains at a reasonable level even in the wake of major loss events or substantial falls in the stock markets.

At the same time, we also define an appropriate level of Group own funds as one which does not lastingly exceed that which is required. Excess capital is returned to our shareholders via dividends and share buy-backs. In practice, capital repatriation comes up against limits because the German Commercial Code (HGB) obligates our parent, Munich Reinsurance Company, to conduct prudent accounting – with regard to the claims equalisation provision, for instance. This restricts the revenue reserves and profit distribution possibilities, but stabilises results in years with high claims expenditure.

Capital management planning takes place as part of our annual medium-range business planning. Relevant capital management key performance indicators are regularly checked as part of the risk management system. There were no significant changes during the reporting period. Munich Re will pay a higher dividend of €15.00 per share for the past financial year, provided that the Annual General Meeting approves. Munich Re's shares thus remain a high-return investment.

Differences between IFRS equity and Solvency II excess of assets over liabilities

The main differences between the IFRS equity of Munich Re and the excess of assets over liabilities in the solvency balance sheet are due to the differing rules for recognition and valuation.

The Solvency II methodology makes more extensive use of market values in the balance sheet than IFRS. For example, investments are recognised in the solvency balance sheet at market value. Under IFRS, this applies to the majority of our investments, which – depending on whether or not they pass the SPPI test – are measured either at fair value through other comprehensive income or at fair value through profit or loss. By contrast, goodwill and other intangible assets are valued at zero under Solvency II. The difference between the valuation methodology for underwriting items in accordance with Solvency II and the valuation in our IFRS consolidated financial statements is described in section D 2 "Deferred tax liabilities". The value of the technical provisions in accordance with Solvency II corresponds to the current amount that insurance and reinsurance undertakings would have to pay if they were to transfer their insurance and reinsurance liabilities immediately to another insurance or reinsurance undertaking.

The quantitative assessment of the differences can be seen in the table below.

Excess of assets over liabilities (Solvency II) in comparison with IFRS equity

€m	Solvency II	IFRS[1]	Difference
Goodwill and other intangible assets	0	4,084	–4,084
Surplus funds	0	–2,860	2,860
Investments, including cash	231,462	232,337	–875
Subordinated liabilities[2]	–4,852	–4,713	–139
Deferred tax (net)	–7,705	501	–8,206
Other assets and liabilities	–1,174	945	–2,119
Underwriting assets and liabilities, including deposits retained on assumed reinsurance, and accounts receivable and payable	–164,874	–200,523	35,649
Excess of assets over liabilities	**52,857**	**29,772**	**23,086**

1 Some IFRS figures have been reclassified to ensure comparability with Solvency II.
2 Including accrued interest.

Consolidation methods for own funds

Group solvency is calculated on the basis of the consolidated accounts (Method 1; namely as set out in Article 230 of Directive 2009/138/EC).

The table "Consolidation method for Group own funds" shows how consolidated data is calculated for the respective related undertakings in the Group.

Consolidation method for Group own funds

Type of undertaking	SII DR (EU) 2015/35/ Article	Determination of consolidated data (method 1)
Dominant influence		
Insurance and reinsurance undertakings, insurance holding companies and mixed financial holding companies	335 (1) (a)	Full consolidation
Ancillary services undertakings	335 (1) (a)	Full consolidation
Institutions for occupational retirement provision	335 (1) (e)	Proportional share of the own funds calculated in accordance with the relevant sectoral rules
Credit institutions, investment firms and financial institutions	335 (1) (e)	Proportional share of the own funds calculated in accordance with the relevant sectoral rules
Alternative investment fund managers	335 (1) (e)	Proportional share of the own funds calculated in accordance with the relevant sectoral rules
UCITS management companies	335 (1) (e)	Proportional share of the own funds calculated in accordance with the relevant sectoral rules
Special purpose vehicles meeting the requirements of Article 211	335 (1) (b) 329 (3)	Not taken into account
Other special purpose vehicles	335 (1) (b)	Full consolidation
Non-regulated undertakings that conduct financial transactions	335 (1) (e)	Proportional share of the own funds calculated in accordance with the relevant sectoral rules
Other undertakings	335 (1) (f) 13	Other methods*
Undertakings for collective investment in transferable securities (UCITS/AIF)	335 (1) (f) 13	Other methods*
Significant influence/joint venture		
Insurance and reinsurance undertakings, insurance holding companies and mixed financial holding companies	335 (1) (c), (d)	Proportional share of the own funds calculated in accordance with the relevant sectorial rules
Ancillary services undertakings	335 (1) (c), (f)	Proportional consolidation and/or other methods*
Institutions for occupational retirement provision	335 (1) (e)	Proportional share of the own funds calculated in accordance with the relevant sectoral rules
Credit institutions, investment firms and financial institutions	335 (1) (e)	Proportional share of the own funds calculated in accordance with the relevant sectoral rules
Alternative investment fund managers	335 (1) (e)	Proportional share of the own funds calculated in accordance with the relevant sectoral rules
UCITS management companies	335 (1) (e)	Proportional share of the own funds calculated in accordance with the relevant sectoral rules
Non-regulated undertakings that conduct financial transactions	335 (1) (e)	Proportional share of the own funds calculated in accordance with the relevant sectoral rules
Other undertakings	335 (1) (f) 13	Other methods*
Undertakings for collective investment in transferable securities (UCITS/AIF)	335 (1) (f) 13	Other methods*

* Other methods – valuation hierarchy in accordance with Article 13 of Delegated Regulation (EU) 2015/35.

Composition of own funds

Eligible own funds

The starting point for the calculation of the eligible own funds is the excess of assets over liabilities.

Then the basic own funds are calculated by adjusting the excess of assets over liabilities according to Solvency II for the factors relevant to Munich Re.

Subordinated liabilities should be added provided that they are available at all times to cover losses on a going-concern basis. Munich Re's subordinated liabilities meet this requirement. Share buy-backs that have been announced but not completed as at the reporting date, own shares and foreseeable dividends must be deducted from own funds. Certain own-fund items belonging to Munich Re subsidiaries are subject to further restrictions with regard to their transferability and fungibility at Group level. These own-fund items must also be deducted.

In addition, the carrying amounts of shareholdings in companies in other financial sectors such as credit institutions and investment firms must be deducted. Finally, capital calculated in accordance with sectoral regulations that is allocated to other financial sectors is included to obtain the Group's eligible own funds.

For Solvency II, own funds are divided into four levels of quality – known as tiers – depending on their ability to absorb losses. Tier 1 unrestricted is the highest quality, and Tier 3 is the lowest.

The division into tiers meets the requirements of the Solvency II Directive (Articles 93 to 96), the Delegated Regulation (Articles 69 to 78) and EIOPA-BoS-14/168 – Guidelines on classification of own funds. The following own-fund items are classified as Tier 1 unrestricted: share capital, share premium account related to ordinary share capital, surplus funds and the reconciliation reserve. Classification of the surplus funds as Tier 1 unrestricted takes into consideration the national legal provisions of the respective units. We have classified the subordinated liabilities essentially as Tier 2 owing to the underlying contractual terms and conditions. An amount equal to the value of net deferred tax assets is classified as Tier 3 own funds.

The tables "Own funds" contain information about the structure, amount and tier allocation of eligible own funds as at 31 December 2023 and as at 31 December 2022. They also show the deductions of non-available own funds as a result of restrictions on transferability and fungibility. At Munich Re, these are essentially surplus funds, subordinated liabilities, minority interests and net deferred tax assets.

As can be seen in the first table, during the reporting period there were no significant restrictions on the fungibility and transferability of eligible own funds to meet the Group's solvency capital requirement. Restrictions are considered significant if an omission or misstatement of related information could influence the decision-making process or judgement of the users. Furthermore, it is clear that there is no effect due to limits in respect of eligible own funds classified as Tier 2, Tier 3, or Tier 1 unrestricted. Allocation of the own-fund items to the individual tiers has remained unchanged compared with the previous year.

Own funds

€m	Total	Tier 1 unrestricted	Tier 1 restricted	Tier 2	Tier 3
					31.12.2023
Basic own funds before deduction					
Ordinary share capital (gross of own shares)	588	588		0	
Share premium account related to ordinary share capital	6,845	6,845		0	
Surplus funds	2,860	2,860			
Non-available surplus funds to be deducted at group level	1,195	1,195			
Reconciliation reserve	39,033	39,033			
Subordinated liabilities	4,313		13	4,246	55
Non-available subordinated liabilities to be deducted at group level	55		0	0	55
An amount equal to the value of net deferred tax assets	231	0			231
The amount equal to the value of net deferred tax assets not available to be deducted at the group level	123				123
Minority interests	239	239	0	0	0
Non-available minority interests to be deducted at group level	202	202	0	0	0
Own funds from the financial statements that should not be represented by the reconciliation reserve and do not meet the criteria to be classified as Solvency II own funds					
Own funds from the financial statements that should not be represented by the reconciliation reserve and do not meet the criteria to be classified as Solvency II own funds	1				
Deductions					
Deductions for participations in other financial undertakings, including non-regulated undertakings carrying out financial activities	265	265	0	0	0
Total of non-available own fund items to be deducted	1,575	1,397	0	0	178
Total deductions	**1,840**	**1,662**	**0**	**0**	**178**
Total basic own funds after deductions	**52,267**	**47,901**	**13**	**4,246**	**108**
Own funds of other financial sectors					
Credit institutions, investment firms, financial institutions, alternative investment fund managers, UCITS management companies - total	54	54	0	0	
Institutions for occupational retirement provision	209	209	0	0	0
Non regulated undertakings carrying out financial activities	3	3	0	0	0
Total own funds of other financial sectors	265	265	0	0	0
Total available own funds to meet the consolidated part of the group SCR (excluding own funds from other financial sector and from the undertakings included via D&A)	52,267	47,901	13	4,246	108
Total available own funds to meet the minimum consolidated group SCR	52,159	47,901	13	4,246	
Total eligible own funds to meet the consolidated part of the group SCR (excluding own funds from other financial sector and from the undertakings included via D&A)	52,267	47,901	13	4,246	108
Total eligible own funds to meet the minimum consolidated group SCR	50,765	47,901	13	2,851	
Minimum consolidated Group SCR	**14,255**				
Ratio of eligible own funds to minimum consolidated Group SCR	**356%**				
Total eligible own funds to meet the total group SCR (including own funds from other financial sector and from the undertakings included via D&A)	**52,533**	**48,167**	**13**	**4,246**	**108**
Total Group SCR	**17,974**				
Ratio of total eligible own funds to total group SCR - ratio including other financial sectors and the undertakings included via D&A	**292%**				

Own funds

					31.12.2022
€m	Total	Tier 1 unrestricted	Tier 1 restricted	Tier 2	Tier 3
Basic own funds before deduction					
Ordinary share capital (gross of own shares)	588	588		0	
Share premium account related to ordinary share capital	6,845	6,845		0	
Surplus funds	2,539	2,539			
Non-available surplus funds to be deducted at group level	630	630			
Reconciliation reserve	37,423	37,423			
Subordinated liabilities	4,113		13	4,045	55
Non-available subordinated liabilities to be deducted at group level	55		0	0	55
An amount equal to the value of net deferred tax assets	413				413
The amount equal to the value of net deferred tax assets not available to be deducted at the group level	181				181
Minority interests	203	203	0	0	0
Non-available minority interests to be deducted at group level	177	177	0	0	0
Own funds from the financial statements that should not be represented by the reconciliation reserve and do not meet the criteria to be classified as Solvency II own funds					
Own funds from the financial statements that should not be represented by the reconciliation reserve and do not meet the criteria to be classified as Solvency II own funds	0				
Deductions					
Deductions for participations in other financial undertakings, including non-regulated undertakings carrying out financial activities	333	333	0	0	0
Total of non-available own fund items to be deducted	1,043	807	0	0	236
Total deductions	**1,377**	**1,140**	**0**	**0**	**236**
Total basic own funds after deductions	**50,746**	**46,457**	**13**	**4,045**	**232**
Own funds of other financial sectors					
Credit institutions, investment firms, financial institutions, alternative investment fund managers, UCITS management companies - total	122	122	0	0	
Institutions for occupational retirement provision	210	210	0	0	0
Non regulated undertakings carrying out financial activities	2	2	0	0	0
Total own funds of other financial sectors	333	333	0	0	0
Total available own funds to meet the consolidated part of the group SCR (excluding own funds from other financial sector and from the undertakings included via D&A)	50,746	46,457	13	4,045	232
Total available own funds to meet the minimum consolidated group SCR	50,514	46,457	13	4,045	
Total eligible own funds to meet the consolidated part of the group SCR (excluding own funds from other financial sector and from the undertakings included via D&A)	50,746	46,457	13	4,045	232
Total eligible own funds to meet the minimum consolidated group SCR	49,238	46,457	13	2,769	
Minimum consolidated Group SCR	**13,843**				
Ratio of eligible own funds to minimum consolidated Group SCR	**356%**				
Total eligible own funds to meet the total group SCR (including own funds from other financial sector and from the undertakings included via D&A)	**51,079**	**46,790**	**13**	**4,045**	**232**
Total Group SCR	**17,693**				
Ratio of total eligible own funds to total group SCR - ratio including other financial sectors and the undertakings included via D&A	**289%**				

The solvency ratio shown of 292% (289%) includes transitional measures under Solvency II. Without transitional measures, the solvency ratio was 267% (260%) as at 31 December 2023. The dividend of €2.0bn proposed by the Board of Management for the 2023 financial year was taken into account. Purchases not yet made under the share buy-back programme for 2023/2024 at the reporting date in the amount of €0.3bn were also taken into account.

The table “Composition of reconciliation reserve and EPIFP” shows the calculation of the Group’s reconciliation reserve as at 31 December 2023 and the previous year. It also shows the expected profit included in future premiums (EPIFP) for life and non-life insurance.

The reconciliation reserve is subject to fluctuation during the year, mainly on account of the development of economic earnings and capital measures (share buy-back programmes, capital increases, dividends, etc.). These fluctuations in own funds are addressed by means of asset-liability management (ALM). ALM reflects the influence of the capital market environment on the valuation of asset and liability items in the solvency balance sheet, and hence especially the volatility of the reconciliation reserve.

Composition of reconciliation reserve and EPIFP

€m	31.12.2023	31.12.2022
Reconciliation reserve		
Excess of assets over liabilities	52,857	50,745
Own shares (held directly and indirectly)	701	0
Foreseeable dividends, distributions and charges	2,361	1,553
Other basic own fund items	10,763	10,981
Reconciliation reserve	**39,033**	**36,784**
Expected profits		
Expected profits included in future premiums (EPIFP) – Life business	18,686	18,600
Expected profits included in future premiums (EPIFP) – Non-life business	3,329	2,101
Total expected profits included in future premiums (EPIFP)	**22,015**	**20,702**

Composition of subordinated liabilities

€m	Total	Tier 1 total	Tier 1, counted under transitionals	Tier 2 total	Tier 2, counted under transitionals	Tier 3
Dated subordinated liabilities	4,301	0	0	4,246	0	55
Undated subordinated liabilities with a contractual opportunity to redeem	13	13	13	0	0	0
Total subordinated liabilities	**4,313**	**13**	**13**	**4,246**	**0**	**55**

Subordinated liabilities

Munich Re's subordinated liabilities came to €4.3bn (4.1bn) as at the reporting date. In addition to Munich Reinsurance Company, both ERGO Versicherung AG, Vienna, and HSB Group Inc., Dover, also recognised subordinated liabilities totalling €68m (68m) as at the reporting date.

The change in the subordinated liabilities was chiefly due to changes in fair value.

Subordinated liabilities subject to transitional measures[1] can be seen in the table "Composition of subordinated liabilities". Overall, two subordinated bonds of ERGO Versicherung AG, Vienna, totalling €13m are subject to transitional measures. They were issued before Solvency II came into force, and could be used as at 31 December 2015 to at least 50% to meet the available solvency margin requirements under Solvency I. They are thus classified as Tier 1 restricted.

The four (four) Munich Reinsurance Company subordinated bonds totalling €4.2bn (4.0bn) meet the criteria for Tier 2 classification under Solvency II.

In particular, the following requirements are met; that the original maturity is at least ten years and that the earliest, first contractual opportunity to redeem is five years after the date of issuance.

We refer to sections D 1 "Deferred tax assets", and D 2 "Deferred tax liabilities", in this report for information on deferred taxes in connection with own funds.

Change in own funds

During the reporting period, the eligible own funds, after adjusting the opening balance, rose by €1,572m. The main drivers are presented in the table "Change in own funds". The economic earnings led to an increase of €5,611m in eligible own funds in the reporting period, mainly driven by a strong operating result of €8,779m. On the other hand, eligible own funds were reduced above all by capital measures amounting to €3,000m (mainly the proposed dividend for the 2023 financial year and purchases not yet made under the share buy-back programme for 2023/2024), value changes of €506m attributable to reduced transitional measures, and slightly higher eligibility restrictions amounting to €532m.

Change in own funds

€m	
Eligible own funds as at 31 December 2022	**51,079**
Opening adjustments[2]	-119
Economic earnings	**5,611**
Operating impact	8,779
Market variances	-348
Other incl. tax	-2,820
Change in eligibility restrictions	-532
Other changes	-1
Capital management	-3,000
Value change due to transitionals	-506
Eligible own funds as at 31 December 2023	**52,533**

2 Changes to eligible own funds that do not represent economic value added in the period – such as mergers and acquisitions, model changes and subsequent corrections.

1 Transitional measures for own funds pursuant to Article 308b(9) and (10) of Directive 2014/51/EU dated 16 April 2014 amending Directive 2009/138/EC

E2 Solvency capital requirement and minimum capital requirement

Solvency capital requirement (SCR)

Munich Re has a comprehensive internal model that determines the capital needed to ensure that the Group is able to meet its commitments even after extreme loss events. We use the model to calculate the capital required under Solvency II (the solvency capital requirement, or SCR).

The SCR is the amount of eligible own funds that Munich Re needs to have available, with a given risk tolerance, to cover unexpected losses in the following year. It corresponds to the value at risk of the economic profit and loss distribution over a one-year time horizon with a confidence level of 99.5%, and thus equates to the economic loss for Munich Re that, given unchanged exposures, will be exceeded each year with a statistical probability of 0.5%.

As at 31 December 2023, Munich Re's SCR was €18.0bn, representing an increase of 1.6% compared to the previous year. This increase was mainly driven by extraordinarily strong growth in life reinsurance business and a moderate expansion of exposure to credit risks in reinsurance investments. Conversely, a more well-balanced risk profile resulted directly in better diversification across risk categories, which helped to reduce risk. In addition, the SCR for property-casualty reinsurance business decreased due to an expansion of external retrocession, a more well-balanced portfolio structure and the depreciation of the US dollar.

The solvency capital requirement was reduced by €4.2bn owing to the loss absorbency of deferred taxes. A considerable portion of this figure comprises deferred tax liabilities that are directly attributable to Munich Reinsurance Company. Irrespective of the fact that – in the event of losses – no taxes must be paid for the current financial year in question, we state deferred tax assets resulting from a loss only if they are not greater than the deferred tax liabilities.

Volatility adjustment was also taken into account in calculating the solvency capital requirement for the Group. In the 2023 financial year, dynamic modelling of volatility adjustments was incorporated for the German undertakings ERGO Lebensversicherung AG and Victoria Lebensversicherung AG in the fourth quarter. On the other hand and as in the previous year, static volatility adjustment (VA) was applied to the Belgian undertakings DKV Belgium S.A. and ERGO Insurance N.V., the Austrian undertaking ERGO Versicherung AG, and the Greek undertaking ERGO Insurance Company S.A.

In the case of four insurance companies - ERGO Lebensversicherung AG; Victoria Lebensversicherung AG; ERGO Versicherung AG, Vienna; and ERGO Insurance Company S.A., Athens - we apply temporary deductions from the technical provisions. These transitional measures have no effect on the solvency capital requirement of the Munich Re Group.

Within the Munich Re Group, the following companies also use an internal model to calculate their solvency capital requirement at solo undertaking level:

- Munich Reinsurance Company, Munich, Germany;
- Munich Re of Malta p.l.c., Ta' Xbiex, Malta;
- DKV Deutsche Krankenversicherung AG, Cologne, Germany;
- ERGO Versicherung AG, Düsseldorf, Germany;
- ERGO DIREKT Versicherung AG, Nuremberg, Germany;
- Great Lakes Insurance SE, Munich, Germany;
- Sopockie Towarzystwo Ubezpieczeń ERGO Hestia S.A., Zopot, Poland;
- ERGO Lebensversicherung AG, Hamburg, Germany; and
- Victoria Lebensversicherung AG, Düsseldorf, Germany.

Munich Re underwrites risks as a member of the association of underwriters known as Lloyd's via the company Munich Re Syndicate Ltd., London. The risks of these companies are taken into account in the Munich Re internal model; at the same time, they are also taken into account in the Lloyd's internal model.

Further details about the solvency capital requirement broken down by risk category can be found in Part C "Risk profile". An SCR breakdown by risk category can be found in the annex to this report, QRT S.25.05.22 "Solvency capital requirements – for Groups on full internal models".

Minimum capital requirement (MCR)

The minimum capital requirement for the Group is the sum of the minimum capital requirements for the solo undertakings in the Group. The MCR of the solo undertakings is calculated by means of a factor approach, primarily on the basis of premiums and technical provisions. At the same time, the MCR must constitute at least 25% but no more than 45% of the SCR. For solo undertakings outside the European Economic Area, the local minimum capital requirements are applied. The MCR for the Group was €14.3bn as at 31 December 2023.

E3 Use of the duration-based equity risk sub-module in the calculation of the solvency capital requirement

Munich Re does not use a duration-based equity risk sub-module to calculate the solvency capital requirement at the consolidated Group level.

Germany did not exercise the option to permit the use of a duration-based equity risk sub-module to calculate the solvency capital requirement, as no approval for doing so was issued by the supervisory authority.

E4 Differences between the standard formula and any internal model used

Scope of the internal model

Our internal model is based on specially modelled distributions for the risk categories property-casualty, life and health, market, credit and operational risks. We use primarily historical data for the calibration of these distributions, complemented in some areas by expert judgement. Our historical data covers a long period to provide a stable and appropriate estimate of our risk parameters.

The dependencies between the risk categories are calibrated by means of scenarios that affect more than one risk category simultaneously, and comparisons with relevant standards. We also take account in our risk model of the risk-mitigating effect of technical provisions in life and health primary insurance.

We then determine the effect of the loss absorbency of deferred taxes.

The internal model adequately covers material quantifiable risks arising from underwriting (property-casualty, life and health), market risk, credit risk, and operational risk. It also covers biometric risks from pension liabilities in all of Munich Re's areas of operation.

Details about the stated categories and about non-quantified risks can be found in Part C "Risk profile".

Methods of the internal model

The core principles used in modelling the individual risk categories are set out below:

Property-casualty underwriting risk

In property-casualty reinsurance, we apply appropriate methodology in our modelling for basic losses, large losses and accumulation losses – especially those resulting from natural catastrophes, pandemics and cyber risks. Basic losses are modelled using stochastic simulation methods, which are used to calculate the difference in the ultimate loss status. For the modelling of large and accumulation losses, we use collective models, determining the frequency and loss amount using historical loss experience and based on physical models.

The methodology used for modelling property-casualty risks at our primary insurance undertakings is generally the same as that applied in reinsurance. Where the risk profiles of these undertakings display particular features, the methodology is adapted accordingly.

Life and health underwriting risk

Mortality, longevity, disability, customer behaviour, administration expenses and the costs of benefits paid in health insurance are modelled as separate risk drivers in the internal model.

In life reinsurance, possible future scenarios are determined by Monte Carlo simulations of those risk drivers.

The modelling in life primary insurance and German health primary insurance is based on stress scenarios; their effect on the stochastic valuation models is analysed.

Market risk

Market risks are modelled in the internal model by means of a Monte Carlo simulation of possible future capital-market scenarios, taking account of risk drivers relevant to the Munich Re Group at a granular level. We revalue our assets and liabilities for each simulated market scenario, thus showing the probability distribution for changes to basic own funds.

Credit risk

A Monte Carlo simulation is used to model credit risk in the internal model, and we take particular account of the creditworthiness of each counterparty.

Operational risk

We use scenarios based on expert estimates to quantify operational risk in the internal model.

Diversification

The main sources of diversification in the internal model are our worldwide spread across the different risk categories (underwriting, market, credit) and our combination of primary insurance and reinsurance business. We also take into account dependencies between the risks that generally result in higher capital requirements than would be the case if no dependency were assumed.

Material differences to standard formula

The most relevant differences between the assumptions of the standard formula and the risk profile of the Munich Re Group are:

– The standard formula does not take sufficient account of the effects of Munich Re's diversified portfolio structure. This applies to both underlying exposures and markets, and to the broad geographic diversification.
– The standard formula oversimplifies risks that are not material for most European insurance undertakings. The most important examples of solvency capital requirements with respect to Munich Re that are insufficiently recognised in the standard formula are the requirements for
  - non-proportional property insurance,
  - our global portfolio of natural catastrophe covers,
  - life reinsurance, and
  - assets in foreign currencies that are required for the operation of non-European subsidiaries.
– By applying the standard formula to Munich Reinsurance Company, subsidiaries are depicted on the basis of equity stress and are therefore treated differently to the Munich Re Group as regards the corresponding calculation of the standard formula. In contrast, our internal model takes account of the actual risk drivers for subsidiaries of Munich Reinsurance Company and the Munich Re Group in the same transparent way.

As a result of these limitations in the standard formula, Munich Re decided to use an internal model to calculate its solvency capital requirements. Below, we compare the assumptions of the internal model with those of the standard formula, and explain why the approach taken in the internal model is more appropriate.

The quantitative impact of the differences between the standard formula and the internal model on the resulting SCR is typically much larger in the reinsurance segment than in the primary insurance segment. This is mainly due to the fact that the standard formula was designed for an average-sized European insurance undertaking, and not for a global reinsurance portfolio as in our reinsurance segment. Consequently, the solvency capital requirements based on the standard formula are to a large extent inappropriate for most lines of business or geographical areas in reinsurance. For primary insurance in the European Economic Area (EEA), our business profile matches the assumptions of the standard formula better than in the reinsurance segment. Nevertheless, the internal model also provides a more appropriate view of our risks in this segment.

Life underwriting risk

The life reinsurance model simulates the deviations of projected net cash flows from the best estimate on the basis of stochastically varying biometric and lapse risk drivers. The value at risk of 99.5% over a one-year period is derived using the linear regression finance approach. Each risk driver comprises a process, basis, trend and calamity risk component. The standard formula is less sophisticated, with each biometric risk driver being represented by only one deterministic scenario, which is generated by level stress on the best-estimate assumptions.

Where possible, the parameters of the Life Re module of the internal model are estimated from historical data. The mortality trend risk parameters are estimated based on historical population mortality rates. Basis risk is calibrated such that the model reproduces the standard deviation of historical operating assumption change rates. The stress parameters used for life primary insurance SCR calculations are derived from application of the Life Re model to ERGO portfolio data sets. This is carried out by means of stress scenarios on the basis of stochastic corporate models.

The pandemic model in the internal model explicitly contains an allowance for the portfolio's age distribution covered and its underlying base mortality.

Health underwriting risk

For NSLT (not similar to life techniques) health business, premium and reserve risk is calculated similarly to the non-life underwriting risk in the standard formula (loading factors). Overall, reinsurance business is NSLT. Therefore, non-life insurance techniques are used to calculate the economic risk capital.

In primary insurance, health insurance using similar to life techniques (SLT health business) is handled similarly to life primary insurance business. Account is taken of the fact that in the health insurance segment, premiums or benefits may be adjusted during the contract term.

Non-life underwriting risk

In the standard formula, the premium and reserve risk is determined using loading factors applied to premium measures and technical provisions. In the internal model, premium and reserve risk is measured incorporating historical loss experience and loss development patterns, at the level of a Munich Re risk-specific segmentation.

For catastrophe risk, the standard formula distinguishes between EEA exposures (higher granularity of input data) and non-EEA exposures (more simplistic approach). In the internal model, the risk from natural catastrophes – one of the biggest risks on Munich Re's balance sheet – is modelled using a stochastic and risk-sensitive approach which captures key accumulation risks in all geographical locations. The same holds true for man-made catastrophe accumulations.

For both catastrophe and non-catastrophe risks, the geographical diversification inherent in Munich Re's global portfolio is only partially recognised in the standard formula.

Market risk

The calculation of market risk figures is based on risk drivers that describe the change in value of financial instruments. The calibration of the scenarios describing the possible future realisation of these risk drivers is based on long-term historical data (over-the-cycle calibration). A comparison of the risk drivers used within the internal model with the standard formula approach shows that the granularity of the internal model (with more than 500 distinct risk drivers) is far more elaborate than the standard formula approach. In addition, the internal model captures specific risk drivers that are not accounted for in the standard formula, namely spreads on sovereign bonds, inflation expectations, and implied volatilities on equities and interest rates.

In most relevant cases in this risk category, there is no significant difference between the corresponding quantiles of the scenarios and the shocks of the standard formula.

Credit risk

The counterparty default risk in the standard formula only captures the risk of default for specific assets (namely those that are not covered by the spread risk module in the market risk calculation). By contrast, the credit risk module under the internal model takes account of all items involving credit risk. Besides fixed-interest investments, this includes deposits with ceding institutions, reinsurance recoverables, receivables, counterparty risk on derivatives, cash, and guarantees. In addition to losses from defaults, the internal model covers potential losses from rating downgrades.

Operational risk

Under the standard formula, the operational risk (OpRisk) SCR is determined using a simplistic factor-based approach as a function of premiums, technical provisions and the basic SCR. Under the internal model, by contrast, individual scenarios are examined, which are based on estimates from relevant experts and insights from our internal control system.

Risk measures and time period used in the internal model

The risk measures and time period used in the internal model for purposes of calculating the SCR are compliant with the requirements of Article 101(3) of Directive 2009/138/EC. The confidence level used for the SCR is the value-at-risk (VAR) measure on the 99.5% quantile.

Data used in the internal model

A common data policy has been established for Munich Re that sets Group-wide data quality standards. An individual data directory is compiled for each solo undertaking in the Group. This provides justification that the calculation of the regulatory capital according to the internal model is based on data of sufficient quality.

When using the term data, we refer to numerical, statistical or classification information, but not qualitative information. This also applies to information used to develop model assumptions. The assumptions themselves are not regarded as data.

A specific Solvency II requirement is the compilation of a data directory. It comprises all data used in the internal model, specifying its source, characteristics and usage. Responsibility for the data directory's input and maintenance lies with the respective process owners.

In accordance with Solvency II requirements, the quality of data has to meet the criteria of accuracy, completeness and appropriateness. The interpretation of the three data quality criteria is defined at a high level, and is applicable to all areas where the assessment of the data quality is required. The data used in the respective areas is highly complex and diverse. Accordingly, the principle of proportionality is naturally important in this principles-based approach. Applying the principle of proportionality when considering data quality means that the requirements should be seen in relation to the intended purpose of the analysis or assessment. For portfolios where underlying risks are considered simple in terms of nature, scale and complexity, "appropriate" is interpreted differently than in a situation where the risks are complex. This means that we proceed on the assumption that less detailed data is required for the assessment of more simple risks.

While the assessment of the two criteria (completeness and appropriateness) should be considered at a higher level, accuracy is assessed at a more granular level.

E5 Non-compliance with the minimum capital requirement and non-compliance with the solvency capital requirement

Munich Re had adequate own funds at all times during the reporting period to cover the minimum capital requirement and the solvency capital requirement.

E6 Any other information

Munich Reinsurance Company again initiated a share buy-back in February 2024. By the Annual General Meeting on 30 April 2025, shares for a maximum total value of €1.5bn (excluding incidental expenses) are to be bought back.

We do not have any other material information about Munich Re's capital management.

Z

Annex

Templates in accordance with Commission Implementing Regulation (EU) 2023/895 of 4 April 2023

S.02.01.02
Balance sheet - assets

€m	Solvency II value
Goodwill	
Deferred acquisition costs	
Intangible assets	0
Deferred tax assets	289
Pension benefit surplus	314
Property, plant & equipment held for own use	4,310
Investments (other than assets held for index-linked and unit-linked contracts)	207,706
Property (other than for own use)	8,873
Holdings in related undertakings, including participations	8,242
Equities	2,527
Equities – listed	389
Equities – unlisted	2,138
Bonds	124,547
Government bonds	70,340
Corporate bonds	46,560
Structured notes	3,891
Collateralised securities	3,756
Collective investment undertakings	57,022
Derivatives	1,819
Deposits other than cash equivalents	2,679
Other investments	1,997
Assets held for index-linked and unit-linked contracts	8,115
Loans and mortgages	12,245
Loans on policies	0
Loans and mortgages to individuals	3,123
Other loans and mortgages	9,122
Reinsurance recoverables from:	5,479
Non-life and health similar to non-life	2,878
Non-life excluding health	2,807
Health similar to non-life	71
Life and health similar to life, excluding health and index-linked and unit-linked	2,601
Health similar to life	576
Life excluding health and index-linked and unit-linked	2,025
Life index-linked and unit-linked	0
Deposits to cedants	17,602
Insurance and intermediaries receivables	16,791
Reinsurance receivables	477
Receivables (trade, not insurance)	6,088
Own shares (held directly)	701
Amounts due in respect of own fund items or initial fund called up but not yet paid in	0
Cash and cash equivalents	3,396
Any other assets, not elsewhere shown	622
Total assets	**284,133**

Balance sheet - liabilities

€m	Solvency II value
Technical provisions – non-life	80,241
Technical provisions – non-life (excluding health)	77,357
TP calculated as a whole	0
Best estimate	75,111
Risk margin	2,246
Technical provisions – health (similar to non-life)	2,884
TP calculated as a whole	0
Best estimate	2,777
Risk margin	107
Technical provisions – life (excluding index-linked and unit-linked)	105,563
Technical provisions – health (similar to life)	57,537
TP calculated as a whole	0
Best estimate	52,678
Risk margin	4,860
Technical provisions – life (excluding health and index-linked and unit-linked)	48,026
TP calculated as a whole	0
Best estimate	42,700
Risk margin	5,325
Technical provisions – index-linked and unit-linked	8,184
TP calculated as a whole	79
Best estimate	7,969
Risk margin	137
Contingent liabilities	22
Provisions other than technical provisions	1,180
Pension benefit obligations	1,500
Deposits from reinsurers	1,323
Deferred tax liabilities	7,993
Derivatives	2,446
Debts owed to credit institutions	550
Financial liabilities other than debts owed to credit institutions	2,558
Insurance & intermediaries payables	9,278
Reinsurance payables	633
Payables (trade, not insurance)	4,813
Subordinated liabilities	4,852
Subordinated liabilities not in BOF	539
Subordinated liabilities in BOF	4,313
Any other liabilities, not elsewhere shown	141
Total liabilities	**231,276**
Excess of assets over liabilities	**52,857**

S.05.01.02

Premiums, claims and expenses by line of business

Line of Business for: non-life insurance and reinsurance obligations (direct business and accepted proportional reinsurance)

€m	Medical expense insurance	Income protection insurance	Workers' compen-sation insurance	Motor vehicle liability insurance	Other motor insurance	Marine, aviation and transport insurance	Fire and other damage to property insurance	General liability insurance	Credit and suretyship insurance
Premiums written									
Gross – Direct Business	1,696	772	5	2,428	1,640	1,493	6,772	2,364	416
Gross – Proportional reinsurance accepted	192	247	164	2,917	1,929	1,020	8,143	4,178	861
Gross – Non-proportional reinsurance accepted									
Reinsurers' share	111	12	1	200	56	146	624	112	104
Net	1,776	1,007	168	5,145	3,512	2,367	14,291	6,430	1,173
Premiums earned									
Gross – Direct Business	1,674	773	6	2,282	1,515	1,425	6,147	2,317	398
Gross – Proportional reinsurance accepted	187	236	166	2,658	1,776	1,042	8,090	4,193	849
Gross – Non-proportional reinsurance accepted									
Reinsurers' share	112	14	2	178	51	146	630	107	89
Net	1,749	996	170	4,761	3,240	2,321	13,606	6,403	1,158
Claims incurred									
Gross – Direct Business	1,168	195	-5	1,587	1,105	777	2,998	1,227	195
Gross – Proportional reinsurance accepted	143	141	140	2,494	1,536	721	4,954	3,557	466
Gross – Non-proportional reinsurance accepted									
Reinsurers' share	84	0	-3	125	46	57	347	52	20
Net	1,226	337	137	3,957	2,595	1,440	7,604	4,731	641
Expenses incurred	**523**	**369**	**62**	**1,444**	**943**	**748**	**5,354**	**2,377**	**416**
Balance - other technical expenses/income									
Total technical expenses									

€m	Line of business for: non-life insurance and reinsurance obligations*			Line of business for: accepted non-proportional reinsurance				Total
	Legal expenses insurance	Assistance	Miscel-laneous financial loss	Health	Casualty	Marine, aviation, transport	Property	
Premiums written								
Gross – Direct Business	1,099	158	607					**19,449**
Gross – Proportional reinsurance accepted	-4	4	1,050			0	0	**20,700**
Gross – Non-proportional reinsurance accepted				80	807	280	5,035	**6,202**
Reinsurers' share	36	4	63	1	7	20	298	**1,796**
Net	1,059	157	1,593	79	800	260	4,738	**44,556**
Premiums earned								
Gross – Direct Business	1,097	143	586					**18,363**
Gross – Proportional reinsurance accepted	5	4	1,072					**20,277**
Gross – Non-proportional reinsurance accepted				81	820	275	4,976	**6,151**
Reinsurers' share	43	4	59	1	7	18	298	**1,758**
Net	1,059	143	1,599	79	813	257	4,678	**43,033**
Claims incurred								
Gross – Direct Business	485	65	341					**10,138**
Gross – Proportional reinsurance accepted	5	2	518					**14,676**
Gross – Non-proportional reinsurance accepted				36	954	88	2,730	**3,807**
Reinsurers' share	4	3	21	-2	4	1	-98	**662**
Net	487	64	838	38	949	87	2,827	**27,960**
Expenses incurred	**543**	**59**	**618**	**16**	**247**	**51**	**793**	**14,563**
Balance - other technical expenses/income								**131**
Total technical expenses								**14,694**

* Direct business and accepted proportional reinsurance

Premiums, claims and expenses by line of business

€m	Line of business for: life insurance obligations				Annuities stemming from non-life insurance contracts and relating to		Life reinsurance obligations		
	Health insurance	Insurance with profit participation	Index-linked and unit-linked insurance	Other life insurance	Health insurance obligations	Other insurance obligations*	Health reinsurance	Life reinsurance	Total
Premiums written									
Gross	6,725	2,864	727	212	0	0	4,293	9,138	**23,959**
Reinsurers' share	2	68	0	13	0	0	53	-77	**59**
Net	6,723	2,797	726	199	0	0	4,240	9,214	**23,900**
Premiums earned									
Gross	6,719	2,870	727	210	0	0	4,349	5,399	**20,273**
Reinsurers' share	2	68	0	13	0	0	53	-25	**111**
Net	6,717	2,802	727	197	0	0	4,295	5,424	**20,162**
Claims incurred									
Gross	5,260	4,612	605	99	36	42	3,358	7,405	**21,415**
Reinsurers' share	2	110	0	5	0	26	6	242	**391**
Net	5,258	4,501	605	94	36	16	3,352	7,163	**21,025**
Expenses incurred	**1,112**	**488**	**137**	**74**	**0**	**0**	**1,148**	**1,807**	**4,765**
Balance - other technical expenses/income						**0**			**87**
Total technical expenses						**0**			**4,852**
Total amount of surrenders	3	741	251	3	0	0	5	51	**1,054**

* With the exception of health insurance obligations.

S.05.02.04
Premiums, claims and expenses by country

€m	Home country	USA	United Kingdom	Poland	Spain	Australia	Total - Top 5 and home country
		Top 5 countries (by amount of gross premiums written) – non-life obligations					
Premiums written							
Gross - Direct Business	4,374	5,212	3,545	1,958	915	144	**16,149**
Gross – Proportional reinsurance accepted	885	7,369	1,599	83	775	930	**11,641**
Gross – Non-proportional reinsurance accepted	345	1,830	577	24	133	488	**3,397**
Reinsurers' share	169	287	218	122	140	1	**937**
Net	5,434	14,123	5,504	1,944	1,685	1,562	**30,251**
Premiums earned							
Gross - Direct Business	4,324	4,770	3,223	1,820	910	144	**15,190**
Gross – Proportional reinsurance accepted	853	7,500	1,644	121	731	914	**11,764**
Gross – Non-proportional reinsurance accepted	345	1,811	583	24	134	487	**3,385**
Reinsurers' share	163	273	204	110	133	1	**884**
Net	5,359	13,808	5,247	1,855	1,642	1,544	**29,454**
Claims incurred							
Gross - Direct Business	2,160	2,546	1,876	988	712	63	**8,344**
Gross – Proportional reinsurance accepted	1,698	4,837	1,007	39	544	680	**8,805**
Gross – Non-proportional reinsurance accepted	275	1,023	450	22	49	396	**2,216**
Reinsurers' share	46	160	11	52	121	0	**390**
Net	4,087	8,247	3,322	996	1,185	1,139	**18,975**
Expenses incurred	**2,713**	**5,643**	**1,552**	**718**	**358**	**264**	**11,248**
Balance - other technical expenses/income							**126**
Total technical expenses							**11,374**

Premiums, claims and expenses by country

	Top 5 countries (by amount of gross premiums written) – life obligations						
€m	Home country	USA	Canada	United Kingdom	Australia	Belgium	Total - Top 5 and home country
Premiums written							
Gross	9,846	3,808	1,935	1,580	751	697	**18,617**
Reinsurers' share	1	128	12	1	0	58	**199**
Net	9,845	3,680	1,923	1,580	751	639	**18,417**
Premiums earned							
Gross	9,854	595	1,935	1,547	751	689	**15,370**
Reinsurers' share	1	87	12	1	0	58	**158**
Net	9,853	508	1,923	1,547	751	631	**15,212**
Claims incurred							
Gross	9,824	3,597	1,521	1,516	288	618	**17,365**
Reinsurers' share	0	70	-4	25	0	93	**185**
Net	9,824	3,526	1,526	1,491	288	524	**17,179**
Expenses incurred	**2,146**	**375**	**783**	**325**	**202**	**150**	**3,982**
Balance - other technical expenses/income							**93**
Total technical expenses							**4,076**
Total amount of surrenders	**724**	**0**	**0**	**0**	**0**	**131**	**855**

S.22.01.22

Impact of long term guarantees and transitional measures

€m	Amount with Long Term Guarantee measures and transitionals	Impact of transitional on technical provisions	Impact of transitional on interest rate	Impact of volatility adjustment set to zero	Impact of matching adjustment set to zero
Technical provisions	193,989	6,642	0	402	0
Basic own funds	52,267	-4,554	0	79	0
Eligible own funds to meet Solvency Capital Requirement	52,533	-4,554	0	79	0
Solvency Capital Requirement	17,974	0	0	149	0

S.23.01.22
Own funds

€m	Total	Tier 1 unrestricted	Tier 1 restricted	Tier 2	Tier 3
Basic own funds before deduction					
Ordinary share capital (gross of own shares)	588	588		0	
Non-available called but not paid in ordinary share capital to be deducted at group level	0	0		0	
Share premium account related to ordinary share capital	6,845	6,845		0	
Initial funds, members' contributions or the equivalent basic own – fund item for mutual and mutual-type undertakings	0	0		0	
Subordinated mutual member accounts	0		0	0	0
Non-available subordinated mutual member accounts to be deducted at group level	0		0	0	0
Surplus funds	2,860	2,860			
Non-available surplus funds to be deducted at group level	1,195	1,195			
Preference shares	0		0	0	0
Non-available surplus funds to be deducted at group level	0		0	0	0
Share premium account related to preference shares	0		0	0	0
Non-available share premium account related to preference shares at group level	0		0	0	0
Reconciliation reserve	39,033	39,033			
Subordinated liabilities	4,313		13	4,246	55
Non-available subordinated liabilities to be deducted at group level	55		0	0	55
An amount equal to the value of net deferred tax assets	231				231
The amount equal to the value of net deferred tax assets not available to be deducted at the group level	123				123
Other items approved by supervisory authority as basic own funds not specified above	0	0	0	0	0
Non available own funds related to other own funds items approved by supervisory authority	0	0	0	0	0
Minority interests	239	239	0	0	0
Non-available minority interests to be deducted at group level	202	202	0	0	0
Own funds from the financial statements that should not be represented by the reconciliation reserve and do not meet the criteria to be classified as Solvency II own funds					
Own funds from the financial statements that should not be represented by the reconciliation reserve and do not meet the criteria to be classified as Solvency II own funds	1	0			
Deductions					
Deductions for participations in other financial undertakings, including non-regulated undertakings carrying out financial activities	265	265	0	0	0
Whereof deducted according to art 228 of the Directive 2009/138/EC	0	0	0	0	
Deductions for participations where there is non-availability of information (Article 229)	0	0	0	0	0
Deduction for participations included via Deduction and Aggregation method (D&A) when a combination of methods are used	0	0	0	0	0
Total of non-available own fund items to be deducted	1,575	1,397	0	0	178
Total deductions	**1,840**	**1,662**	**0**	**0**	**178**
Total basic own funds after deductions	**52,267**	**47,901**	**13**	**4,246**	**108**

Own funds

€m	Total	Tier 1 - unrestricted	Tier 1 - restricted	Tier 2	Tier 3
Ancillary own funds					
Unpaid and uncalled ordinary share capital callable on demand	0			0	
Unpaid and uncalled initial funds, members' contributions or the equivalent basic own fund item for mutual and mutual – type undertakings, callable on demand	0			0	
Unpaid and uncalled preference shares callable on demand	0			0	0
A legally binding commitment to subscribe and pay for subordinated liabilities on demand	0			0	0
Letters of credit and guarantees under Article 96(2) of the Directive 2009/138/EC	0			0	
Letters of credit and guarantees other than under Article 96(2) of the Directive 2009/138/EC	0			0	0
Supplementary members calls under first subparagraph of Article 96(3) of the Directive 2009/138/EC	0			0	
Supplementary members calls – other than under first subparagraph of Article 96(3) of the Directive 2009/138/EC	0			0	0
Non available ancillary own funds to be deducted at group level	0			0	0
Other ancillary own funds	0			0	0
Total ancillary own funds	**0**			**0**	**0**
Own funds of other financial sectors					
Credit institutions, investment firms, financial institutions, alternative investment fund managers, UCITS management companies - total	54	54	0	0	
Institutions for occupational retirement provision	209	209	0	0	0
Non regulated undertakings carrying out financial activities	3	3	0	0	0
Total own funds of other financial sectors	265	265	0	0	0
Own funds when using the D&A, exclusively or in combination with method 1					
Own funds aggregated when using the D&A and combination of method	0	0	0	0	0
Own funds aggregated when using the D&A and a combination of method net of IGT	0	0	0	0	0
Total available own funds to meet the consolidated part of the group SCR (excluding own funds from other financial sectors and from the undertakings included via D&A)	52,267	47,901	13	4,246	108
Total available own funds to meet the minimum consolidated group SCR	52,159	47,901	13	4,246	
Total eligible own funds to meet the consolidated part of the group SCR (excluding own funds from other financial sectors and from the undertakings included via D&A)	52,267	47,901	13	4,246	108
Total eligible own funds to meet the minimum consolidated group SCR	50,765	47,901	13	2,851	

Own funds

€m	Total	Tier 1 - unrestricted	Tier 1 - restricted	Tier 2	Tier 3
Minimum consolidated Group SCR	**14,255**				
Ratio of eligible own funds to minimum consolidated Group SCR	**356%**				
Total eligible own funds to meet the total group SCR (including own funds from other financial sector and from the undertakings included via D&A)	**52,533**	**48,167**	**13**	**4,246**	**108**
Total Group SCR	**17,974**				
Ratio of total eligible own funds to total group SCR - ratio including other financial sectors and the undertakings included via D&A	**292%**				

Reconciliation reserve

€m	31.12.2023
Reconciliation reserve	
Excess of assets over liabilities	52,857
Own shares (held directly and indirectly)	701
Forseeable dividends, distributions and charges	2,361
Other basic own fund items	10,763
Adjustment for restricted own fund items in respect of matching adjustment portfolios and ring fenced funds	0
Other non available own funds	0
Reconciliation reserve	**39,033**
Excpected profits	
Expected profits included in future premiums (EPIFP) – Life business	18,686
Expected profits included in future premiums (EPIFP) – Non-life business	3,329
Total expected profits included in future premiums (EPIFP)	**22,015**

S.25.05.22

Solvency capital requirement – for groups using an internal model (partial or full)
Component - specific information

€m	Solvency Capital Requirement	Amount modelled	USP	Simplifications
Risk type				
Total diversification	-11,283			
Total diversified risk before tax	22,125			
Total diversified risk after tax	17,974			
Total market & credit risk	21,595			
Market & credit risk - diversified	11,008			
Credit event risk not covered in market & credit risk	0			
Credit event risk not covered in market & credit risk - diversified	0			
Total business risk	0			
Total business risk - diversified	0			
Total net non-life underwriting risk	21,744			
Total net non-life underwriting risk - diversified	12,411			
Total life & health underwriting risk	11,934			
Total life & health underwriting risk - diversified	7,447			
Total operational risk	1,627			
Total operational risk - diversified	1,627			
Other risk	915			

Calculation of Solvency Capital Requirement

€m	
Total undiversified components	33,407
Diversification	–11,283
Adjustment due to RFF/MAP nSCR aggregation	0
Capital requirement for business operated in accordance with Art. 4 of Directive 2003/41/EC	0
Solvency Capital Requirement calculated on the basis of Art. 336 (a) of Delegated Regulation (EU) 2015/35, excluding capital add-on	17,058
Capital add-ons already set	0
of which, capital add-ons already set - Article 37 (1) Type a	0
of which, capital add-ons already set - Article 37 (1) Type b	0
of which, capital add-ons already set - Article 37 (1) Type c	0
of which, capital add-ons already set - Article 37 (1) Type d	0
Consolidated Group SCR	17,974
Other information on SCR	
Amount/estimate of the overall loss-absorbing capacity of technical provisions	–4,331
Amount/estimate of the loss absorbing capacity for deferred taxes	–4,151
Capital requirement for duration-based equity risk sub-module	0
Total amount of notional Solvency Capital Requirements for remaining part	0
Total amount of notional Solvency Capital Requirements for ring-fenced funds	0
Total amount of notional Solvency Capital Requirements for matching adjustment portfolios	0
Diversification effects due to RFF nSCR aggregation for article 304	0
Minimum consolidated group solvency capital requirement	14,255
Information on other entities	
Capital requirement for other financial sectors (Non-insurance capital requirements)	303
Capital requirement for other financial sectors (Non-insurance capital requirements) - credit institutions, investment firms and financial institutions, alternative investment funds managers, UCITS management companies	113
Capital requirement for other financial sectors (Non-insurance capital requirements) - institutions for occupational retirement provisions	186
Capital requirement for other financial sectors (Non-insurance capital requirements) - capital requirement for non-regulated undertakings carrying out financial activities	4
Capital requirement for non-controlled participation	613
Capital requirement for residual undertakings	0
Capital requirement for collective investment undertakings or investments packaged as funds	0
Overall SCR	
SCR for undertakings included via D&A method	0
Total group solvency capital requirement	**17,974**

List of abbreviations

AF	Actuarial function
AG	Aktiengesellschaft (German joint-stock company)
AIF	Alternative investment fund
AktG	German Stock Corporation Act
ALM	Asset-liability management
AMG	Asset management company
BaFin	German Federal Financial Supervisory Authority
CDS	Credit default swap
CISO	Chief Information Security Officer
CMS	Compliance management system
CRO	Chief Risk Officer
CSM	Contractual service margin
CTA	Contractual trust agreement
DA	Delegated Acts
DKV	Deutsche Krankenversicherung
EC	European Community
EEA	European Economic Area
EIOPA	European Insurance and Occupational Pensions Authority
EOF	Eligible own funds
EPIFP	Expected profit included in future premiums
ESG	Environment, social, governance
GCCO	Group Chief Compliance Officer
GCL	Group Compliance and Legal
GmbH	Gesellschaft mit beschränkter Haftung (German limited liability company)
GMM	General measurement model
HGB	German Commercial Code
HSB	Hartford Steam Boiler
IAS	International Accounting Standard
IFRS	International Financial Reporting Standard
Inc.	Incorporated
IoT	Internet of Things
IRM	Integrated Risk Management
ISDA	International Swaps and Derivates Association
Ltd.	Limited
MCR	Minimum capital requirement
MEAG	MUNICH ERGO Asset Management GmbH
MENA	Middle East North Africa
MR GCP	Munich Re Group Compensation Policy
OIS	Overnight index swap
ORCS	Operational risk control system
ORSA	Own risk and solvency assessment
OTC	Over the counter
p.l.c.	Public limited company
PAA	Premium allocation approach
QRT	Quantitative reporting templates
RMF	Risk management function
SII	Solvency II
SCR	Solvency capital requirement
SFCR	Solvency and Financial Condition Report
TPRM	Third-Party Risk Management
UCITS	Undertakings for collective investment in transferable securities
VAG	German Insurance Supervision Act
VaR	Value at risk
VFA	Variable fee approach

Imprint/Service

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Online publication date:
5 April 2024

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