Swiss Re

Swiss Reinsurance Company Consolidated

Half-Year 2021 Report

Content

Income statement

For the six months ended 30 June

USD millions	Note	2020[1]	2021
Revenues			
Gross premiums written	4	20 877	**25 367**
Net premiums written	4	19 675	**24 085**
Change in unearned premiums		–2 992	**–4 092**
Premiums earned	3	16 683	**19 993**
Fee income from policyholders	3	123	**136**
Net investment income – non-participating business	7	1 165	**1 695**
Net realised investment gains/losses – non-participating business[2]	7	971	**204**
Net investment result – unit-linked business	7	–113	**5**
Other revenues		18	**8**
Total revenues		18 847	**22 041**
Expenses			
Claims and claim adjustment expenses	3	–8 024	**–7 540**
Life and health benefits	3	–6 422	**–7 110**
Return credited to policyholders		–50	**–212**
Acquisition costs	3	–3 608	**–4 309**
Operating expenses		–1 069	**–1 331**
Total expenses before interest expenses		–19 173	**–20 502**
Income/loss before interest and income tax expense/benefit		–326	**1 539**
Interest expenses		–259	**–269**
Income/loss before income tax expense/benefit		–585	**1 270**
Income tax expense/benefit		152	**–250**
Net income/loss before attribution of non-controlling interests		–433	**1 020**
Income/loss attributable to non-controlling interests		–31	**–19**
Net income/loss attributable to common shareholder		–464	**1 001**

[1] In the fourth quarter of 2020, Swiss Re Reinsurance Holding Company Ltd, a subsidiary of the Group, acquired Swiss Re Life Capital Reinsurance Ltd from Swiss Re Life Capital Ltd, a Swiss Re entity outside of the Group and renamed the entity Swiss Re Nexus Reinsurance Company Ltd. As a result, Swiss Re Nexus Reinsurance Company Ltd is included in the financial statements and the comparative information for the six months ended 30 June 2020 has been retrospectively adjusted.
[2] Total impairments for the six months ended 30 June of USD 25 million in 2020 and USD 2 million in 2021, respectively, were fully recognised in earnings.

The accompanying notes are an integral part of the Group financial statements.

Statement of comprehensive income

For the six months ended 30 June

USD millions	2020[1]	2021
Net income/loss before attribution of non-controlling interests	–433	**1 020**
Other comprehensive income, net of tax:		
Change in net unrealised investment gains/losses	1 424	**–2 323**
Change in other-than-temporary impairment		**–5**
Change in foreign currency translation	61	**–76**
Change in adjustment for pension benefits	22	**26**
Change in credit risk of financial liabilities at fair value option	3	**–1**
Other comprehensive income/loss attributable to non-controlling interests		**–24**
Total comprehensive income before attribution of non-controlling interests	1 077	**–1 383**
Comprehensive income/loss attributable to non-controlling interests	–31	**5**
Total comprehensive income attributable to common shareholder	1 046	**–1 378**

[1] In the fourth quarter of 2020, Swiss Re Reinsurance Holding Company Ltd, a subsidiary of the Group, acquired Swiss Re Life Capital Reinsurance Ltd from Swiss Re Life Capital Ltd, a Swiss Re entity outside of the Group and renamed the entity Swiss Re Nexus Reinsurance Company Ltd. As a result, Swiss Re Nexus Reinsurance Company Ltd is included in the financial statements and the comparative information for the six months ended 30 June 2020 has been retrospectively adjusted.

Reclassification out of accumulated other comprehensive income

For the six months ended 30 June

2020[1] USD millions	Net unrealised investment gains/losses[2]	Other-than-temporary impairment[2]	Foreign currency translation[2, 3]	Adjustment for pension benefits[4]	Credit risk of financial liabilities at fair value option	Accumulated other comprehensive income
Balance as of 1 January	2 987	–1	–5 205	–779	3	–2 995
Change during the period	2 623		32	3	4	2 662
Amounts reclassified out of accumulated other comprehensive income	–809			26		–783
Tax	–390		29	–7	–1	–369
Balance as of period end	4 411	–1	–5 144	–757	6	–1 485

2021 USD millions	Net unrealised investment gains/losses[2]	Other-than-temporary impairment[2]	Foreign currency translation[2, 3]	Adjustment for pension benefits[4]	Credit risk of financial liabilities at fair value option	**Accumulated other comprehensive income**
Balance as of 1 January	5 320	–1	–5 104	–807	4	**–588**
Change during the period	–3 091	–6	–46	5	–1	**–3 139**
Amounts reclassified out of accumulated other comprehensive income	219		–13	29		**235**
Tax	549	1	–17	–8		**525**
Balance as of period end	**2 997**	**–6**	**–5 180**	**–781**	**3**	**–2 967**

[1] In the fourth quarter of 2020, Swiss Re Reinsurance Holding Company Ltd, a subsidiary of the Group, acquired Swiss Re Life Capital Reinsurance Ltd from Swiss Re Life Capital Ltd, a Swiss Re entity outside of the Group and renamed the entity Swiss Re Nexus Reinsurance Company Ltd. As a result, Swiss Re Nexus Reinsurance Company Ltd is included in the financial statements and the comparative information for the six months ended 30 June 2020 has been retrospectively adjusted.
[2] Reclassification adjustment included in net income is presented in "Net realised investment gains/losses – non-participating business".
[3] Reclassification adjustment is limited to translation gains and losses realised upon sale or upon complete or substantially complete liquidation of an investment in a foreign entity.
[4] Reclassification adjustment included in net income is presented in "Operating expenses".

The accompanying notes are an integral part of the Group financial statements.

Balance sheet

Assets

USD millions	Note	31.12.2020	30.06.2021
Investments	7, 8, 9		
Fixed income securities:			
Available-for-sale (including 6 261 in 2020 and 11 223 in 2021 subject to securities lending and repurchase agreements) (amortised cost: 2020: 67 440; 2021: 72 140)		74 101	**76 103**
Trading (including 1 551 in 2020 and 945 in 2021 subject to securities lending and repurchase agreements)		1 938	**1 618**
Equity securities at fair value through earnings (including 59 in 2020 and 21 in 2021 subject to securities lending and repurchase agreements)		3 010	**3 270**
Policy loans, mortgages and other loans		3 158	**3 557**
Investment real estate		2 601	**2 406**
Short-term investments (including 3 667 in 2020 and 2 058 in 2021 subject to securities lending and repurchase agreements)		13 765	**7 168**
Other invested assets		9 616	**9 147**
Investments for unit-linked business (including equity securities at fair value through earnings: 463 in 2020 and 462 in 2021)		463	**462**
Total investments		108 652	**103 731**
Cash and cash equivalents (including 752 in 2020 and 717 in 2021 subject to securities lending)		4 651	**6 826**
Accrued investment income		575	**555**
Premiums and other receivables		14 661	**17 896**
Reinsurance recoverable on unpaid claims and policy benefits		4 061	**3 980**
Funds held by ceding companies		11 307	**15 844**
Deferred acquisition costs	6	7 990	**8 344**
Acquired present value of future profits	6	983	**948**
Goodwill		3 828	**3 811**
Income taxes recoverable		258	**227**
Deferred tax assets		5 134	**5 332**
Other assets		2 637	**3 679**
Total assets		164 737	**171 173**

The accompanying notes are an integral part of the Group financial statements.

Liabilities and equity

USD millions	Note	31.12.2020	30.06.2021
Liabilities			
Unpaid claims and claim adjustment expenses	5	71 919	**76 125**
Liabilities for life and health policy benefits	8	20 892	**20 552**
Policyholder account balances		5 192	**5 212**
Unearned premiums		10 696	**14 982**
Funds held under reinsurance treaties		4 809	**5 749**
Reinsurance balances payable		1 938	**2 096**
Income taxes payable		311	**202**
Deferred and other non-current tax liabilities		6 286	**6 158**
Short-term debt	10	1 935	**2 579**
Accrued expenses and other liabilities	7	11 011	**8 999**
Long-term debt	10	10 727	**11 139**
Total liabilities		145 716	**153 793**
Equity			
Common shares, CHF 0.10 par value 2020: 344 052 565; 2021: 344 052 565 shares authorised and issued		32	**32**
Additional paid-in capital		10 040	**10 035**
Shares in Swiss Re Ltd, net of tax		–17	**–14**
Accumulated other comprehensive income:			
Net unrealised investment gains/losses, net of tax		5 320	**2 997**
Other-than-temporary impairment, net of tax		–1	**–6**
Foreign currency translation, net of tax		–5 104	**–5 180**
Adjustment for pension and other post-retirement benefits, net of tax		–807	**–781**
Credit risk of financial liabilities at fair value option, net of tax		4	**3**
Total accumulated other comprehensive income		–588	**–2 967**
Retained earnings		8 386	**8 887**
Shareholder's equity		17 853	**15 973**
Non-controlling interests		1 168	**1 407**
Total equity		19 021	**17 380**
Total liabilities and equity		164 737	**171 173**

The accompanying notes are an integral part of the Group financial statements.

Statement of shareholder's equity

For the twelve months ended 31 December and the six months ended 30 June

USD millions	2020	2021
Common shares		
Balance as of 1 January	32	**32**
Issue of common shares		
Balance as of period end	32	**32**
Additional paid-in capital		
Balance as of 1 January	9 406	**10 040**
Capital contribution	631	
Share-based compensation		**–1**
Realised gains/losses on treasury shares	3	**–4**
Balance as of period end	10 040	**10 035**
Shares in Swiss Re Ltd, net of tax		
Balance as of 1 January	–19	**–17**
Change in shares in Swiss Re Ltd	2	**3**
Balance as of period end	–17	**–14**
Net unrealised investment gains/losses, net of tax		
Balance as of 1 January	2 987	**5 320**
Change in group structure	202	
Changes during the period	2 131	**–2 323**
Balance as of period end	5 320	**2 997**
Other-than-temporary impairment, net of tax		
Balance as of 1 January	–1	**–1**
Changes during the period		**–5**
Balance as of period end	–1	**–6**
Foreign currency translation, net of tax		
Balance as of 1 January	–5 205	**–5 104**
Change in group structure	–1	
Changes during the period	102	**–76**
Balance as of period end	–5 104	**–5 180**
Adjustment for pension and other post-retirement benefits, net of tax		
Balance as of 1 January	–779	**–807**
Changes during the period	–28	**26**
Balance as of period end	–807	**–781**
Credit risk of financial liabilities at fair value option, net of tax		
Balance as of 1 January	3	**4**
Changes during the period	1	**–1**
Balance as of period end	4	**3**

The accompanying notes are an integral part of the Group financial statements.

USD millions	2020	2021
Retained earnings		
Balance as of 1 January	11 213	**8 386**
Change in group structure	–165	
Transactions under common control	–554	
Net income/loss after attribution of non-controlling interests	–438	**1 001**
Dividends on common shares	–1 670	**–500**
Balance as of period end	8 386	**8 887**
Shareholder's equity	17 853	**15 973**
Non-controlling interests		
Balance as of 1 January	1 514	**1 168**
Transactions with non-controlling interests	–396	**244**
Income/loss attributable to non-controlling interests	32	**19**
Other comprehensive income attributable to non-controlling interests	18	**–24**
Balance as of period end	1 168	**1 407**
Total equity	19 021	**17 380**

The accompanying notes are an integral part of the Group financial statements.

Statement of cash flows

For the six months ended 30 June

USD millions	2020[1]	2021
Cash flows from operating activities		
Net income/loss attributable to common shareholder	–464	**1 001**
Add income/loss attributable to non-controlling interests	31	**19**
Adjustments to reconcile net income to net cash provided/used by operating activities:		
Depreciation, amortisation and other non-cash items	197	**266**
Net realised investment gains/losses	–858	**–209**
Income from equity-accounted investees, net of dividends received	105	**–342**
Change in:		
Technical provisions and other reinsurance assets and liabilities, net	4 934	**5 123**
Funds held by ceding companies and under reinsurance treaties	31	**–3 620**
Reinsurance recoverable on unpaid claims and policy benefits	132	**41**
Other assets and liabilities, net	300	**–1 962**
Income taxes payable/recoverable	–362	**145**
Trading positions, net	226	**–295**
Net cash provided/used by operating activities	4 272	**167**
Cash flows from investing activities		
Fixed income securities:		
Sales	31 874	**16 131**
Maturities	2 950	**4 710**
Purchases	–30 209	**–25 326**
Net purchases/sales/maturities of short-term investments	–2 393	**6 386**
Equity securities:		
Sales	1 299	**600**
Purchases	–1 289	**–671**
Securities purchased/sold under agreement to resell/repurchase, net	497	**–33**
Net purchases/sales/maturities of other investments	–1 083	**–576**
Net purchases/sales/maturities of investments held for unit-linked business	11	**10**
Net cash provided/used by investing activities	1 657	**1 231**
Cash flows from financing activities		
Policyholder account balances for unit-linked business:		
Deposits	22	**6**
Withdrawals	–36	**–17**
Issuance/repayment of long-term debt	468	**1 026**
Issuance/repayment of short-term debt	–541	**143**
Purchase/sale of shares in Swiss Re Ltd.	4	**3**
Dividends paid to parent	–1 670	**–500**
Transactions with non-controlling interests	–200	**241**
Net cash provided/used by financing activities	–1 953	**902**

The accompanying notes are an integral part of the Group financial statements.

USD millions	2020[1]	2021
Total net cash provided/used	3 976	**2 300**
Effect of foreign currency translation	–54	**–125**
Change in cash and cash equivalents	3 922	**2 175**
Cash and cash equivalents as of 1 January	5 563	**4 651**
Cash and cash equivalents as of 30 June	9 485	**6 826**

[1] In the fourth quarter of 2020, Swiss Re Reinsurance Holding Company Ltd, a subsidiary of the Group, acquired Swiss Re Life Capital Reinsurance Ltd from Swiss Re Life Capital Ltd, a Swiss Re entity outside of the Group and renamed the entity Swiss Re Nexus Reinsurance Company Ltd. As a result, Swiss Re Nexus Reinsurance Company Ltd is included in the financial statements and the comparative information for the six months ended 30 June 2020 has been retrospectively adjusted.

Interest paid was USD 183 million and USD 215 million (thereof USD 3 million and USD 4 million for letter of credit fees) for the six months ended 30 June 2020 and 2021, respectively. Tax paid was USD 210 million and USD 105 million for the six months ended 30 June 2020 and 2021, respectively.

A non-cash transaction of USD 201 million in the period ended 30 June 2020 decreased "Fixed income securities, available-for-sale" and "Non-controlling interests".

Cash and cash equivalents include restricted cash and cash equivalents, for instance pledged cash and cash equivalents (please refer to Note 7 "Investments").

The accompanying notes are an integral part of the Group financial statements.

Notes to the Group financial statements

1 Organisation and summary of significant accounting policies

Nature of operations
The Swiss Reinsurance Company Group, which is headquartered in Zurich, Switzerland, comprises Swiss Reinsurance Company Ltd (the parent company, referred to as "SRZ") and its subsidiaries (collectively, the "Group"). The Group is a wholesale provider of reinsurance, insurance and other insurance-based forms of risk transfer. Working through brokers and a network of offices around the globe, the Group serves a client base consisting of insurance companies and public-sector clients.

SRZ is a wholly owned subsidiary of Swiss Re Ltd. Swiss Re Ltd is the ultimate parent company of the Swiss Re Group, which consists of three business segments: Property & Casualty Reinsurance, Life & Health Reinsurance and Corporate Solutions.

Basis of presentation
The accompanying consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (US GAAP). All significant intra-group transactions and balances have been eliminated on consolidation. The year-end balance sheet data presented was derived from audited financial statements. These interim financial statements do not include all disclosures that US GAAP requires on an annual basis and therefore they should be read in conjunction with the Group's audited financial statements for the year ended 31 December 2020.

In the fourth quarter of 2020, Swiss Re Reinsurance Holding Company Ltd, a subsidiary of the Group, acquired Swiss Re Life Capital Reinsurance Ltd from Swiss Re Life Capital Ltd, a Swiss Re entity outside of the Group and renamed the entity Swiss Re Nexus Reinsurance Company Ltd. The acquisition was accounted for as a common control transfer of a business. As a result, Swiss Re Nexus Reinsurance Company Ltd is included in the financial statements and the comparative information for the second quarter 2020 has been retrospectively adjusted. The effect of the change on the comparatives is a decrease in Group net loss of USD 27 million and an increase in other comprehensive income of USD 64 million for the six months ended 30 June.

The Board of Directors of SRZ has decided that as of 1 January 2024 the Group's consolidated financial statements will be prepared in accordance with International Financial Reporting Standards (IFRS). Financial statements for periods ending on or prior to 31 December 2023 will continue to be prepared in accordance with US GAAP.

Use of estimates in the preparation of financial statements
The preparation of financial statements requires management to make significant estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses as well as the related disclosure, including contingent assets and liabilities. The Group's liabilities for unpaid claims and claim adjustment expenses and policy benefits for life and health include estimates for premium, claim and benefit data not received from ceding companies at the date of the financial statements. In addition, the Group uses certain financial instruments and invests in securities of certain entities for which exchange trading does not exist. The Group determines these estimates based on historical information, actuarial analyses, financial modelling and other analytical techniques. Actual results could differ significantly from the estimates described above.

Valuation of financial assets
The fair value of the majority of the Group's financial instruments is based on quoted prices in active markets or observable inputs. These instruments include government and agency securities, commercial paper, most investment-grade corporate debt, most high-yield debt securities, exchange-traded derivative instruments, most mortgage- and asset-backed securities and listed equity securities. In markets with reduced or no liquidity, spreads between bid and offer prices are normally wider compared to spreads in highly liquid markets. Such market conditions affect the valuation of certain asset classes of the Group, such as some asset-backed securities as well as certain derivative structures referencing such asset classes.

The Group considers both the credit risk of its counterparties and own risk of non-performance in the valuation of derivative instruments and other over-the-counter financial assets. In determining the fair value of these financial instruments, the assessment of the Group's exposure to the credit risk of its counterparties incorporates consideration of existing collateral and netting arrangements entered into with each counterparty. The measure of the counterparty credit risk is estimated with incorporation of the observable credit spreads, where available, or credit spread estimates derived based on the benchmarking techniques where market data is not available. The impact of the Group's own risk of non-performance is analysed in the manner consistent with the aforementioned approach, with consideration of the Group's observable credit spreads. The value representing such risk is incorporated into the fair value of the financial instruments (primarily derivatives), in a liability position as of the measurement date. The change in this adjustment from period to period is reflected in realised gains and losses in the income statement.

For assets or derivative structures at fair value, the Group uses market prices or inputs derived from market prices. A separate internal price verification process, independent of the trading function, provides an additional control over the market prices or market input used to determine the fair values of such assets. Although management considers that appropriate values have been ascribed to such assets, there is always a level of uncertainty and judgement over these valuations. Subsequent valuations could differ significantly from the results of the process described above. The Group may become aware of counterparty valuations, either directly through the exchange of information or indirectly, for example through collateral demands. Any implied differences are considered in the independent price verification process and may result in adjustments to initially indicated valuations. As of 30 June 2021, the Group has not provided any collateral on financial instruments in excess of its own market value estimates.

Subsequent events

Subsequent events for the current reporting period have been evaluated up to 29 July 2021. This is the date on which the financial statements are available to be issued.

Adoption of new accounting standards

In December 2019, the FASB issued ASU 2019-12, "Simplifying the Accounting for Income Taxes", an update to Topic 740, "Income Taxes". The amendments in this Update simplify the accounting for income taxes by removing certain exceptions to the general principles in Topic 740 and by clarifying and amending existing guidance, with the added benefit of a reduction in the cost and complexity in accounting for Income Taxes, and an improvement in the usefulness of the information provided to the users of financial statements. The Group adopted the standard on 1 January 2021. The adoption did not have a material impact on the Group's financial statements.

In January 2020, the FASB issued ASU 2020-01, "Clarifying the Interactions between Topic 321, Topic 323, and Topic 815", an update to Topic 321, "Investments – Equity Securities", Topic 323, "Investments – Equity Method and Joint Ventures", and Topic 815 "Derivatives and Hedging". The amendments clarify that an entity should consider observable transactions that result in either applying or discontinuing the equity method of accounting for the purpose of applying the measurement alternative in Topic 321. In addition, the amendments clarify that when determining the accounting for nonderivative forward contracts and purchased options, an entity should not consider whether the underlying securities would be accounted for under the equity method or fair value option upon settlement or exercise, for the purposes of evaluating characteristic (a) in ASC 815-10-15-141.The Group adopted the standard on 1 January 2021. The adoption did not have an impact on the Group's financial statements.

In March 2020, the FASB issued ASU 2020-04, "Facilitation of the Effects of Reference Rate Reform on Financial Reporting", an update to Topic 848, "Reference Rate Reform". In response to concerns about structural risks of interbank offered rates (IBORs) and, particularly, the risk of cessation of the London Interbank Offered Rate (LIBOR), regulators in several jurisdictions around the world have undertaken reference rate reform initiatives to identify alternative reference rates. The amendments in this update provide optional expedients and exceptions for applying US GAAP accounting principles to contracts, hedging relationships and other transactions that reference LIBOR or another reference rate expected to be discontinued because of these reference rate reform initiatives. The Group adopted ASU 2020-04 on 12 March 2020, which is the issuance date of the standard. There is a choice to apply the guidance by Topic or industry Subtopic at any time prospectively during the effective period from 12 March 2020 through 31 December 2022. As of 30 June 2021, the Group applied the guidance to Topic 815 related to Group's adherence to the ISDA 2020 Fallbacks Protocol, which is a standardized approach for amending contracts in order to incorporate IBOR fallback provisions, and related to changes to the critical terms of a hedging relationship due to reference rate reform as well as to Topic 944 related to changes resulting from the replacement of discontinued reference rates included in contracts within the scope of Topic 944, "Financial Services – Insurance".

In January 2021, the FASB issued ASU 2021-01, "Scope", an update to Topic 848, "Reference Rate Reform". Because of the broad population of derivatives affected by the market-wide transition to new reference rates (commonly referred to as the "discounting transition"), stakeholders analysed the accounting implications of the discounting transition against the available exceptions and expedients within Topic 848, "Reference Rate Reform", which led them to raise questions about the scope of that Topic. The amendments clarify the scope of Topic 848 and allows entities to apply certain optional provisions in Topic 848 to derivative instruments that undergo a modification of the interest rate used for margining, discounting, or contract price alignment because of the discounting transition that do not also reference LIBOR or another reference rate that is expected to be discontinued as a result of reference rate reform.
The Group adopted ASU 2021-01 on a prospective basis from 1 January 2021. As of 30 June 2021, the Group applied the guidance to Topic 815 related to derivative instruments that use an interest rate for margining, discounting, or contract price alignment.

Future adoption of new accounting standards

In June 2016, the FASB issued ASU 2016-13, "Measurement of Credit Losses", an update to Topic 326, "Financial Instruments – Credit Losses". ASU 2016-13 replaces the incurred loss impairment methodology in current US GAAP with a methodology that reflects expected credit losses. The standard is applicable to all financial assets such as financial instruments that are measured at amortised cost, available-for-sale debt securities and reinsurance recoverables. The objective of the expected credit loss model is that a reporting entity recognises its estimate of expected credit losses incorporating forward-looking information in a valuation allowance for financial assets in scope. As amended by ASU 2019-10 "Effective Dates", ASU 2016-13 is effective for annual and interim periods beginning after 15 December 2022. For most affected financial assets, the ASU must be adopted using a modified retrospective approach, with a cumulative effect adjustment recorded to opening retained earnings on the adoption date. The Group is currently assessing the impact of the new requirements.

In January 2017, the FASB issued ASU 2017-04, "Simplifying the Test for Goodwill Impairment", an update to Topic 350, "Intangibles – Goodwill and Other". This ASU simplifies the subsequent measurement of goodwill and eliminates Step 2 from the goodwill impairment test. In computing the implied fair value of goodwill under Step 2, an entity has to perform procedures to determine the fair value of its assets and liabilities (including unrecognised assets and liabilities) at the impairment testing date following the procedure that would be required in determining the fair value of assets acquired and liabilities assumed in a business combination. Instead, under the amendments in this update, an entity should perform its regular goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. An entity should recognise an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value; however, the loss recognised should not exceed the total amount of goodwill allocated to that reporting unit. As amended by ASU 2019-10 "Effective Dates", ASU 2017-04 is effective for goodwill impairment tests in annual and interim periods beginning after 15 December 2022. Early application of the ASU is permitted. The Group is currently assessing the impact of the new requirements.

In August 2018, the FASB issued ASU 2018-12, "Targeted Improvements to the Accounting for Long-Duration Contracts", an update to Topic 944, "Financial Services – Insurance". This ASU requires that the cash flows and net premium ratio will be updated for changes in insurance assumptions (eg mortality, morbidity, terminations) when measuring the liability for future policy benefits for nonparticipating traditional and limited-payment insurance and reinsurance contracts. There will no longer be a provision for adverse deviation. In addition, the discount rate used to reflect the time value of money in the calculation of the liability for future policy benefits will be standardised. Further, the ASU requires deferred acquisition costs (DAC) relating to most long-duration contracts to be amortised on a constant basis over the expected term of the contract. As amended by ASU 2020-11 "Effective Date and Early Application", ASU 2018-12 is effective for annual periods beginning after 15 December 2024, and interim periods beginning after 15 December 2025. Due to the decision of the Board of Directors of SRZ to prepare the Group's consolidated financial statements in accordance with IFRS beginning 1 January 2024, the Group does not plan to adopt ASU 2018-12.

2 Information on business segments

The Group provides reinsurance and insurance throughout the world through its business segments. The business segments are determined by the organisational structure and by the way in which management reviews the operating performance of the Group.

The Group presents two core operating business segments: Property & Casualty Reinsurance and Life & Health Reinsurance. The presentation of each segment's balance sheet is closely aligned to the segment legal entity structure. The assignment of assets and liabilities for entities that span over more than one segment is determined by considering local statutory requirements, legal and other constraints, the economic view of duration and currency requirements of the reinsurance business written and the capacity of the segments to absorb risks. Interest expense is based on the segment's capital funding position. The tax impact of a segment is derived from the legal entity tax obligations and the segmentation of the pre-tax result. While most of the tax items can be directly attributed to individual segments, the tax which impacts two or more segments is allocated to the segments on a reasonable basis. Property & Casualty Reinsurance and Life & Health Reinsurance share the same year-to-date effective tax rate as both business segments belong to the Reinsurance Business Unit.

Accounting policies applied by the business segments are in line with those described in the summary of significant accounting policies (please refer to Note 1). Cross-segmental dividends and gains and losses on certain one-off transfers and transactions between segments are accounted for through segmental shareholders' equity.

The Group operating segments are outlined below.

Property & Casualty Reinsurance and Life & Health Reinsurance
Reinsurance consists of two segments, Property & Casualty and Life & Health. The Reinsurance Business Unit operates globally, both through brokers and directly with clients, and provides a large range of solutions for risk and capital management. Clients include stock and mutual insurance companies as well as public sector and governmental entities. In addition to traditional reinsurance solutions, Reinsurance offers insurance-linked securities and other insurance-related capital market products in both Property & Casualty and Life & Health.

Property & Casualty includes the business lines property, casualty (including motor) and specialty. Life & Health includes the life and health lines of business.

Other
Items not allocated to the business segments are included in the "Other" column which encompasses non-core activities. The "Other" column includes mainly certain costs not allocated to the Reinsurance business segments, certain Treasury activities, certain re/insurance contracts that the Group assumes and cedes from/to affiliated companies within the Swiss Re Group, but outside the Group, as well as reinsurance and insurance business in run-off.

Consolidation
Segment information is presented net of external and internal retrocession and other intra-group arrangements. The Group total is obtained after elimination of intra-group transactions in the "Consolidation" column. This includes significant intra-group reinsurance arrangements, recharge of trademark licence fees and intersegmental funding.

a) Business segments – income statement
For the six months ended 30 June

2020[1] USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Revenues					
Gross premiums written	12 776	7 360	949	–208	20 877
Net premiums written	12 270	6 667	738		19 675
Change in unearned premiums	–2 669	–70	–253		–2 992
Premiums earned	9 601	6 597	485		16 683
Fee income from policyholders		79	44		123
Net investment income – non-participating business	485	583	202	–105	1 165
Net realised investment gains/losses – non-participating business	496	340	135		971
Net investment result – unit-linked business		–113			–113
Other revenues	13	3	2		18
Total revenues	10 595	7 489	868	–105	18 847
Expenses					
Claims and claim adjustment expenses	–8 027		3		–8 024
Life and health benefits		–5 992	–430		–6 422
Return credited to policyholders		102	–152		–50
Acquisition costs	–2 497	–967	–144		–3 608
Operating expenses	–597	–351	–121		–1 069
Total expenses before interest expenses	–11 121	–7 208	–844	0	–19 173
Income/loss before interest and income tax expense/benefit	–526	281	24	–105	–326
Interest expenses	–160	–199	–5	105	–259
Income/loss before income tax expense/benefit	–686	82	19	0	–585
Income tax expense/benefit	167	–18	3		152
Net income/loss before attribution of non-controlling interests	–519	64	22	0	–433
Income/loss attributable to non-controlling interests			–31		–31
Net income/loss attributable to common shareholder	–519	64	–9	0	–464
Claims ratio in %	83.6				
Expense ratio in %	32.2				
Combined ratio in %	115.8				
Management expense ratio[2] in %		4.8			
Net operating margin[3] in %	–5.0	3.7			–1.7

[1] In the fourth quarter of 2020, Swiss Re Reinsurance Holding Company Ltd, a subsidiary of the Group, acquired Swiss Re Life Capital Reinsurance Ltd from Swiss Re Life Capital Ltd, a Swiss Re entity outside of the Group and renamed the entity Swiss Re Nexus Reinsurance Company Ltd. As a result, Swiss Re Nexus Reinsurance Company Ltd is included in the financial statements and the comparative information for the six months ended 30 June 2020 has been retrospectively adjusted.
[2] Management expense ratio is calculated as "Operating expenses" divided by "Total revenues" excluding "Net realised investment gains/losses – non-participating business" and "Net investment result – unit-linked business".
[3] Net operating margin is calculated as "Income/loss before income tax expense/benefit" divided by "Total revenues" excluding "Net investment result – unit-linked business".

Business segments – income statement
For the six months ended 30 June

2021 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Revenues					
Gross premiums written	13 482	8 065	4 160	–340	25 367
Net premiums written	12 945	7 371	3 769		24 085
Change in unearned premiums	–2 492	51	–1 651		–4 092
Premiums earned	10 453	7 422	2 118		19 993
Fee income from policyholders		96	40		136
Net investment income – non-participating business	856	560	313	–34	1 695
Net realised investment gains/losses – non-participating business	242	120	–158		204
Net investment result – unit-linked business		5			5
Other revenues	9	1		–2	8
Total revenues	**11 560**	**8 204**	**2 313**	**–36**	**22 041**
Expenses					
Claims and claim adjustment expenses	–6 637		–903		–7 540
Life and health benefits		–6 671	–439		–7 110
Return credited to policyholders		–21	–191		–212
Acquisition costs	–2 637	–1 108	–564		–4 309
Operating expenses	–586	–403	–344	2	–1 331
Total expenses before interest expenses	**–9 860**	**–8 203**	**–2 441**	**2**	**–20 502**
Income/loss before interest and income tax expense/benefit	**1 700**	**1**	**–128**	**–34**	**1 539**
Interest expenses	–147	–136	–20	34	–269
Income/loss before income tax expense/benefit	**1 553**	**–135**	**–148**	**0**	**1 270**
Income tax expense/benefit	–303	26	27		–250
Net income/loss before attribution of non-controlling interests	**1 250**	**–109**	**–121**	**0**	**1 020**
Income/loss attributable to non-controlling interests			–19		–19
Net income/loss attributable to common shareholder	**1 250**	**–109**	**–140**	**0**	**1 001**
Claims ratio in %	63.5				
Expense ratio in %	30.8				
Combined ratio in %	94.3				
Management expense ratio[1] in %		5.0			
Net operating margin[2] in %	14.7	0.0			7.0

[1] Management expense ratio is calculated as "Operating expenses" divided by "Total revenues" excluding "Net realised investment gains/losses – non-participating business" and "Net investment result – unit-linked business".
[2] Net operating margin is calculated as "Income/loss before income tax expense/benefit" divided by "Total revenues" excluding "Net investment result – unit-linked business".

Business segments – balance sheet

As of 31 December

2020 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Total assets	100 973	68 363	14 422	–19 021	164 737

As of 30 June

2021 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Total assets	**103 697**	**67 497**	**19 651**	**–19 672**	**171 173**

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b) Property & Casualty Reinsurance business segment – by line of business

For the six months ended 30 June

2020 USD millions	Property	Casualty	Specialty	Unallocated	Total
Revenues					
Gross premiums written	5 827	5 155	1 794		12 776
Net premiums written	5 396	5 129	1 745		12 270
Change in unearned premiums	–1 853	–445	–371		–2 669
Premiums earned	3 543	4 684	1 374		9 601
Net investment income				485	485
Net realised investment gains/losses				496	496
Other revenues				13	13
Total revenues	3 543	4 684	1 374	994	10 595
Expenses					
Claims and claim adjustment expenses	–3 188	–3 953	–886		–8 027
Acquisition costs	–782	–1 356	–359		–2 497
Operating expenses	–295	–223	–79		–597
Total expenses before interest expenses	–4 265	–5 532	–1 324	0	–11 121
Income/loss before interest and income tax expense	–722	–848	50	994	–526
Interest expenses				–160	–160
Income/loss before income tax expense	–722	–848	50	834	–686
Claims ratio in %	90.0	84.4	64.5		83.6
Expense ratio in %	30.4	33.7	31.9		32.2
Combined ratio in %	120.4	118.1	96.4		115.8

Property & Casualty Reinsurance business segment – by line of business
For the six months ended 30 June

2021 USD millions	Property	Casualty	Specialty	Unallocated	Total
Revenues					
Gross premiums written	6 053	5 582	1 847		13 482
Net premiums written	5 608	5 526	1 811		12 945
Change in unearned premiums	–1 786	–391	–315		–2 492
Premiums earned	3 822	5 135	1 496		10 453
Net investment income				856	856
Net realised investment gains/losses				242	242
Other revenues				9	9
Total revenues	**3 822**	**5 135**	**1 496**	**1 107**	**11 560**
Expenses					
Claims and claim adjustment expenses	–2 261	–3 539	–837		–6 637
Acquisition costs	–800	–1 458	–379		–2 637
Operating expenses	–286	–201	–99		–586
Total expenses before interest expenses	**–3 347**	**–5 198**	**–1 315**	**0**	**–9 860**
Income/loss before interest and income tax expense	**475**	**–63**	**181**	**1 107**	**1 700**
Interest expenses				–147	–147
Income/loss before income tax expense	**475**	**–63**	**181**	**960**	**1 553**
Claims ratio in %	59.2	68.9	55.9		63.5
Expense ratio in %	28.4	32.3	32.0		30.8
Combined ratio in %	87.6	101.2	87.9		94.3

c) Life & Health Reinsurance business segment – by line of business

For the six months ended 30 June

2020 USD millions	Life	Health	Unallocated	Total
Revenues				
Gross premiums written	4 944	2 416		7 360
Net premiums written	4 389	2 278		6 667
Change in unearned premiums	12	–82		–70
Premiums earned	4 401	2 196		6 597
Fee income from policyholders	79			79
Net investment income – non-participating business	446	137		583
Net realised investment gains/losses – non-participating business	67	–1	274	340
Net investment result – unit-linked business	–113			–113
Other revenues	2	1		3
Total revenues	4 882	2 333	274	7 489
Expenses				
Life and health benefits	–4 198	–1 794		–5 992
Return credited to policyholders	102			102
Acquisition costs	–669	–298		–967
Operating expenses	–235	–116		–351
Total expenses before interest expenses	–5 000	–2 208	0	–7 208
Income/loss before interest and income tax expense	–118	125	274	281
Interest expenses			–199	–199
Income/loss before income tax expense	–118	125	75	82
Management expense ratio[1] in %	4.8	5.0		4.8
Net operating margin[2] in %	–2.4	5.4		3.7

[1] Management expense ratio is calculated as "Operating expenses" divided by "Total revenues" excluding "Net realised investment gains/losses – non-participating business" and "Net investment result – unit-linked business".
[2] Net operating margin is calculated as "Income/loss before interest and income tax expense" divided by "Total revenues" excluding "Net investment result – unit-linked business".

Life & Health Reinsurance business segment – by line of business
For the six months ended 30 June

2021 USD millions	Life	Health	Unallocated	Total
Revenues				
Gross premiums written	5 764	2 301		8 065
Net premiums written	5 220	2 151		7 371
Change in unearned premiums	10	41		51
Premiums earned	5 230	2 192		7 422
Fee income from policyholders	96			96
Net investment income – non-participating business	418	142		560
Net realised investment gains/losses – non-participating business	–16		136	120
Net investment result – unit-linked business	5			5
Other revenues	1			1
Total revenues	**5 734**	**2 334**	**136**	**8 204**
Expenses				
Life and health benefits	–5 137	–1 534		–6 671
Return credited to policyholders	–21			–21
Acquisition costs	–739	–369		–1 108
Operating expenses	–267	–136		–403
Total expenses before interest expenses	**–6 164**	**–2 039**	**0**	**–8 203**
Income/loss before interest and income tax expense	**–430**	**295**	**136**	**1**
Interest expenses			–136	–136
Income/loss before income tax expense	**–430**	**295**		**–135**
Management expense ratio[1] in %	4.6	5.8		5.0
Net operating margin[2] in %	–7.5	12.6		0.0

[1] Management expense ratio is calculated as "Operating expenses" divided by "Total revenues" excluding "Net realised investment gains/losses – non-participating business" and "Net investment result – unit-linked business".
[2] Net operating margin is calculated as "Income/loss before interest and income tax expense" divided by "Total revenues" excluding "Net investment result – unit-linked business".

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3 Insurance information

Premiums earned and fees assessed against policyholders

For the six months ended 30 June

2020 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Premiums earned, thereof:				
Direct			34	34
Reinsurance	9 813	7 185	557	17 555
Intra-group transactions (assumed and ceded)	2	104	–106	0
Premiums earned before retrocession to external parties	9 815	7 289	485	17 589
Retrocession to external parties	–214	–692		–906
Net premiums earned	9 601	6 597	485	16 683
Fee income from policyholders, thereof:				
Direct				0
Reinsurance		79	44	123
Gross fee income before retrocession to external parties		79	44	123
Retrocession to external parties				0
Net fee income	0	79	44	123

2021 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Premiums earned, thereof:				
Direct			43	43
Reinsurance	10 593	8 102	2 233	20 928
Intra-group transactions (assumed and ceded)	107	2	–109	0
Premiums earned before retrocession to external parties	10 700	8 104	2 167	20 971
Retrocession to external parties	–247	–682	–49	–978
Net premiums earned	**10 453**	**7 422**	**2 118**	**19 993**
Fee income from policyholders, thereof:				
Direct				0
Reinsurance		96	40	136
Gross fee income before retrocession to external parties		96	40	136
Retrocession to external parties				0
Net fee income	**0**	**96**	**40**	**136**

Claims and claim adjustment expenses

For the six months ended 30 June

2020 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Claims paid, thereof:				
Gross claims paid to external parties	–6 625	–5 641	–439	–12 705
Intra-group transactions (assumed and ceded)		–40	40	0
Claims before receivables from retrocession to external parties	–6 625	–5 681	–399	–12 705
Retrocession to external parties	271	639	1	911
Net claims paid	–6 354	–5 042	–398	–11 794
Change in unpaid claims and claim adjustment expenses; life and health benefits, thereof:				
Gross – with external parties	–1 462	–1 002	–86	–2 550
Intra-group transactions (assumed and ceded)		–57	57	0
Unpaid claims and claim adjustment expenses; life and health benefits before impact of retrocession to external parties	–1 462	–1 059	–29	–2 550
Retrocession to external parties	–211	109		–102
Net unpaid claims and claim adjustment expenses; life and health benefits	–1 673	–950	–29	–2 652
Claims and claim adjustment expenses; life and health benefits	–8 027	–5 992	–427	–14 446

Acquisition costs

For the six months ended 30 June

2020 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Acquisition costs, thereof:				
Gross acquisition costs with external parties	–2 541	–1 093	–152	–3 786
Intra-group transactions (assumed and ceded)		–8	8	0
Acquisition costs before impact of retrocession to external parties	–2 541	–1 101	–144	–3 786
Retrocession to external parties	44	134		178
Net acquisition costs	–2 497	–967	–144	–3 608

Claims and claim adjustment expenses

For the six months ended 30 June

2021 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Claims paid, thereof:				
Gross claims paid to external parties	–6 219	–7 164	–1 350	–14 733
Intra-group transactions (assumed and ceded)	–6	–59	65	0
Claims before receivables from retrocession to external parties	–6 225	–7 223	–1 285	–14 733
Retrocession to external parties	164	792		956
Net claims paid	**–6 061**	**–6 431**	**–1 285**	**–13 777**
Change in unpaid claims and claim adjustment expenses; life and health benefits, thereof:				
Gross – with external parties	–553	–240	–37	–830
Intra-group transactions (assumed and ceded)	–28	59	–31	0
Unpaid claims and claim adjustment expenses; life and health benefits before impact of retrocession to external parties	–581	–181	–68	–830
Retrocession to external parties	5	–59	11	–43
Net unpaid claims and claim adjustment expenses; life and health benefits	**–576**	**–240**	**–57**	**–873**
Claims and claim adjustment expenses; life and health benefits	**–6 637**	**–6 671**	**–1 342**	**–14 650**

Acquisition costs

For the six months ended 30 June

2021 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Acquisition costs, thereof:				
Gross acquisition costs with external parties	–2 679	–1 239	–574	–4 492
Intra-group transactions (assumed and ceded)	–6	–3	9	0
Acquisition costs before impact of retrocession to external parties	–2 685	–1 242	–565	–4 492
Retrocession to external parties	48	134	1	183
Net acquisition costs	**–2 637**	**–1 108**	**–564**	**–4 309**

Reinsurance assets and liabilities

The reinsurance assets and liabilities as of 31 December 2020 and 30 June 2021 were as follows:

2020 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Assets					
Reinsurance recoverable on unpaid claims and policy benefits	2 030	2 042	87	–98	4 061
Deferred acquisition costs	2 576	4 900	514		7 990
Liabilities					
Unpaid claims and claim adjustment expenses	55 267	14 863	1 885	–96	71 919
Liabilities for life and health policy benefits		20 207	686	–1	20 892
Policyholder account balances		1 303	3 889		5 192

2021 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Assets					
Reinsurance recoverable on unpaid claims and policy benefits	2 032	1 943	88	–83	3 980
Deferred acquisition costs	2 710	4 826	808		8 344
Liabilities					
Unpaid claims and claim adjustment expenses	55 474	15 204	5 527	–80	76 125
Liabilities for life and health policy benefits		19 857	696	–1	20 552
Policyholder account balances		1 265	3 947		5 212

Reinsurance receivables

Reinsurance receivables as of 31 December 2020 and 30 June 2021 were as follows:

USD millions	2020	**2021**
Premium receivables invoiced	3 377	4 169
Receivables invoiced from ceded re/insurance business	361	424
Assets arising from the application of the deposit method of accounting and meeting the definition of financing receivables	644	689
Recognised allowance	–42	–42

4 Premiums written

For the six months ended 30 June

2020 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Gross premiums written, thereof:					
Direct			36		36
Reinsurance	12 776	7 152	913		20 841
Intra-group transactions (assumed)		208		–208	0
Gross premiums written	12 776	7 360	949	–208	20 877
Intra-group transactions (ceded)	3		–211	208	0
Gross premiums written before retrocession to external parties	12 779	7 360	738		20 877
Retrocession to external parties	–509	–693			–1 202
Net premiums written	12 270	6 667	738	0	19 675

2021 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Gross premiums written, thereof:					
Direct			43		43
Reinsurance	13 205	8 063	4 056		25 324
Intra-group transactions (assumed)	277	2	61	–340	0
Gross premiums written	13 482	8 065	4 160	–340	25 367
Intra-group transactions (ceded)	–61		–279	340	0
Gross premiums written before retrocession to external parties	13 421	8 065	3 881		25 367
Retrocession to external parties	–476	–694	–112		–1 282
Net premiums written	**12 945**	**7 371**	**3 769**	**0**	**24 085**

5 Unpaid claims and claim adjustment expenses

A reconciliation of the opening and closing reserve balances for unpaid claims and claim adjustment expenses as of 31 December 2020 and 30 June 2021 is presented as follows:

USD millions	2020	**2021**
Balance as of 1 January	64 216	71 919
Reinsurance recoverable	–2 697	–2 552
Deferred expense on retroactive reinsurance	–168	–191
Net balance as of 1 January	61 351	69 176
Incurred related to:		
Current year	29 116	15 164
Prior year	319	–413
Amortisation of deferred expense on retroactive reinsurance and impact of commutations	–36	20
Total incurred	29 399	14 771
Paid related to:		
Current year	–8 562	–2 363
Prior year	–15 436	–11 414
Total paid	–23 998	–13 777
Foreign exchange	1 997	–573
Effect of acquisitions, disposals, new retroactive reinsurance and other items	427	3 844
Net balance as of period end	69 176	73 441
Reinsurance recoverable	2 552	2 518
Deferred expense on retroactive reinsurance	191	166
Balance as of period end	71 919	76 125

Prior-year development

Non-life claims development in the first six months ended 30 June 2021 on prior years is mainly driven by favourable property experience slightly offset by adverse casualty experience. Development in property is principally due to reserve releases related to natural catastrophe events and lower than expected claims activity, mostly in North America and Asia. The deterioration for casualty mainly comes from adverse experience for liability in North America and cyber, partly offset by favourable development in workers' compensation. Specialty was impacted by positive claims experience mainly in credit and aviation, partly offset by adverse development in marine.

For life and health lines of business, development on prior years' unpaid claims is unfavourable. For health business, unfavourable experience in disability portfolio in the US was partially offset by positive experience in disability portfolios in Australia. Claims development related to prior years for disability portfolios also includes an element of interest accretion for unpaid claims reported at an estimated present value. For life business, there is favourable development in Continental Europe and the UK from release of prior year's COVID-19 allowances exceeding the actual claims paid.

A summary of prior-year net claims and claim adjustment expenses development by lines of business for the year ended 31 December 2020 and for the six months ended 30 June 2021 is shown below[1]:

USD millions	2020	**2021**
Line of business:		
Property	–421	–407
Casualty	462	63
Specialty	34	–80
Life and health	244	11
Total	319	–413

[1] Adverse development is shown as positive numbers, and represents a charge to the income statement. Favourable development is shown as negative, and represents a credit to the income statement.

6 Deferred acquisition costs (DAC) and acquired present value of future profits (PVFP)

As of 31 December 2020 and 30 June 2021, the DAC were as follows:

2020 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Opening balance as of 1 January	2 613	4 529	205	7 347
Deferred	5 016	619	381	6 016
Effect of acquisitions/disposals and retrocessions		–2	2	0
Amortisation	–5 103	–417	–124	–5 644
Effect of foreign currency translation and other changes	50	171	50	271
Closing balance	2 576	4 900	514	7 990

2021 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Opening balance as of 1 January	2 576	4 900	514	7 990
Deferred	2 793	226	860	3 879
Effect of acquisitions/disposals and retrocessions				0
Amortisation	–2 637	–234	–563	–3 434
Effect of foreign currency translation and other changes	–22	–66	–3	–91
Closing balance	**2 710**	**4 826**	**808**	**8 344**

Retroceded DAC may arise on retrocession of reinsurance portfolios, including reinsurance undertaken as part of a securitisation. The associated potential retrocession recoveries are determined by the nature of the retrocession agreements and by the terms of the securitisation.

As of 31 December 2020 and 30 June 2021, the PVFP was as follows:

			2020			**2021**
USD millions	Life & Health Reinsurance	Other	Total	Life & Health Reinsurance	Other	Total
Opening balance as of 1 January	577	520	1 097	510	473	983
Effect of acquisitions/disposals and retrocessions		–2	–2			0
Amortisation	–99	–74	–173	–37	–19	–56
Interest accrued on unamortised PVFP	28	37	65	2	9	11
Effect of change in unrealised gains/losses		–8	–8		8	8
Effect of foreign currency translation	4		4	2		2
Closing balance	510	473	983	**477**	**471**	**948**

Retroceded PVFP may arise on retrocession of reinsurance portfolios, including reinsurance undertaken as part of a securitisation. The associated potential retrocession recoveries are determined by the nature of the retrocession agreements and by the terms of the securitisation.

7 Investments

Investment income

Net investment income by source (excluding unit-linked business) for the six months ended 30 June was as follows:

USD millions	2020	2021
Fixed income securities	920	845
Equity securities	19	49
Policy loans, mortgages and other loans	42	53
Investment real estate	120	127
Short-term investments	22	11
Other current investments	27	50
Share in earnings of equity-accounted investees	–59	427
Cash and cash equivalents	15	4
Net result from deposit-accounted contracts	10	44
Deposits with ceding companies	213	253
Gross investment income	1 329	**1 863**
Investment expenses	–161	–167
Interest charged for funds held	–3	–1
Net investment income – non-participating business	1 165	**1 695**

Dividends received from investments accounted for using the equity method were USD 46 million and USD 85 million for the six months ended 30 June 2020 and 2021, respectively.

Realised gains and losses

Realised gains and losses for fixed income securities, equity securities and other investments (excluding unit-linked business) for the six months ended 30 June were as follows:

USD millions	2020	2021
Fixed income securities available-for-sale:		
Gross realised gains	1 114	250
Gross realised losses	–163	–188
Other-than-temporary impairments	–25	
Net realised investment gains/losses on equity securities	–80	35
Change in net unrealised investment gains/losses on equity securities	–36	51
Net realised investment gains/losses on trading securities	69	–58
Change in net unrealised investment gains/losses on trading securities	15	–35
Net realised/unrealised gains/losses on other investments	–118	139
Net realised/unrealised gains/losses on insurance-related activities	67	–8
Foreign exchange gains/losses	128	18
Net realised investment gains/losses – non-participating business	971	**204**

Net realised/unrealised gains/losses on insurance-related activities included impairments of nil and USD 2 million for the six months ended 30 June 2020 and 2021, respectively.

Investment result – unit-linked business

The net investment result on unit-linked business credited to policyholders amounted to losses of USD 113 million and to gains of USD 5 million for the six months ended 30 June 2020 and 2021, respectively, originating from equity securities.

Impairment on fixed income securities related to credit losses

Other-than-temporary impairments for debt securities are bifurcated between credit and non-credit components, with the credit component recognised through earnings and the non-credit component recognised in other comprehensive income. The credit component of other-than-temporary impairments is defined as the difference between a security's amortised cost basis and the present value of expected cash flows. Methodologies for measuring the credit component of impairment are aligned to market observer forecasts of credit performance drivers. Management believes that these forecasts are representative of median market expectations.

For securitised products, cash flow projection analysis is conducted by integrating forward-looking evaluation of collateral performance drivers, including default rates, prepayment rates and loss severities, and deal-level features, such as credit enhancement and prioritisation among tranches for payments of principal and interest. Analytics are differentiated by asset class, product type and security-level differences in historical and expected performance. For corporate bonds and hybrid debt instruments, an expected loss approach based on default probabilities and loss severities expected in the current and forecasted economic environment is used for securities identified as credit-impaired to project probability-weighted cash flows. Expected cash flows resulting from these analyses are discounted, and the present value is compared to the amortised cost basis to determine the credit component of other-than-temporary impairments.

A reconciliation of other-than-temporary impairments related to credit losses recognised in earnings for the six months ended 30 June was as follows:

USD millions	2020	2021
Balance as of 1 January	59	46
Credit losses for which an other-than-temporary impairment was not previously recognised	16	1
Reductions for securities sold during the period	–20	–9
Increase of credit losses for which an other-than-temporary impairment has been recognised previously, when the Group does not intend to sell, or more likely than not will not be required to sell before recovery		1
Impact of increase in cash flows expected to be collected	–1	–1
Impact of foreign exchange movements	–1	
Balance as of 30 June	53	**38**

Investments available-for-sale

Amortised cost or cost, estimated fair values and other-than-temporary impairments of fixed income securities classified as available-for-sale as of 31 December 2020 and 30 June 2021 were as follows:

2020 USD millions	Amortised cost or cost	Gross unrealised gains	Gross unrealised losses	Other-than-temporary impairments recognised in other comprehensive income	Estimated fair value
Debt securities issued by governments and government agencies:					
US Treasury and other US government corporations and agencies	8 713	506	–15		9 204
US Agency securitised products	5 950	200	–10		6 140
States of the United States and political subdivisions of the states	1 175	227			1 402
United Kingdom	4 239	804	–5		5 038
Germany	2 922	476	–1		3 397
France	2 440	548	–1		2 987
Japan	2 086	56	–24		2 118
Canada	1 742	215	–12		1 945
Other	9 623	754	–19		10 358
Total	38 890	3 786	–87		42 589
Corporate debt securities	25 585	2 870	–34		28 421
Mortgage- and asset-backed securities	2 965	152	–25	–1	3 091
Fixed income securities available-for-sale	67 440	6 808	–146	–1	74 101

2021 USD millions	Amortised cost or cost	Gross unrealised gains	Gross unrealised losses	Other-than-temporary impairments recognised in other comprehensive income	Estimated fair value
Debt securities issued by governments and government agencies:					
US Treasury and other US government corporations and agencies	11 100	265	–77		11 288
US Agency securitised products	4 791	99	–27		4 863
States of the United States and political subdivisions of the states	1 102	199			1 301
United Kingdom	4 256	425	–74		4 607
Germany	2 941	283	–39		3 185
France	2 451	251	–28		2 674
Japan	2 086	26	–40		2 072
Canada	1 821	124	–12		1 933
Other	9 757	422	–75		10 104
Total	40 305	2 094	–372		42 027
Corporate debt securities	28 610	2 222	–74		30 758
Mortgage- and asset-backed securities	3 225	116	–15	–8	3 318
Fixed income securities available-for-sale	**72 140**	**4 432**	**–461**	**–8**	**76 103**

The "Other-than-temporary impairments recognised in other comprehensive income" column includes only securities with a credit-related loss recognised in earnings. Subsequent recovery in fair value of securities previously impaired in other comprehensive income is also presented in the "Other-than-temporary impairments recognised in other comprehensive income" column.

Unrealised losses on securities available-for-sale

The following table shows the fair value and unrealised losses of the Group's fixed income securities, aggregated by investment category and length of time that individual securities were in a continuous unrealised loss position as of 31 December 2020 and 30 June 2021.

2020 USD millions	Less than 12 months Fair value	 Unrealised losses	12 months or more Fair value	 Unrealised losses	Total Fair value	 Unrealised losses
Debt securities issued by governments and government agencies:						
US Treasury and other US government corporations and agencies	1 112	15			1 112	15
US Agency securitised products	348	10	9	0	357	10
States of the United States and political subdivisions of the states	8	0			8	0
United Kingdom	227	5			227	5
Germany	13	0	26	1	39	1
France	29	0	28	1	57	1
Japan	841	24			841	24
Canada	47	7	66	5	113	12
Other	1 500	11	99	8	1 599	19
Total	4 125	72	228	15	4 353	87
Corporate debt securities	1 031	30	144	4	1 175	34
Mortgage- and asset-backed securities	347	7	189	19	536	26
Total	5 503	109	561	38	6 064	147

2021 USD millions	Less than 12 months Fair value	 Unrealised losses	12 months or more Fair value	 Unrealised losses	Total Fair value	 Unrealised losses
Debt securities issued by governments and government agencies:						
US Treasury and other US government corporations and agencies	3 677	75	37	2	3 714	77
US Agency securitised products	1 538	17	24	10	1 562	27
States of the United States and political subdivisions of the states						0
United Kingdom	850	72	7	2	857	74
Germany	666	37	24	2	690	39
France	964	27	27	1	991	28
Japan	594	19	248	21	842	40
Canada	717	7	96	5	813	12
Other	2 852	68	254	7	3 106	75
Total	11 858	322	717	50	12 575	372
Corporate debt securities	4 373	65	247	9	4 620	74
Mortgage- and asset-backed securities	403	3	118	20	521	23
Total	**16 634**	**390**	**1 082**	**79**	**17 716**	**469**

Maturity of fixed income securities available-for-sale

The amortised cost or cost and estimated fair values of investments in fixed income securities available-for-sale by remaining maturity are shown below. Fixed maturity investments are assumed not to be called for redemption prior to the stated maturity date. As of 31 December 2020 and 30 June 2021, USD 18 595 million and USD 20 931 million, respectively, of fixed income securities available-for-sale were callable.

USD millions	Amortised cost or cost	2020 Estimated fair value	Amortised cost or cost	2021 Estimated fair value
Due in one year or less	7 550	7 592	5 869	5 901
Due after one year through five years	16 005	16 650	23 227	23 740
Due after five years through ten years	13 049	14 065	14 618	15 301
Due after ten years	28 709	33 533	26 077	28 712
Mortgage- and asset-backed securities with no fixed maturity	2 127	2 261	2 349	2 449
Total fixed income securities available-for-sale	67 440	74 101	**72 140**	**76 103**

Investments trading and at fair value through earnings

The carrying amounts of fixed income securities classified as trading and equity securities at fair value through earnings (excluding unit-linked business) as of 31 December 2020 and 30 June 2021 were as follows:

USD millions	2020	2021
Debt securities issued by governments and government agencies	1 907	1 588
Mortgage- and asset-backed securities	31	30
Fixed income securities trading – non-participating business	1 938	**1 618**
Equity securities at fair value through earnings – non-participating business	3 010	**3 270**

Investments held for unit-linked business

As of 31 December 2020 and 30 June 2021, the carrying amounts of investments held for unit-linked business consist of equity securities at fair value through earnings of USD 463 million and USD 462 million.

Mortgage, policy and other loans, and investment real estate

As of 31 December 2020 and 30 June 2021, the carrying and respective fair values of investments in mortgage, policy and other loans, and investment real estate (excluding unit-linked business) were as follows:

USD millions	Carrying value	2020 Fair value	Carrying value	2021 Fair value
Policy loans	43	43	35	35
Mortgage loans	982	1 030	1 157	1 199
Other loans	2 133	2 177	2 365	2 405
Investment real estate	2 601	5 116	2 406	4 828

As of 30 June 2021, investment in real estate included USD 179 million of real estate held for sale.

Depreciation expense related to investment real estate was USD 32 million and USD 32 million for the six months ended 30 June 2020 and 2021, respectively. Accumulated depreciation on investment real estate totalled USD 779 million and USD 774 million as of 31 December 2020 and 30 June 2021, respectively.

Substantially all mortgage, policy and other loan receivables are secured by buildings, land or the underlying policies.

Investment real estate held by the Group includes residential and commercial investment real estate.

Other financial assets and liabilities by measurement category

As of 31 December 2020 and 30 June 2021, "Other invested assets" and "Accrued expenses and other liabilities" by measurement category were as follows:

2020 USD millions	Fair value	Investments measured at net asset value as practical expedient	Amortised cost or cost	Equity-accounted	Not in scope[1]	Total
Other invested assets						
Derivative financial instruments	416					416
Reverse repurchase agreements			2 981			2 981
Securities lending/borrowing	1 636		282			1 918
Equity-accounted investments	120			1 934		2 054
Other	292	840	1 115			2 247
Other invested assets	2 464	840	4 378	1 934	0	9 616
Accrued expenses and other liabilities						
Derivative financial instruments	688					688
Repurchase agreements			248			248
Securities lending	1 638		183			1 821
Securities sold short	1 255					1 255
Other			1 715		5 284	6 999
Accrued expenses and other liabilities	3 581	0	2 146	0	5 284	11 011

2021 USD millions	Fair value	Investments measured at net asset value as practical expedient	Amortised cost or cost	Equity-accounted	Not in scope[1]	Total
Other invested assets						
Derivative financial instruments	312					312
Reverse repurchase agreements			2 912			2 912
Securities lending/borrowing	933		247			1 180
Equity-accounted investments	134			2 062		2 196
Other	300	952	1 295			2 547
Other invested assets	**1 679**	**952**	**4 454**	**2 062**	**0**	**9 147**
Accrued expenses and other liabilities						
Derivative financial instruments	731					731
Repurchase agreements			153			153
Securities lending	934		182			1 116
Securities sold short	1 252					1 252
Other			2 371		3 376	5 747
Accrued expenses and other liabilities	**2 917**	**0**	**2 706**	**0**	**3 376**	**8 999**

[1] Amounts do not relate to financial assets or liabilities.

Offsetting of derivatives, financial assets and financial liabilities

Offsetting of derivatives, financial assets and financial liabilities as of 31 December 2020 and 30 June 2021 was as follows:

2020 USD millions	Gross amounts of recognised financial assets	Amounts set-off in the balance sheet	Net amounts of financial assets presented in the balance sheet	Related financial instruments not set-off in the balance sheet	Net amount
Derivative financial instruments – assets	1 759	–1 343	416	–40	376
Reverse repurchase agreements	4 924	–1 943	2 981	–2 981	0
Securities borrowing	292	–10	282	–280	2
Total	6 975	–3 296	3 679	–3 301	378

2020 USD millions	Gross amounts of recognised financial liabilities	Amounts set-off in the balance sheet	Net amounts of financial liabilities presented in the balance sheet	Related financial instruments not set-off in the balance sheet	Net amount
Derivative financial instruments – liabilities	–1 968	1 280	–688	302	–386
Repurchase agreements	–1 891	1 643	–248	248	0
Securities lending	–2 131	310	–1 821	1 652	–169
Total	–5 990	3 233	–2 757	2 202	–555

2021 USD millions	Gross amounts of recognised financial assets	Amounts set-off in the balance sheet	Net amounts of financial assets presented in the balance sheet	Related financial instruments not set-off in the balance sheet	Net amount
Derivative financial instruments – assets	1 769	–1 457	312	–10	**302**
Reverse repurchase agreements	5 000	–2 088	2 912	–2 912	**0**
Securities borrowing	362	–115	247	–246	**1**
Total	**7 131**	**–3 660**	**3 471**	**–3 168**	**303**

2021 USD millions	Gross amounts of recognised financial liabilities	Amounts set-off in the balance sheet	Net amounts of financial liabilities presented in the balance sheet	Related financial instruments not set-off in the balance sheet	Net amount
Derivative financial instruments – liabilities	–1 811	1 080	–731	209	**–522**
Repurchase agreements	–1 942	1 789	–153	153	**0**
Securities lending	–1 530	414	–1 116	1 084	**–32**
Total	**–5 283**	**3 283**	**–2 000**	**1 446**	**–554**

Collateral pledged or received between two counterparties with a master netting arrangement in place, but not subject to balance sheet netting, is disclosed at fair value. The fair values represent the gross carrying value amounts at the reporting date for each financial instrument received or pledged by the Group. Management believes that master netting agreements provide for legally enforceable set-off in the event of default, which substantially reduces credit exposure. Upon occurrence of an event of default, the non-defaulting party may set off the obligation against collateral received regardless if it has been offset on balance sheet prior to the defaulting event. The net amounts of the financial assets and liabilities presented on the balance sheet were recognised in "Other invested assets" and "Accrued expenses and other liabilities".

Assets pledged

As of 31 December 2020 and 30 June 2021, investments with a carrying value of USD 4 637 million and USD 4 376 million, respectively, were on deposit with regulatory agencies in accordance with local requirements, of which USD 154 million and USD 168 million, respectively, were cash and cash equivalents. As of 31 December 2020 and 30 June 2021, investments with a carrying value of USD 14 031 million and USD 13 786 million, respectively, were placed on deposit or pledged to secure certain reinsurance liabilities, including pledged investments in subsidiaries, of which USD 188 million and USD 455 million, respectively, were cash and cash equivalents. Cash and cash equivalents pledged include some instances where cash is legally restricted from usage or withdrawal.

As of 31 December 2020 and 30 June 2021, securities of USD 12 290 million and USD 14 964 million, respectively, were transferred to third parties under securities lending transactions and repurchase agreements on a fully collateralised basis. Corresponding liabilities of USD 2 069 million and USD 1 269 million, respectively, were recognised in accrued expenses and other liabilities for the obligation to return collateral that the Group has the right to sell or reuse.

As of 31 December 2020 and 30 June 2021, a real estate portfolio with a carrying value of USD 200 million and USD 189 million, respectively, served as collateral for a credit facility, allowing the Group to withdraw funds up to CHF 500 million.

Collateral accepted which the Group has the right to sell or repledge

As of 31 December 2020 and 30 June 2021, the fair value of the equity securities, government and corporate debt securities received as collateral was USD 6 308 million and USD 5 980 million, respectively. Of this, the amount that was sold or repledged as of 31 December 2020 and 30 June 2021 was USD 2 714 million and USD 1 457 million, respectively. The sources of the collateral are securities borrowing, reverse repurchase agreements, derivative transactions and reinsurance transactions.

Recognised gross liability for the obligation to return collateral (from repurchase agreements and securities lending)

As of 31 December 2020 and 30 June 2021, the gross amounts of liabilities related to repurchase agreements and securities lending by the class of securities transferred to third parties and by the remaining maturity are shown below.

2020 USD millions	Remaining contractual maturity of the agreements Overnight and continuous	Up to 30 days	30–90 days	Greater than 90 days	Total
Repurchase agreements					
Debt securities issued by governments and government agencies	197	1 490	54		1 741
Corporate debt securities	2	148			150
Total repurchase agreements	199	1 638	54	0	1 891
Securities lending					
Debt securities issued by governments and government agencies	1 099		303	551	1 953
Corporate debt securities	79				79
Equity securities	99				99
Total securities lending	1 277	0	303	551	2 131
Gross amount of recognised liabilities for repurchase agreements and securities lending					4 022

2021 USD millions	Remaining contractual maturity of the agreements Overnight and continuous	Up to 30 days	30–90 days	Greater than 90 days	Total
Repurchase agreements					
Debt securities issued by governments and government agencies	82	1 696			1 778
Corporate debt securities		164			164
Total repurchase agreements	**82**	**1 860**	**0**	**0**	**1 942**
Securities lending					
Debt securities issued by governments and government agencies	487	449	300		1 236
Corporate debt securities	86	115			201
Equity securities	93				93
Total securities lending	**666**	**564**	**300**	**0**	**1 530**
Gross amount of recognised liabilities for repurchase agreements and securities lending					**3 472**

The programme is structured in a conservative manner within a clearly defined risk framework. Yield enhancement is conducted on a non-cash basis, thereby taking no re-investment risk.

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8 Fair value disclosures

Fair value, as defined by the Fair Value Measurements and Disclosures Topic, is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

The Fair Value Measurements and Disclosures Topic requires all assets and liabilities that are measured at fair value to be categorised within the fair value hierarchy. This three-level hierarchy is based on the observability of the inputs used in the fair value measurement. The levels of the fair value hierarchy are defined as follows:

Level 1 inputs are unadjusted, quoted prices in active markets for identical assets or liabilities that the Group has the ability to access. Level 1 inputs are the most persuasive evidence of fair value and are to be used whenever possible. The types of instruments include most US government and sovereign obligations, active listed equities, certain exchange-traded derivative instruments and most money market securities.

Level 2 inputs are market-based inputs that are directly or indirectly observable, but not considered level 1 quoted prices. Level 2 inputs consist of (i) quoted prices for similar assets or liabilities in active markets; (ii) quoted prices for identical assets or liabilities in non-active markets (eg markets which have few transactions and where prices are not current or price quotations vary substantially); (iii) inputs other than quoted prices that are observable (eg interest rates, yield curves, volatilities, prepayment speeds, credit risks and default rates); (iv) inputs derived from, or corroborated by, observable market data; and (v) quoted prices provided by third-party brokers. The types of instruments that trade in markets that are not considered to be active include most government agency securities, investment-grade corporate bonds, certain mortgage- and asset-backed products, certain exchange-traded derivative instruments, catastrophe bonds, less liquid listed equities and state, municipal and provincial obligations.

Level 3 inputs are unobservable inputs. These inputs reflect the Group's own assumptions about market pricing using the best internal and external information available. Certain financial instruments are classified within level 3 of the fair value hierarchy because they trade infrequently and therefore have little or no price transparency. Such instruments include private equity, less liquid corporate debt securities and certain asset-backed securities (ABS). Certain over-the-counter (OTC) derivatives trade in less liquid markets with limited pricing information, and the determination of fair value for these derivatives is inherently more difficult. When appropriate, valuations are adjusted for various factors such as liquidity, bid/offer spreads and credit considerations. Such adjustments are generally based on available market evidence. In the absence of such evidence, management's best estimate is used.

Pursuant to the election of the fair value option, the Group classifies certain liabilities for life and health policy benefits in level 3 of the fair value hierarchy. When appropriate, valuations are adjusted for various factors such as liquidity, bid/offer spreads and credit considerations. Such adjustments are generally based on available market evidence. In the absence of such evidence, management's best estimate is used.

The fair values of assets are adjusted to incorporate the counterparty risk of non-performance. Similarly, the fair values of liabilities reflect the risk of non-performance of the Group, captured by the Group's credit spread. These valuation adjustments from assets and liabilities measured at fair value using significant unobservable inputs are recognised in net realised gains and losses. For the six months ended 30 June 2021, these adjustments were not material. Whenever the underlying assets or liabilities are reported in a specific business segment, the valuation adjustment is allocated accordingly. Valuation adjustments not attributable to any business segment are reported in Other.

In certain situations, the Group uses inputs to measure the fair value of asset or liability positions that fall into different levels of the fair value hierarchy. In these situations, the Group will determine the appropriate level based on the lowest level input that is significant to the determination of the fair value.

Valuation techniques
US government securities typically have quoted market prices in active markets and are categorised as level 1 instruments in the fair value hierarchy. Non-US government holdings are generally classified as level 2 instruments and are valued on the basis of the quotes provided by pricing services, which are subject to the Group's pricing validation reviews and pricing vendor challenge process. Valuations provided by pricing vendors are generally based on the actual trade information as substantially all of the Group's non-US government holdings are traded in a transparent and liquid market.

Corporate debt securities mainly include US and European investment-grade positions, which are priced on the basis of quotes provided by third-party pricing vendors and first utilise valuation inputs from actively traded securities, such as bid prices, bid spreads to Treasury securities, Treasury curves and same or comparable issuer curves and spreads. Issuer spreads are determined from actual quotes and traded prices and incorporate considerations of credit/default, sector composition, and liquidity and call features. Where market data is not available, valuations are developed based on the modelling techniques that utilise observable inputs and option-adjusted spreads and incorporate considerations of the security's seniority and maturity and the issuer's corporate structure.

Values of mortgage- and asset-backed securities are obtained both from third-party pricing vendors and through quoted prices, some of which may be based on the prices of comparable securities with similar structural and collateral features. Values of certain ABS for which there are no significant observable inputs are developed using benchmarks to similar transactions or indices. For both residential mortgage-backed securities (RMBS) and commercial mortgage-backed securities (CMBS), cash flows are derived based on the transaction-specific information, which incorporates priority in the capital structure, and are generally adjusted to reflect benchmark yields, market prepayment data, collateral performance (default rates and loss severity) for specific vintage and geography, credit enhancements and ratings. For certain RMBS and CMBS with low levels of market liquidity, judgements may be required to determine comparable securities based on the loan type and deal-specific performance. CMBS terms may also incorporate lock-out periods that restrict borrowers from prepaying the loans or provide disincentives to prepay and therefore reduce prepayment risk of these securities, compared to RMBS. The factors specifically considered in the valuation of CMBS include borrower-specific statistics in a specific region, such as debt service coverage and loan-to-value ratios, as well as the type of commercial property. Mortgage- and asset-backed securities also include debt securitised by credit card, student loan and auto loan receivables. Pricing inputs for these securities also focus on capturing, where relevant, collateral quality and performance, payment patterns and delinquencies.

The Group uses third-party pricing vendor data to value agency securitised products, which mainly include collateralised mortgage obligations (CMO) and mortgage-backed government agency securities. The valuations generally utilise observable inputs consistent with those noted above for RMBS and CMBS.

Equity securities held by the Group for proprietary investment purposes are mainly classified in level 1. Securities classified in level 1 are traded on public stock exchanges for which quoted prices are readily available.

The category "Other invested assets" includes the Group's private equity and hedge fund investments which are made directly or via ownership of funds. Valuation of direct private equity investments requires significant management judgement due to the absence of quoted market prices and the lack of liquidity. Initial valuation is based on the acquisition cost and is further refined based on the available market information for the public companies that are considered comparable to the Group's holdings in the private companies being valued and the private company-specific performance indicators, both historic and projected. Subsequent valuations also reflect business or asset appraisals, as well as market transaction data for private and public benchmark companies and the actual companies being valued, such as financing rounds and mergers and acquisitions activity. The Group's holdings in private equity and hedge funds are generally valued utilising net asset values (NAV), subject to adjustments, as deemed necessary, for restrictions on redemption (lock-up periods and amount limitations on redemptions). These investments are included under investments measured at net asset value as a practical expedient.

The Group holds both exchange-traded and OTC interest rate, foreign exchange, credit and equity derivative contracts for hedging and trading purposes. The fair values of exchange-traded derivatives measured using observable exchange prices are classified in level 1. Long-dated contracts may require adjustments to the exchange-traded prices which would trigger reclassification to level 2 in the fair value hierarchy. OTC derivatives are generally valued by the Group based on the internal models, which are consistent with industry standards and practices, and use both observable (dealer, broker or market consensus prices, spot and forward rates, interest rate and credit curves and volatility indices) and unobservable inputs (adjustments for liquidity, inputs derived from the observable data based on the Group's judgements and assumptions). The Group's OTC interest rate derivatives primarily include interest rate swaps, futures, options, caps and floors and are valued based on the cash flow discounting models which generally utilise as inputs observable market yield curves and volatility assumptions.

The Group's OTC foreign exchange derivatives primarily include forward, spot and option contracts and are generally valued based on the cash flow discounting models, utilising as main inputs observable foreign exchange forward curves.

The Group's investments in equity derivatives primarily include OTC equity option contracts on single or baskets of market indices and equity options on individual or baskets of equity securities, which are valued using internally developed models (such as the Black-Scholes type option pricing model and various simulation models) calibrated with the inputs, which include underlying spot prices, dividend curves, volatility surfaces, yield curves and correlations between underlying assets.

The Group's OTC credit derivatives can include index and single-name credit default swaps. Plain vanilla credit derivatives, such as index and single-name credit default swaps, are valued by the Group based on the models consistent with the industry valuation standards for these credit contracts and primarily utilise observable inputs published by market data sources, such as credit spreads and recovery rates. These valuation techniques warrant classification of plain vanilla OTC derivatives as level 2 financial instruments in the fair value hierarchy.

Assets and liabilities measured at fair value on a recurring basis

As of 31 December 2020 and 30 June 2021, the fair values of assets and liabilities measured on a recurring basis by level of input were as follows:

2020 USD millions	Quoted prices in active markets for identical assets and liabilities (level 1)	Significant other observable inputs (level 2)	Significant unobservable inputs (level 3)	Impact of netting[1]	Total
Assets					
Fixed income securities held for proprietary investment purposes	8 880	65 976	1 183		76 039
Debt securities issued by US government and government agencies	8 880	1 901			10 781
US Agency securitised products		6 381			6 381
Debt securities issued by non-US governments and government agencies		27 334			27 334
Corporate debt securities		27 238	1 183		28 421
Mortgage- and asset-backed securities		3 122			3 122
Equity securities held for proprietary investment purposes	3 010				3 010
Equity securities backing unit-linked business	463				463
Short-term investments held for proprietary investment purposes	5 607	8 158			13 765
Derivative financial instruments	4	1 511	244	−1 343	416
Interest rate contracts		495			495
Foreign exchange contracts		273			273
Equity contracts	4	713	201		918
Credit contracts		30			30
Other contracts			43		43
Other invested assets	551	1 085	412		2 048
Funds held by ceding companies		172			172
Total assets at fair value	18 515	76 902	1 839	−1 343	95 913
Liabilities					
Derivative financial instruments	−10	−1 640	−318	1 280	−688
Interest rate contracts		−451	−1		−452
Foreign exchange contracts		−442			−442
Equity contracts	−10	−409	−23		−442
Credit contracts		−338			−338
Other contracts			−294		−294
Liabilities for life and health policy benefits			−97		−97
Accrued expenses and other liabilities	−794	−2 099			−2 893
Total liabilities at fair value	−804	−3 739	−415	1 280	−3 678

[1] The netting of derivative receivables and derivative payables is permitted when a legally enforceable master netting agreement exists between two counterparties. A master netting agreement provides for the net settlement of all contracts, as well as cash collateral, through a single payment, in a single currency, in the event of default or on the termination of any one contract.

2021 USD millions	Quoted prices in active markets for identical assets and liabilities (level 1)	Significant other observable inputs (level 2)	Significant unobservable inputs (level 3)	Impact of netting[1]	Total
Assets					
Fixed income securities held for proprietary investment purposes	10 983	65 489	1 249		77 721
Debt securities issued by US government and government agencies	10 983	1 721			12 704
US Agency securitised products		5 173			5 173
Debt securities issued by non-US governments and government agencies		25 738			25 738
Corporate debt securities		29 509	1 249		30 758
Mortgage- and asset-backed securities		3 348			3 348
Equity securities held for proprietary investment purposes	2 622	648			3 270
Equity securities backing unit-linked business	462				462
Short-term investments held for proprietary investment purposes	2 107	5 061			7 168
Derivative financial instruments		1 633	136	–1 457	312
Interest rate contracts		450			450
Foreign exchange contracts		319			319
Equity contracts		853	103		956
Credit contracts		11			11
Other contracts			33		33
Other invested assets	313	620	433		1 366
Funds held by ceding companies		171			171
Total assets at fair value	**16 487**	**73 622**	**1 818**	**–1 457**	**90 470**
Liabilities					
Derivative financial instruments	–6	–1 583	–222	1 080	–731
Interest rate contracts		–461	–1		–462
Foreign exchange contracts		–320			–320
Equity contracts	–6	–467	–12		–485
Credit contracts		–335			–335
Other contracts			–209		–209
Liabilities for life and health policy benefits			–83		–83
Accrued expenses and other liabilities	–494	–1 692			–2 186
Total liabilities at fair value	**–500**	**–3 275**	**–305**	**1 080**	**–3 000**

[1] The netting of derivative receivables and derivative payables is permitted when a legally enforceable master netting agreement exists between two counterparties. A master netting agreement provides for the net settlement of all contracts, as well as cash collateral, through a single payment, in a single currency, in the event of default or on the termination of any one contract.

Assets and liabilities measured at fair value on a recurring basis using significant unobservable inputs (level 3)

As of 31 December 2020 and 30 June 2021, the reconciliations of the fair values of assets and liabilities measured on a recurring basis using significant unobservable inputs were as follows:

2020 USD millions	Fixed income securities	Derivative assets	Other invested assets	Total assets	Derivative liabilities	Liabilities for life and health policy benefits	Total liabilities
Assets and liabilities							
Balance as of 1 January	795	246	71	1 112	–286	–91	–377
Realised/unrealised gains/losses:							
Included in net income[1]	1	37	11	49	–28	–8	–36
Included in other comprehensive income[2]	58			58		2	2
Purchases	367	34		401			0
Issuances				0	–48		–48
Sales	–7	–5		–12	5		5
Settlements	–46	–71		–117	39		39
Transfers into level 3		3	213	216			0
Transfers out of level 3				0			0
Impact of foreign exchange movements	15		1	16			0
Change in Group structure			116	116			0
Closing balance as of 31 December	1 183	244	412	1 839	–318	–97	–415

[1] Fair value changes are reported in "Net realised investment gains/losses – non-participating business".
[2] Fair value changes from fixed income securities are reported in "Net unrealised investment gains/losses". Fair value changes from liabilities for life and health policy benefits are reported in "Credit risk of financial liabilities at fair value option".

2021 USD millions	Fixed income securities	Derivative assets	Other invested assets	**Total assets**	Derivative liabilities	Liabilities for life and health policy benefits	**Total liabilities**
Assets and liabilities							
Balance as of 1 January	1 183	244	412	**1 839**	–318	–97	**–415**
Realised/unrealised gains/losses:							
Included in net income[1]		–90	21	**–69**	100	16	**116**
Included in other comprehensive income[2]	–28			**–28**		–2	**–2**
Purchases	109	12		**121**			**0**
Issuances				**0**	–13		**–13**
Sales				**0**			**0**
Settlements	–11	–30		**–41**	9		**9**
Transfers into level 3				**0**			**0**
Transfers out of level 3				**0**			**0**
Impact of foreign exchange movements	–4			**–4**			**0**
Closing balance as of 30 June	**1 249**	**136**	**433**	**1 818**	**–222**	**–83**	**–305**

[1] Fair value changes are reported in "Net realised investment gains/losses – non-participating business".
[2] Fair value changes from fixed income securities are reported in "Net unrealised investment gains/losses". Fair value changes from liabilities for life and health policy benefits are reported in "Credit risk of financial liabilities at fair value option".

Gains and losses on assets and liabilities measured at fair value on a recurring basis using significant unobservable inputs (level 3)

The gains and losses relating to the assets and liabilities measured at fair value using significant unobservable inputs (level 3) for the six months ended 30 June were as follows:

USD millions	2020	2021
Gains/losses included in net income for the period	–107	47
Whereof change in unrealised gains/losses relating to assets and liabilities still held at the reporting date	–114	31

Quantitative information about level 3 fair value measurements

Unobservable inputs for major level 3 assets and liabilities as of 31 December 2020 and 30 June 2021 were as follows:

USD millions	2020 Fair value	2021 Fair value	Valuation technique	Unobservable input	Range (weighted average[1])
Assets					
Corporate debt securities	1 183	**1 249**			
Infrastructure loans	701	730	Discounted cash flow model	Valuation spread	66–526 bps (181 bps)
Private placement corporate debt	440	481	Corporate spread matrix	Credit spread	23–193 bps (86 bps)
Private placement credit tenant leases	42	39	Discounted cash flow model	Illiquidity premium	125–150 bps (146 bps)
Derivative equity contracts	201	**103**			
OTC equity option referencing correlated equity indices	201	103	Proprietary option model	Correlation	0–50% (35%)
Liabilities					
Derivative equity contracts	–23	**–12**			
OTC equity option referencing correlated equity indices	–23	–12	Proprietary option model	Correlation	–10–95% (47%)
Other derivative contracts and liabilities for life and health policy benefits	–391	**–292**			
Variable annuity and fair valued GMDB contracts	–355	–268	Discounted cash flow model	Risk margin	4% (n/a)
				Volatility	10.7–58.8%
				Lapse	1.5–15%
				Mortality improvement	0–1.5%
				Withdrawal rate	0–90%

[1] Unobservable inputs were weighted by the relative fair value of the instruments. For Derivative equity contracts, the weighted average correlation is derived by computing an absolute piecewise correlation impact and is not weighted by the relative fair value.

Uncertainty of recurring level 3 measurements from the use of significant unobservable inputs
The significant unobservable input used in the fair value measurement of the Group's infrastructure loans is valuation spread. A significant increase (decrease) in this input in isolation would have resulted in a significantly lower (higher) fair value measurement. The significant unobservable input used in the fair value measurement of the Group's private placement corporate debt securities is credit spread. A significant increase (decrease) in this input in isolation would have resulted in a significantly lower (higher) fair value measurement. The significant unobservable input used in the fair value measurement of the Group's private placement credit tenant leases is illiquidity premium. A significant increase (decrease) in this input in isolation would have resulted in a significantly lower (higher) fair value measurement.

The significant unobservable input used in the fair value measurement of the Group's OTC equity option referencing correlated equity indices is correlation. Where the Group is long correlation risk, a significant increase (decrease) in this input in isolation would have resulted in a significantly higher (lower) fair value measurement. Where the Group is short correlation risk, a significant increase (decrease) in this input in isolation would have resulted in a significantly lower (higher) fair value measurement.

The significant unobservable inputs used in the fair value measurement of the Group's variable annuity and fair valued guaranteed minimum death benefit (GMDB) contracts are: risk margin, volatility, lapse, mortality improvement rate and withdrawal rate. A significant increase (decrease) in isolation in each of the following inputs: risk margin, volatility and withdrawal rate would have resulted in a significantly lower (higher) fair value of the Group's obligation. A significant increase (decrease) in isolation in lapse rate would, in general, have resulted in a significantly higher (lower) fair value of the Group's obligation due to the maturity of the contracts. Changes in the mortality improvement rate impact the fair value of the Group's obligation differently for living-benefit products, compared to death-benefit products. For the former, a significant increase (decrease) in the mortality improvement rate (ie decrease (increase) in mortality) in isolation would have resulted in a decrease (increase) in fair value of the Group's liability. For the latter, a significant increase (decrease) in the mortality improvement rate in isolation would have resulted in an increase (decrease) in fair value of the Group's liability.

Other invested assets measured at net asset value

Other invested assets measured at net asset value as of 31 December 2020 and 30 June 2021 were as follows:

USD millions	2020 Fair value	**2021** Fair value	Unfunded commitments	Redemption frequency (if currently eligible)	Redemption notice period
Private equity funds	666	867	527	non-redeemable	n/a
Hedge funds	2	1		redeemable[1]	45–95 days[2]
Private equity direct	170	75	142	non-redeemable	n/a
Real estate funds	2	9	5	non-redeemable	n/a
Total	840	**952**	**674**		

[1] The redemption frequency varies by position.
[2] Cash distribution can be delayed for an extended period depending on the sale of the underlyings.

The hedge fund investments employ a variety of strategies, including relative value and event-driven across various asset classes.

The private equity direct portfolio consists of equity and equity-like investments directly in other companies. These investments have no contractual term and are generally held based on financial or strategic intent.

Private equity and real estate funds generally have limitations imposed on the amount of redemptions from the fund during the redemption period due to illiquidity of the underlying investments. Fees may apply for redemptions or transferring of interest to other parties. Distributions are expected to be received from these funds as the underlying assets are liquidated. The period of time over which the underlying assets are expected to be liquidated is indeterminate as investees provide liquidation notices.

The redemption frequency of hedge funds varies depending on the manager as well as the nature of the underlying product. Additionally, certain funds may impose lock-up periods and redemption gates as defined in the terms of the individual investment agreement.

Fair value option

The fair value option under the Financial Instruments Topic permits the choice to measure specified financial assets and liabilities at fair value on an instrument-by-instrument basis. The Group elected the fair value option for positions in the following line items:

Other invested assets

The Group elected the fair value option for certain investments classified as equity method investees within other invested assets in the balance sheet. The Group applied the fair value option, as the investments are managed on a fair value basis. The changes in fair value of these elected investments are recorded in earnings.

Funds held by ceding companies

For operational efficiencies, the Group elected the fair value option for funds held by the cedent under three of its reinsurance agreements. The assets are carried at fair value and changes in fair value are reported as a component of earnings.

Liabilities for life and health policy benefits

The Group elected the fair value option for existing GMDB reserves related to certain variable annuity contracts. The Group has applied the fair value option, as the equity risk associated with those contracts is managed on a fair value basis and it is economically hedged with derivative options in the market. The liability is carried at fair value and changes in fair value attributable to instrument-specific credit risk are reported in other comprehensive income and all other changes in fair value are reported as a component of earnings.

Assets and liabilities measured at fair value pursuant to election of the fair value option

Pursuant to the election of the fair value option for the items described, the balances as of 31 December 2020 and 30 June 2021 were as follows:

USD millions	2020	2021
Assets		
Other invested assets	9 616	9 147
of which at fair value pursuant to the fair value option	120	134
Funds held by ceding companies	11 307	15 844
of which at fair value pursuant to the fair value option	172	171
Liabilities		
Liabilities for life and health policy benefits	–20 892	–20 552
of which at fair value pursuant to the fair value option	–97	–83

Changes in fair values for items measured at fair value pursuant to election of the fair value option

Gains/losses included in earnings for items measured at fair value pursuant to election of the fair value option including foreign exchange impact for the six months ended 30 June were as follows:

USD millions	2020	2021
Other invested assets	–6	14
Funds held by ceding companies	5	–1
Liabilities for life and health policy benefits	–32	16
Total	–33	**29**

Fair value changes from other invested assets, funds held by ceding companies and funds held under reinsurance treaties are reported in "Net investment income – non-participating business". Fair value changes from the GMDB reserves are shown in "Life and health benefits".

Assets and liabilities not measured at fair value but for which the fair value is disclosed

Assets and liabilities not measured at fair value but for which the fair value is disclosed as of 31 December 2020 and 30 June 2021 were as follows:

2020 USD millions	Significant other observable inputs (level 2)	Significant unobservable inputs (level 3)	Total
Assets			
Policy loans		43	43
Mortgage loans		1 030	1 030
Other loans		2 177	2 177
Investment real estate		5 116	5 116
Total assets	0	8 366	8 366
Liabilities			
Debt	–7 858	–7 602	–15 460
Total liabilities	–7 858	–7 602	–15 460

2021 USD millions	Significant other observable inputs (level 2)	Significant unobservable inputs (level 3)	Total
Assets			
Policy loans		35	35
Mortgage loans		1 199	1 199
Other loans		2 405	2 405
Investment real estate		4 828	4 828
Total assets	**0**	**8 467**	**8 467**
Liabilities			
Debt	–7 781	–8 345	–16 126
Total liabilities	**–7 781**	**–8 345**	**–16 126**

Policy loans, other loans and certain mortgage loans are classified as level 3 measurements, as they do not have an active exit market. Some of these positions need to be assessed in conjunction with the corresponding insurance business, whilst the fair value of some other positions does not differ materially from the carrying amount. Considering these circumstances for these positions, the Group presents the carrying amount as an approximation for the fair value. For certain commercial mortgage loans and infrastructure loans, which are included in mortgage loans and other loans respectively, the fair value can be estimated using discounted cash flow models which are based on discount curves and spread inputs that require management's judgement.

Investments in real estate are fair valued primarily by external appraisers based on proprietary discounted cash flow models that incorporate applicable risk premium adjustments to discount yields and projected market rental income streams based on market-specific data. These fair value measurements are classified in level 3 in the fair value hierarchy.

Debt positions, which are fair valued based on executable broker quotes or the discounted cash flow method using observable inputs, are classified as level 2 measurements. Fair value of the majority of the Group's level 3 debt positions is judged to approximate carrying value due to the highly tailored nature of the obligation and short-notice termination provisions.

9 Derivative financial instruments

The Group uses a variety of derivative financial instruments including swaps, options, forwards, credit derivatives and exchange-traded financial futures in its trading and hedging strategies, in line with the Group's overall risk management strategy. The objectives include managing exposure to price, foreign currency and/or interest rate risk on planned or anticipated investment purchases, existing assets or liabilities, as well as locking in attractive investment conditions for future available funds.

The fair values represent the gross carrying value amounts at the reporting date for each class of derivative contract held or issued by the Group. The gross fair values are not an indication of credit risk, as many OTC transactions are contracted and documented under ISDA master agreements or their equivalent. Management believes that such agreements provide for legally enforceable set-off in the event of default, which substantially reduces credit exposure.

Fair values and notional amounts of derivative financial instruments

As of 31 December 2020 and 30 June 2021, the fair values and notional amounts of the derivatives outstanding were as follows:

2020 USD millions	Notional amount assets/liabilities	Fair value assets	Fair value liabilities	Carrying value assets/liabilities
Derivatives not designated as hedging instruments				
Interest rate contracts	21 315	485	–436	49
Foreign exchange contracts	32 743	230	–218	12
Equity contracts	25 526	918	–442	476
Credit contracts	15 151	30	–338	–308
Other contracts	9 360	43	–294	–251
Total	104 095	1 706	–1 728	–22
Derivatives designated as hedging instruments				
Interest rate contracts	5 885	10	–16	–6
Foreign exchange contracts	19 194	43	–224	–181
Total	25 079	53	–240	–187
Total derivative financial instruments	129 174	1 759	–1 968	–209
Amount offset				
Where a right of set-off exists		–653	653	
Due to cash collateral		–690	627	
Total net amount of derivative financial instruments		416	–688	–272

2021 USD millions	Notional amount assets/liabilities	Fair value assets	Fair value liabilities	Carrying value assets/liabilities
Derivatives not designated as hedging instruments				
Interest rate contracts	21 110	418	–411	7
Foreign exchange contracts	38 005	194	–298	–104
Equity contracts	23 509	956	–485	471
Credit contracts	16 722	11	–335	–324
Other contracts	8 108	33	–209	–176
Total	**107 454**	**1 612**	**–1 738**	**–126**
Derivatives designated as hedging instruments				
Interest rate contracts	5 705	32	–51	–19
Foreign exchange contracts	18 195	125	–22	103
Total	**23 900**	**157**	**–73**	**84**
Total derivative financial instruments	**131 354**	**1 769**	**–1 811**	**–42**
Amount offset				
Where a right of set-off exists		–714	714	
Due to cash collateral		–743	366	
Total net amount of derivative financial instruments		**312**	**–731**	**–419**

The notional amounts of derivative financial instruments give an indication of the Group´s volume of derivative activity. The fair value assets are included in "Other invested assets" and the fair value liabilities are included in "Accrued expenses and other liabilities". The fair value amounts that were not offset were nil as of 31 December 2020 and 30 June 2021.

Non-hedging activities

The Group primarily uses derivative financial instruments for risk management and trading strategies. Gains and losses of derivative financial instruments not designated as hedging instruments are recorded in "Net realised investment gains/losses — non-participating business" in the income statement. For the six months ended 30 June, the gains and losses of derivative financial instruments not designated as hedging instruments were as follows:

USD millions	2020[1]	2021
Derivatives not designated as hedging instruments		
Interest rate contracts	27	11
Foreign exchange contracts	–119	–308
Equity contracts	108	–118
Credit contracts	63	–86
Other contracts	–131	105
Total gains/losses recognised in income	–52	**–396**

[1] The Group has revised the scope of its non-hedging derivative activities. The revision had no impact on net income or shareholders' equity. The comparatives have been adjusted accordingly.

Hedging activities

The Group designates certain derivative financial instruments as hedging instruments. The designation of derivative financial instruments is primarily used for overall portfolio and risk management strategies. As of 30 June 2020 and 2021, the following hedging relationships were outstanding:

Fair value hedges

The Group enters into foreign exchange and interest rate swaps to reduce the exposure to foreign exchange and interest rate volatility for certain fixed income securities and its issued long-term debt positions. These derivative instruments are designated as hedging instruments in qualifying fair value hedges.

For the six months ended 30 June, the gains and losses attributable to the hedged risks were as follows:

	2020		2021	
USD millions	Net realised investment gains/losses — non-participating business	Interest expenses	Net realised investment gains/losses — non-participating business	Interest expenses
Total amounts of income and expense line items	971	–259	204	–269
Foreign exchange contracts				
Gains/losses on derivatives	124		266	
Gains/losses on hedged items	–124		–266	
Interest rate contracts				
Gains/losses on derivatives		12		–13
Gains/losses on hedged items		–11		13

As of 31 December 2020 and 30 June 2021, the carrying values of the hedged assets and liabilities, and the cumulative amounts of fair value hedging adjustments included therein, recognised in the balance sheet, were as follows:

	2020		2021	
USD millions	Carrying value	Cumulative basis adjustment	Carrying value	Cumulative basis adjustment
Assets				
Fixed income securities available-for-sale	12 906		**14 084**	
Liabilities				
Long-term debt	–2 064	4	**–1 986**	**17**

Hedges of the net investment in foreign operations
The Group designates derivative and non-derivative monetary financial instruments as hedging the foreign currency exposure of its net investment in certain foreign operations.

As of 31 December 2020 and 30 June 2021, the Group recorded an accumulated net unrealised foreign currency remeasurement gain of USD 705 million and USD 722 million, respectively, in "Other comprehensive income - Foreign currency translation". These offset translation gains and losses on the hedged net investment.

Maximum potential loss
In consideration of the rights of set-off and the qualifying master netting arrangements with various counterparties, the maximum potential loss as of 31 December 2020 and 30 June 2021 was approximately USD 1 106 million and USD 1 055 million, respectively. The maximum potential loss is based on the positive market replacement cost assuming non-performance of all counterparties, excluding cash collateral.

Credit risk-related contingent features
Certain derivative instruments held by the Group contain provisions that require its debt to maintain an investment-grade credit rating. If the Group's credit rating were downgraded or no longer rated, the counterparties could request immediate payment, guarantee or an ongoing full overnight collateralisation on derivative instruments in net liability positions.

The total fair value of derivative financial instruments containing credit risk-related contingent features amounted to USD 52 million and USD 42 million as of 31 December 2020 and 30 June 2021, respectively. For derivative financial instruments containing credit risk-related contingent features, the Group posted collateral of USD 48 million and USD 37 million as of 31 December 2020 and 30 June 2021, respectively. In the event of a reduction of the Group's credit rating to below investment grade, a fair value of USD 5 million additional collateral would have had to be posted as of 30 June 2021. The total equals the amount needed to settle the instruments immediately as of 30 June 2021.

10 Debt

The Group enters into long- and short-term debt arrangements to obtain funds for general corporate use and specific transaction financing. The Group defines short-term debt as debt having a maturity at the balance sheet date of not greater than one year and long-term debt as having a maturity of greater than one year. For subordinated debt positions, maturity is defined as the first optional redemption date (notwithstanding that optional redemption could be subject to regulatory consent). Interest expense is classified accordingly.

The Group's debt as of 31 December 2020 and 30 June 2021 was as follows:

USD millions	2020	**2021**
Senior financial debt	1 782	2 454
Senior operational debt	153	125
Short-term debt	1 935	2 579
Senior financial debt	3 118	2 582
Senior operational debt	95	98
Subordinated financial debt[1]	5 587	6 538
Subordinated operational debt	1 927	1 921
Long-term debt	10 727	11 139
Total carrying value	12 662	13 718
Total fair value	15 460	16 126

Interest expense on long-term debt

Interest expense on long-term debt for the periods ended 30 June was as follows:

USD millions	2020	**2021**
Senior financial debt	37	39
Senior operational debt	4	2
Subordinated financial debt[1]	102	127
Subordinated operational debt	55	60
Total	198	**228**

[1] The Group has revised the presentation of interest expense on subordinated financial debt to exclude the change in fair value of the hedged long-term debt positions in addition to the change in fair value of the swap. The change has no impact on total interest expenses as shown in the income statement.

The Group hedges the interest rate risk on some of its long-term debt positions. The net impact of the change in the fair value of the debt and interest rate swap is reflected in the interest expense line in the income statement but not in the table above. For more details on the hedging, please refer to Note 9 "Derivative financial instruments".

Long-term debt issued in 2021

In June 2020, Swiss Re Finance (UK) Plc issued 32-year guaranteed subordinated fixed rate reset step-up callable notes with a face value of EUR 800 million. Swiss Re Finance (UK) Plc on-lent the issuance proceeds to Swiss Reinsurance Company Ltd in March 2021 under a loan agreement on substantially the same terms as the external issuance.

11 Benefit plans

Net periodic benefit cost

Pension and post-retirement cost for the Group and affiliated companies for the six months ended 30 June 2020 and 2021 were USD 41 million and USD 42 million, respectively. Pension and post-retirement cost is presented in "Operating expenses".

Employer's contribution for 2021

For the six months ended 30 June 2021, the Group and affiliated companies contributed USD 72 million to its defined benefit pension plans and USD 8 million to other post-retirement plans, compared to USD 62 million and USD 8 million, respectively, in the same period of 2020.

The expected 2021 contributions to the defined benefit pension plans and to the post-retirement benefit plans, revised as of 30 June 2021 for the latest information, amount to USD 130 million and USD 17 million, respectively.

12 Variable interest entities

The Group enters into arrangements with variable interest entities (VIEs) in the normal course of business. The involvement ranges from being a passive investor to designing, structuring and managing the VIEs. The variable interests held by the Group arise primarily as a result of the Group's involvement in certain insurance-linked securitisations, life and health funding transactions, swaps in trusts, debt financing, investment, senior commercial mortgage and infrastructure loans as well as other entities, which meet the definition of a VIE.

When analysing whether the entity is a VIE, the Group mainly assesses if (1) the equity is sufficient to finance the entity's activities without additional subordinated financial support, (2) the equity holders have the right to make significant decisions affecting the entity's operations and (3) the holders of the voting rights substantively participate in the gains and losses of the entity.

When one of these criteria is not met, the entity is considered a VIE and is assessed for consolidation under the VIE section of the Consolidation Topic.

The party that has a controlling financial interest is called a primary beneficiary and consolidates the VIE. The party is deemed to have a controlling financial interest if it has both:

- the power to direct the activities of the VIE that most significantly impact the entity's economic performance; and
- the obligation to absorb the entity's losses that could potentially be significant to the VIE or the right to receive benefits from the entity that could potentially be significant to the VIE.

For all its variable interests in VIEs, the Group assesses whether it has a controlling financial interest in these entities and, thus, is the primary beneficiary. The Group identifies the activities that most significantly impact the entity's performance and determines whether the Group has the power to direct those activities. In conducting the analysis, the Group considers the purpose, the design and the risks that the entity was designed to create and pass through to its variable interest holders. Additionally, the Group assesses if it has the obligation to absorb losses or if it has the right to receive benefits of the VIE that could potentially be significant to the entity. If both criteria are met, the Group has a controlling financial interest in the VIE and consolidates the entity.

The Group monitors changes to the facts and circumstances of the existing involvement with legal entities to determine whether they require reconsideration of the entity's designation as a VIE or voting interest entity. For VIEs, the Group regularly reassesses the primary beneficiary determination.

Insurance-linked securitisations

The insurance-linked securitisations transfer pre-existing insurance risk to investors through the issuance of insurance-linked securities. In insurance-linked securitisations, the securitisation vehicle assumes the insurance risk from a sponsor through insurance or derivative contracts. The securitisation vehicle generally retains the issuance proceeds as collateral, which consists of investment-grade securities. The Group does not have potentially significant variable interest in these vehicles and therefore is not a primary beneficiary.

Typically, the variable interests held by the Group arise through ownership of insurance-linked securities, in which case the Group's maximum loss equals the principal amount of the securities held by the Group.

Life and health funding vehicles

The Group participates in certain structured transactions that retrocede longevity and mortality risks to captive reinsurers with an aim to provide regulatory capital credit to a transaction sponsor through the creation of funding notes by a separate funding vehicle which is generally considered a VIE. The Group's participation in these transactions is generally limited to providing contingent funding support via a financial contract with a funding vehicle, which represents a potentially significant variable interest in the funding vehicle. The Group does not have power to direct activities of the funding vehicles and therefore is not a primary beneficiary of the funding vehicles in these transactions. The Group's maximum exposure in these transactions equals either the total contract notional or outstanding balance of the funding notes issued by the vehicle, depending on the specific contractual arrangements.

Swaps in trusts

The Group provides interest rate and foreign exchange risk hedges to certain asset securitisation trusts which qualify as VIEs. As the Group's involvement is limited to interest rate and foreign exchange derivatives, it does not have the power to direct any activities of the trusts and therefore does not qualify as primary beneficiary of any of these trusts. These activities are in run-off.

Debt financing vehicles

The Group consolidates a debt-financing vehicle created to collateralise reinsurance coverage provided by the Group. The Group manages the asset portfolio in the vehicle and absorbs the variability of the investment return of the vehicle's portfolio, thereby satisfying both criteria for a controlling financial interest: power over activities most significant to the vehicle's economic performance and significant economic interest.

Investment vehicles
The Group's variable interests in investment partnerships arise through ownership of the limited partner interests. Many investment partnerships are VIEs because the limited partners as a group lack kick-out or participating rights. The Group does not hold the general partner interest in the limited partnerships and therefore does not direct investment activities of the entity. Therefore, the Group lacks power over the relevant activities of the vehicles and, consequently, does not qualify as the primary beneficiary. The Group is exposed to losses when the values of the investments held by the investment vehicles decrease. The Group's maximum exposure to loss equals the Group's share of the investment.

The Group is a passive investor in structured securitisation vehicles issuing residential and commercial mortgage-backed securities (RMBS and CMBS, respectively) and other asset-backed securities (ABS). The Group's investments in RMBS, CMBS and other ABS are passive in nature and do not obligate the Group to provide any financial or other support to the issuer entities. By design, RMBS, CMBS and ABS securitisation entities are not adequately capitalised and therefore considered VIEs. The Group is not the primary beneficiary, because it does not have power to direct most significant activities. These investments are accounted for as available-for-sale as described in the investment note and not included in the tables on the following pages.

The Group consolidates an investment vehicle, because the Group holds the entire interest in the entity and makes investment decisions related to the entity. The investment vehicle is a VIE because it is structured as an umbrella company comprised of multiple sub-funds. The majority of the investments held in this vehicle are accounted for as available-for-sale and are disclosed in the investment note and not included in the tables on the following pages.

Investment vehicles for unit-linked business
Additionally, the Group invests on behalf of the policyholders as a passive investor in a variety of investment funds across various jurisdictions. By design, many of these funds meet a VIE definition. While the Group may have a potentially significant variable interest in some of these entities due to its share of the fund's total net assets, it never has power over the fund's investment decisions, or unilateral kick-out rights relative to the decision maker.

The Group is not exposed to losses in the aforementioned investment vehicles, as the investment risk is borne by the policyholder.

Senior commercial mortgage and infrastructure loans
The Group also invests in structured commercial mortgage and infrastructure loans, which are held for investment.

The commercial mortgage loans are made to non-recourse special purpose entities collateralised with commercial real estate. The entities are adequately capitalised and generally structured as voting interest entities. Occasionally, the borrower entities can be structured as limited partnerships where the limited partners do not have kick-out or participating rights, which results in the VIE designation.

The infrastructure loans are made to non-recourse special purpose entities collateralised with infrastructure project assets. Some borrower entities may have insufficient equity investment at risk, which results in the VIE designation.

The Group does not have power over the activities most significant to the aforementioned borrower entities designated as VIEs and therefore does not consolidate them.

The Group's maximum exposure to loss from its investments equals the loan outstanding amount.

Other
The Group consolidates two vehicles providing reinsurance to their members, because it serves as a decision maker over the entity's investment and/or underwriting activities, provides retrocession for the majority of the vehicles' insurance risk and receives performance-based fees in one case. Additionally, the Group is obligated to absorb losses through the provision of loans in case of deficits or receive benefits that potentially may be significant to the vehicles. The vehicles are a VIE, primarily because their total equity investment at risk is insufficient and the members lack decision-making rights.

The Group did not provide financial or other support to any VIEs during 2021 that it was not previously contractually required to provide.

Consolidated VIEs

The following table shows the total assets and liabilities in the Group's balance sheet related to VIEs of which the Group is the primary beneficiary as of 31 December 2020 and 30 June 2021:

USD millions	2020	2021
Fixed income securities available-for-sale	3 807	3 566
Short-term investments	59	6
Cash and cash equivalents	19	84
Accrued investment income	30	32
Premiums and other receivables	35	14
Funds held by ceding companies	1	1
Deferred acquisition costs	5	6
Deferred tax assets	180	118
Other assets	14	10
Total assets	4 150	**3 837**
Unpaid claims and claim adjustment expenses	59	62
Unearned premiums	16	20
Funds held under reinsurance treaties	4	3
Reinsurance balances payable	22	24
Deferred and other non-current tax liabilities	155	94
Accrued expenses and other liabilities	18	12
Long-term debt	1 926	1 921
Total liabilities	2 200	**2 136**

The assets of the consolidated VIEs may only be used to settle obligations of these VIEs and to settle any investors' ownership liquidation requests. There is no recourse to the Group for the consolidated VIEs' liabilities. The assets of the consolidated VIEs are not available to the Group's creditors.

Non-consolidated VIEs

The following table shows the total assets and liabilities on the Group's balance sheet related to VIEs in which the Group held a variable interest but was not the primary beneficiary as of 31 December 2020 and 30 June 2021:

USD millions	2020	2021
Fixed income securities available-for-sale	1 322[1]	1 373
Equity securities at fair value through earnings	42	66
Policy loans, mortgages and other loans	1 509	1 688
Other invested assets	1 963	2 474
Investments for unit-linked business	145	147
Funds held by ceding companies	25	
Total assets	5 006	**5 748**
Unpaid claims and claim adjustment expenses	19	
Accrued expenses and other liabilities	52	42
Total liabilities	71	**42**

[1] The Group has revised the scope of its insurance-linked securitisations holdings. The revision had no impact on net income or shareholders' equity. The comparatives have been adjusted accordingly.

The following table shows the Group's assets, liabilities and maximum exposure to loss related to VIEs in which the Group held a variable interest but was not the primary beneficiary as of 31 December 2020 and 30 June 2021:

			2020			2021
USD millions	Total assets	Total liabilities	Maximum exposure to loss[1]	Total assets	Total liabilities	Maximum exposure to loss[1]
Insurance-linked securitisations	783[3]		796[3]	831		845
Life and health funding vehicles	20		2 377	18		2 329
Swaps in trusts	14	52	–[2]	35	42	–[2]
Investment vehicles	1 972		1 972	2 487		2 487
Investment vehicles for unit-linked business	145			147		
Senior commercial mortgage and infrastructure loans	2 047		2 047	2 230		2 230
Other	25	19				
Total	5 006	71	–[2]	**5 748**	**42**	**–[2]**

[1] Maximum exposure to loss is the loss the Group would absorb from a variable interest in a VIE in the event that all of the assets of the VIE are deemed worthless.
[2] The maximum exposure to loss for swaps in trusts cannot be meaningfully quantified due to their derivative character.
[3] The Group has revised the scope of its insurance-linked securitisations holdings. The revision had no impact on net income or shareholders' equity. The comparatives have been adjusted accordingly.

The assets and liabilities for the swaps in trusts represent the positive and negative fair values of the derivatives the Group has entered into with the trusts.

13 Subsequent events

Mergers of Swiss Re Corporate Solutions Ltd and Swiss Re Life Capital Ltd with Swiss Reinsurance Company Ltd
On 5 July 2021, the mergers of Swiss Re Corporate Solutions Ltd (SRCS) and Swiss Re Life Capital Ltd (SRLC) with Swiss Reinsurance Company Ltd (SRZ) were published in the Swiss Official Gazette of Commerce (*Schweizerisches Handelsamtsblatt SHAB*). As a consequence of the mergers, risk and benefits related to SRCS and SRLC legally passed to SRZ as of 1 July 2021.

For the six months ended 30 June 2021 the estimated effect of the change would be a decrease in Group net income of approximately USD 60 million. The transaction will be reflected in the Group financial statements at year-end 2021. Going forward, the group will present three operating segments: Property & Casualty Reinsurance, Life & Health Reinsurance, and Corporate Solutions. The comparative information for 2020 will be adjusted accordingly.

European floods and South African riots
The Group is in the process of estimating its loss exposure to two significant post balance sheet events that occurred in July 2021 - floods in Europe and social unrest in South Africa.

Cautionary note on forward looking statements

Certain statements and illustrations contained herein are forward-looking. These statements (including as to plans, objectives, targets and trends) and illustrations provide current expectations of future events based on certain assumptions and include any statement that does not directly relate to a historical fact or current fact.

Forward-looking statements typically are identified by words or phrases such as "anticipate", "assume", "believe", "continue", "estimate", "expect", "foresee", "intend", "may increase" and "may fluctuate" and similar expressions or by future or conditional verbs such as "will", "should", "would" and "could". These forward-looking statements involve known and unknown risks, uncertainties and other factors, which may cause the Group's actual results of operations, financial condition, solvency ratios, capital or liquidity positions or prospects to be materially different from any future results of operations, financial condition, solvency ratios, capital or liquidity positions or prospects expressed or implied by such statements. Such factors include, among others:

- the frequency, severity and development of insured claim events, particularly natural catastrophes, man-made disasters, pandemics, acts of terrorism or acts of war;
- mortality, morbidity and longevity experience;
- the cyclicality of the reinsurance sector;
- central bank intervention in the financial markets, trade wars or other protectionist measures relating to international trade arrangements, adverse geopolitical events, domestic political upheavals or other developments that adversely impact global economic conditions;
- increased volatility of, and/or disruption in, global capital and credit markets;
- the Group's ability to maintain sufficient liquidity and access to capital markets, including sufficient liquidity to cover potential recapture of reinsurance agreements, early calls of debt or debt-like arrangements and collateral calls due to actual or perceived deterioration of the Group's financial strength or otherwise;
- the Group's inability to realize amounts on sales of securities on the Group's balance sheet equivalent to their values recorded for accounting purposes;
- the Group's inability to generate sufficient investment income from its investment portfolio, including as a result of fluctuations in the equity and fixed income markets, the composition of the investment portfolio or otherwise;
- changes in legislation and regulation, or the interpretations thereof by regulators and courts, affecting the Group or its ceding companies, including as a result of comprehensive reform or shifts away from multilateral approaches to regulation of global operations;
- the lowering or loss of one of the financial strength or other ratings of one or more companies in the Group, and developments adversely affecting its ability to achieve improved ratings;
- uncertainties in estimating reserves, including differences between actual claims experience and underwriting and reserving assumptions;
- policy renewal and lapse rates;
- uncertainties in estimating future claims for purposes of financial reporting, particularly with respect to large natural catastrophes and certain large man-made losses, as significant uncertainties may be involved in estimating losses from such events and preliminary estimates may be subject to change as new information becomes available;
- legal actions or regulatory investigations or actions, including in respect of industry requirements or business conduct rules of general applicability;
- the outcome of tax audits, the ability to realize tax loss carryforwards and the ability to realize deferred tax assets (including by reason of the mix of earnings in a

jurisdiction or deemed change of control), which could negatively impact future earnings, and the overall impact of changes in tax regimes on the Group's business model;
- changes in accounting estimates or assumptions that affect reported amounts of assets, liabilities, revenues or expenses, including contingent assets and liabilities;
- changes in accounting standards, practices or policies;
- strengthening or weakening of foreign currencies;
- reforms of, or other potential changes to, benchmark reference rates;
- failure of the Group's hedging arrangements to be effective;
- significant investments, acquisitions or dispositions, and any delays, unforeseen liabilities or other costs, lower-than-expected benefits, impairments, ratings action or other issues experienced in connection with any such transactions;
- extraordinary events affecting the Group's clients and other counterparties, such as bankruptcies, liquidations and other credit-related events;
- changing levels of competition;
- the effects of business disruption due to terrorist attacks, cyberattacks, natural catastrophes, public health emergencies, hostilities or other events;
- limitations on the ability of the Group's subsidiaries to pay dividends or make other distributions; and
- operational factors, including the efficacy of risk management and other internal procedures in anticipating and managing the foregoing risks.

These factors are not exhaustive. The Group operates in a continually changing environment and new risks emerge continually. Readers are cautioned not to place undue reliance on forward-looking statements. The Group undertakes no obligation to publicly revise or update any forward-looking statements, whether as a result of new information, future events or otherwise.

This communication is not intended to be a recommendation to buy, sell or hold securities and does not constitute an offer for the sale of, or the solicitation of an offer to buy, securities in any jurisdiction, including the United States. Any such offer will only be made by means of a prospectus or offering memorandum, and in compliance with applicable securities laws.

Note on risk factors

The operations, investments and other activities of Swiss Reinsurance Company Ltd and its subsidiaries (collectively, the "Group") are subject to a range of risks that could adversely impact the Group's business, financial condition, results of operations, liquidity and cash flows. The Group is part of the broader Swiss Re group (collectively, "Swiss Re"), the holding company for which is Swiss Re Ltd. References to the Group give effect to the legal entity realignment of Swiss Re.

Coronavirus

The global spread of the novel coronavirus and the disease it causes ("COVID-19"), and the actions taken to slow the spread of the pandemic, have had an adverse impact on communities, social and business interactions, economic activity and economies across the globe. Following the impressive contractions of 2020, economic growth momentum is expected to carry over into 2022. However, believing having past the peak of post-crisis global growth and the recovery remains fragile and uneven across economies. This remains especially true given the lower level of global economic resilience after the pandemic which renders economies much more vulnerable in the face of any subsequent shocks and/or challenges. The recovery of individual economies remains highly exposed to developments around the coronavirus, including: new strains of the virus which risk becoming vaccine-resistant, drop in vaccine-acceptance rate making herd immunity increasingly difficult to reach, and slow vaccination rollout in a number of emerging market economies. Despite the impact of the pandemic on the global economy, the global insurance markets (as measured by premium growth) were less severely impacted in 2020 than expected (although the life market was more adversely affected than the non-life market) and premium growth is expected to recover, alongside recovery of the global economy, in 2021 and 2022, supported by rate hardening. Growth is expected to be led by China and, to a lesser extent, by other markets in Asia, aided in the case of life business by greater awareness of the importance post-pandemic of mortality and health coverage, as well as digital insurance penetration.

In Property & Casualty Reinsurance, the COVID-19 crisis (in particular the impact on businesses and business activity) had the greatest impact on event cancellation, non-damage business interruption covers, and credit and surety. In Life & Health Reinsurance, the COVID-19 crisis had the greatest impact on mortality exposures. The majority of losses were incurred in the second and fourth quarters, largely driven by business closings and excess mortality, and reported 2020 losses continue to reflect high levels of incurred but not reported (IBNR) claims.

The COVID-19 crisis prompted regulatory actions, including regulatory guidance in a number of US states in respect of temporary policyholder leniency, and legislative proposals in respect of policy exclusions and retroactive business interruption coverage. Legal challenges have been brought in a variety of jurisdictions, including, most notably, test cases brought in the United Kingdom by the Financial Conduct Authority, in respect of which the UK Supreme Court largely found on appeal, by the insurance company parties, in favour of holders of business interruption insurance policies, and in Australia, where a Court of Appeal also found in favour of policyholders. Legal actions on a range of pandemic-related claims are likely to continue in a number of jurisdictions.

The COVID-19 crisis continues, and the ultimate toll of the pandemic in terms of lives lost, societal dislocations, business activity, economic growth, broader costs to society and industry losses remains highly uncertain. Many pandemic-related developments interact with long-term trends and outlooks, including the impact of persistent low yields on the insurance industry. It also remains to be seen how public-private partnership initiatives may evolve to address future pandemics.

General impact of adverse market conditions

Swiss Re's operations as well as its investment returns are subject to conditions in the financial markets and macroeconomic factors, which are outside of its control. Financial, credit and foreign exchange markets are experiencing continued periods of volatility reflecting a range of political, geopolitical, economic and other uncertainties, some of the more significant of which are inter-related. Further adverse developments or the continuation of adverse trends that, in turn, have a negative impact on financial markets and economic conditions, could limit the Group's ability to access the capital markets and bank funding markets, could adversely affect the ability of counterparties to meet their obligations to the Group and could adversely affect the confidence of the ultimate buyers of insurance and reinsurance. Any of the foregoing factors, developments and trends could have an adverse effect on the Group's investment results, which in the current extremely low interest rate environment could have a material adverse effect on the Group's overall results, make it difficult to determine the value of certain assets in the Group's portfolio, make it more difficult to acquire suitable investments to meet its risk and return criteria and otherwise have a material adverse effect on its business and operations.

Regulatory changes

Swiss Re and its subsidiaries operate in a highly regulated environment, which continues to change over time. The regulatory regimes to which members of the Group are subject have changed significantly in recent years and are expected to continue to evolve. While some regulation is national in scope, the global nature of the Group's business means that its operations are subject in effect to a patchwork of global, national and regional standards. Swiss Re and its subsidiaries are subject to group supervision and Swiss Re's subsidiaries are also subject to applicable regulation in each of the jurisdictions in which they conduct business, particularly Switzerland, the United States, the United Kingdom, Luxembourg and Singapore. The Group, as well as its Swiss-regulated entities, is subject to the Swiss Solvency Test and, through its legal entities and branches organised in the European Economic Area ("EEA"), Solvency II.

While certain regulatory processes are designed in part to foster convergence and achieve recognition of group supervisory schemes, the Group continues to face risks of extra-territorial application of regulations, particularly as to group supervision and group solvency requirements. In addition, regulators in jurisdictions beyond those where the Group has core operations increasingly are playing a far greater oversight role, requiring more localised resources and, despite a predominantly local focus, also raise issues of a cross-border nature. Furthermore, evolving regulatory schemes and requirements may be inconsistent or may conflict with each other, thereby subjecting the Group, particularly in light of the increasing focus on legal entities in isolation, to higher compliance and legal costs, as well as the possibility of higher operational, capital and liquidity costs.

On the international level, certain large insurance companies were designated as global systemically important insurers ("G-SIIs") and reinsurance companies faced potential designation as G-SIIs. While further designations have been suspended until 2022, the determination to discontinue G-SII designations altogether will only be made in 2022, based on an assessment of progress made by the International Association of Insurance Supervisors ("IAIS"), in establishing a new holistic framework for systemic risk that was adopted in November 2019 and implemented as of the beginning of 2020. The new framework embraces an enhanced set of policy measures targeted at the exposures and activities that can lead to systemic risks from the insurance sector as a whole. The Group cannot predict what additional regulatory changes will be implemented as the IAIS systemic risk process evolves and what any such changes may mean for how the Group is structured in any particular jurisdiction and how aspects of its business may be affected. Moreover, the Group cannot predict whether the Financial Stability Board will endorse the new IAIS holistic framework or retain the existing G-SII approach, or what regulatory changes may apply in the future to ceding companies in the context of broader designations of reinsurers as systemically important.

In addition, large internationally active insurance groups ("IAIGs"), which is a designation compiled by the IAIS as identified by group-wide supervisors, may become subject to a risk-based group-wide global insurance capital standard ("ICS"). ICS Version 2.0 was adopted in November 2019, and is expected to take effect in 2025, following a five-year confidential reporting period during which no supervisory action will be taken on the basis of the monitoring. In November 2019, the IAIS also adopted the Common Framework for the Supervision of Internationally Active Insurance Groups ("ComFrame"), as well as some changes to a number of Insurance Core Principles ("ICPs") – guidance and standards on supervision of insurers and which apply to insurance companies regardless of size and international exposures. ComFrame strengthens ICP requirements for IAIGs and proposes that the group-wide supervisor, in consultation with the host supervisors, should exercise discretion in requiring IAIGs to submit recovery plans. Swiss Re has been classified as an IAIG.

The Group cannot predict which legislative and/or regulatory initiatives will be enacted or promulgated, what the scope and content of these initiatives ultimately will be, when they will be effective and what the implications will be for the industry, in general, and for the Group, in particular. The Group may be subject to changes in views of its regulators in respect of the models that the Group uses for capital and solvency purposes, and could be adversely affected if, for example, it is required to use standard models rather than internal models. Generally, legal and regulatory changes could have a material impact on the Group's business. Notwithstanding the departure of the United Kingdom from the EU single market and customs union, continued uncertainty regarding the ways in which the future relationship between the United Kingdom and the European Union will evolve could also impact the legislative and/or regulatory regimes to which the Group is subject (including Solvency II), both in the United Kingdom and in the European Union.

Regulatory changes also could occur in areas of broader application, such as competition policy and tax laws. For example, changes in tax laws, or the interpretation of the tax laws or tax regulations in jurisdictions in which the Group does business, or withdrawals of tax rulings in jurisdictions such as Switzerland that have issued such rulings to Swiss Re, could increase the taxes the Group pays, or impact the attractiveness of products offered by the Group, the Group's investment activities or the value of deferred tax assets. These changes, or inconsistencies between the various regimes that apply to the Group, could increase the costs of doing business (including due to increased capital requirements), reduce access to liquidity, limit the scope of current or future business or affect the competitive balance, or could make reinsurance less attractive to primary insurers.

Market risk
Volatility and disruption in the global financial markets could expose the Group to significant financial and capital markets risk, including changes in interest rates, credit spreads, equity prices and foreign currency exchange rates, which may adversely impact the Group's financial condition, results of operations, liquidity and capital position. The Group's exposure to interest rate risk is primarily related to the market price and cash flow variability associated with changes in interest rates. In general, low interest rates continue to pose significant challenges to the insurance and reinsurance industries, with earnings capacity under stress unless lower investment returns can be offset by lower combined ratios or higher returns from other asset classes, which in a soft market cycle

is a challenge. Exposure to credit spreads primarily relates to market price and cash flow variability associated with changes in credit spreads. When credit spreads widen, the net unrealised loss position of the Group's investment portfolio can increase, as could other-than-temporary impairments.

The Group is exposed to changes in the level and volatility of equity prices, as well as the value of securities or instruments that derive their value from a particular equity security, a basket of equity securities or a stock index. The Group is also subject to equity price risk to the extent that the values of life-related benefits under certain products and life contracts, most notably variable annuity contracts, are wholly or partially exposed, directly and/or indirectly, to market fluctuations, including equity prices. To the extent market values fall, the financial exposure on guarantees related to these contracts would increase to the extent this exposure is not hedged. While the Group has an extensive hedging programme covering its existing variable annuity business, certain risks cannot be hedged, including actuarial, basis and correlation risks. Exposure to foreign exchange risk arises from changes in spot prices, forward prices and volatilities of currency rates.

These risks can have a significant effect on investment returns and market values of securities positions, which in turn may affect both the Group's results of operations and financial condition. The Group continues to focus on asset-liability management for its investment portfolio, but pursuing even this strategy has its risks – including a possible mismatch between investments and liability benchmarks – that in turn can lead to reinvestment risk. The Group seeks to manage the risks inherent in its investment portfolio by repositioning the portfolio from time to time, as needed, and to reduce risk and fluctuations through the use of hedges and other risk management tools.

Credit risk

If the credit markets were to deteriorate, the Group could experience losses. Changes in the market value of the underlying securities and other factors impacting their price could give rise to market value losses. The Group could also face write-downs in other areas of its portfolio, including other structured instruments, and the Group and its counterparties could face difficulties in valuing credit-related instruments. Differences in opinion with respect to valuations of credit-related instruments could result in legal disputes among the Group and its counterparties as to their respective obligations, the outcomes of which are difficult to predict and could be material. The Group is also subject to credit and other risks in its credit business, including reliance on banks that underwrite and monitor facilities in which the Group participates and potential default by borrowers under those facilities.

Liquidity risks

The Group's business requires, and its clients expect, that it has sufficient capital and sufficient liquidity to meet its re/insurance obligations, and that this would continue to be the case following the occurrence of any foreseeable event or series of events, including extreme catastrophes, that would trigger insurance or reinsurance coverage obligations. The Group's uses of funds include, among other things, its obligations arising in its insurance and reinsurance businesses (including claims and other payments as well as insurance provision repayments due to portfolio transfers, securitisations and commutations), which may include large and unpredictable claims (including catastrophe claims), funding of capital requirements and operating costs, payment of principal and interest on outstanding indebtedness and funding of acquisitions. The Group also has unfunded capital commitments in its private equity and hedge fund investments, which could result in funding obligations at a time when it is subject to liquidity constraints. In addition, the Group has potential collateral requirements in connection with a number of reinsurance arrangements, the amounts of which may be material and the meeting of which could require the Group to liquidate cash equivalents or other securities.

The Group manages liquidity and funding risks by focusing on the liquidity stress that is likely to result from extreme capital markets scenarios or from extreme loss events or combinations of the two. Generally, the ability to meet liquidity needs could be adversely impacted by factors that the Group cannot control, such as market dislocations or interruptions, adverse economic conditions, severe disruption in the financial and worldwide credit markets and the related increased constraints on the availability of credit; changes in interest rates, foreign exchange rates and credit spreads; or by perceptions among market participants of the extent of the Group's liquidity needs.

Unexpected liquidity needs (including to meet collateral calls) could require the Group to increase levels of indebtedness or to liquidate investments or other assets. Should the Group require liquidity at a time when access to bank funding and the capital markets is limited, it may be unable to secure new sources of funding. The Group's ability to meet liquidity needs through asset sales may be constrained by market conditions and the related stress on valuations. In addition, the Group's ability to meet liquidity needs through the incurrence of debt may be limited by constraints on the general availability of credit in the case of bank funding, and adverse market conditions, in the case of capital markets debt. Failure to meet covenants in lending arrangements could further constrain access to liquidity. The Group's ability to meet liquidity needs may also be constrained by regulatory requirements that require regulated entities to maintain or increase regulatory capital, or that restrict intra-group transactions, the timing of dividend payments from subsidiaries or the fact that certain assets may be encumbered or are otherwise not tradeable. Finally, any adverse ratings action against the Group could trigger a need for further liquidity (for example, by triggering termination provisions or margin calls/collateral delivery requirements in contracts to which Swiss Re is a party) at a time when the Group's ability to obtain liquidity from external sources is limited by such ratings action. See also "Risks relating to credit rating downgrades."

Counterparty risks

The Group is exposed to the risk of defaults, or concerns about defaults, by its counterparties. Issuers or borrowers whose securities or loans the Group holds, trading counterparties, counterparties under swaps and other derivative contracts, clearing agents, clearing houses and other financial intermediaries may default on their obligations to the Group due to bankruptcy, insolvency, lack of liquidity, adverse economic conditions, operations failure, fraud or other reasons, which could also have a material adverse effect on the Group. The Group has increased its allocation to higher return-generating strategies, including high-quality corporate debt and some alternative assets, which tend to also be subject to potentially greater counterparty risk.

The Group could also be adversely affected by the insolvency of, or other credit constraints affecting, counterparties in its insurance and reinsurance operations. Moreover, the Group could be adversely affected by liquidity issues at ceding companies or at third parties to whom the Group has retroceded risk, and such risk could be exacerbated to the extent any such exposures are concentrated.

Risks relating to credit rating downgrades

Ratings are an important factor in establishing the competitive position of reinsurance companies. Third-party rating agencies assess and rate the financial strength of reinsurers and insurers, such as Swiss Re. These ratings are intended to measure a company's ability to repay its obligations and are based upon criteria established by the rating agencies. Ratings may be solicited or unsolicited and may be downgraded or withdrawn at the sole discretion of the rating agencies.

The Group's ratings reflect the current opinion of the relevant rating agencies. One or more of the Group's ratings could be downgraded or withdrawn in the future. In addition, unsolicited ratings may also be downgraded or withdrawn, such as a downgrade in April 2020 of unsolicited insurer financial strength and long-term issuer default ratings assigned to various entities within the Group. Rating agencies may increase the frequency and scope of ratings reviews, revise their criteria or take other actions that may negatively impact the Group's ratings and/or the ratings of its legal entities, which it cannot predict. In addition, changes to the process or methodology of issuing ratings, or the occurrence of events or developments affecting the Group, could adversely affect the Group's existing ratings or make it more difficult for the Group to achieve improved ratings which it would otherwise have expected.

As claims paying and financial strength ratings are key factors in establishing the competitive position of reinsurers, a decline in Swiss Re's ratings and/or the ratings of its key rated legal entities could make reinsurance provided by the Group less attractive to clients relative to reinsurance from competitors with similar or stronger ratings. A decline in ratings could also cause the loss of clients who are required by policy or regulation to purchase reinsurance only from reinsurers with certain ratings. Certain larger reinsurance and derivative contracts may contain terms that would allow the ceding companies or counterparties to terminate the contract if the Group's ratings or those of its subsidiaries are downgraded beyond a certain threshold. Furthermore, ratings directly impact the availability and terms of unsecured financing (potentially impacting the Group's ability to rollover existing facilities or obtain new facilities) and declines in the Group's ratings or the ratings of legal entities within the Group could also obligate the Group to provide collateral or other guarantees in the course of its business or trigger early termination of funding arrangements, potentially resulting in a need for additional liquidity. As a ratings decline could also have a material adverse impact on the Group's costs of borrowing or ability to access the capital markets, the adverse implications of a downgrade could be more severe. These same factors could also impact the Group's insurance business.

Legal and regulatory risks

In the ordinary course of business, the Group is involved in lawsuits, arbitrations and other formal and informal dispute resolution procedures, the outcomes of which determine the Group's rights and obligations under insurance, reinsurance or other contractual agreements. From time to time, the Group may institute, or be named as a defendant in, legal proceedings, and the Group may be a claimant or respondent in arbitration proceedings. These proceedings could involve coverage or other disputes with ceding companies, disputes with parties to which the Group transfers risk under reinsurance arrangements, disputes with other counterparties or other matters. The Group cannot predict the outcome of any of the foregoing, which could be material for the Group.

The Group could in the future be involved in investigations and regulatory proceedings, which could result in adverse judgments, settlements, fines and other outcomes. These investigations and proceedings could relate to insurance or reinsurance matters, or could involve broader business conduct rules, including those in respect of market abuse, bribery, money laundering, trade sanctions, competition law and data protection and privacy. The Group also is subject to audits and challenges from time to time by tax authorities, which could result in increases in tax costs, changes to internal structures and interest and penalties. Tax authorities may also actively pursue additional taxes based on retroactive changes to tax laws. The Group could be subject to risks arising from alleged, or actual, violations of any of the foregoing, and could also be subject to litigation or enforcement actions arising from potential employee misconduct, including non-compliance with internal policies and procedures, negligence and malfeasance, such as undertaking or facilitating cyber-attacks on internal systems. Substantial legal liability could materially adversely affect the Group's business, financial condition or results of operations or could cause significant reputational harm, which could seriously affect its business.

Insurance, operational and other risks

As part of the Group's ordinary course operations, the Group is subject to a variety of risks, including risks that reserves may not adequately cover future claims and benefits; risks that catastrophic events (including natural catastrophes, such as hurricanes, cyclones, tornadoes, windstorms, hail storms, wildfires, floods and earthquakes, as well as extreme space weather events such as solar storms and geomagnetic activity, and man-made disasters, such as acts of terrorism, cyberattacks and other disasters such as explosions, industrial accidents and fires, as well as pandemics) are inherently unpredictable in terms of both their frequency and severity and have exposed, and may continue to expose, the Group to unexpected large losses (and related uncertainties in estimating future claims in respect of such events); changes in the insurance industry that affect ceding companies, particularly those that further increase their sensitivity to counterparty risk; competitive conditions (including as a result of consolidation and the availability of significant levels of alternative capacity); cyclicality of the industry; risks related to emerging claims and coverage issues (including, in particular, social inflation), which trends may potentially be exacerbated by the COVID-19 crisis; macro developments giving rise to emerging risks, such as climate change and technological developments (including greater exposure to cyber risks (where accumulation risk is yet to be fully understood), which could have a range of consequences from operational disruption, to loss of proprietary or customer data, to greater regulatory burdens and potential liability); risks arising from the Group's dependence on policies, procedures and expertise of ceding companies; risks related to investments in emerging markets; and risks related to the failure of, or attacks directed at, the Group's operational systems and infrastructure, including its information technology networks and systems. Any of the foregoing, as well as the occurrence of future risks that the Group's risk management procedures fail to identify or anticipate, could have a material adverse effect on the Group, and could also give rise to reputational risk.

Use of models; accounting matters

The Group is subject to risks relating to the preparation of estimates and assumptions that its management uses, for example, as part of its risk models as well as those that affect the reported amounts of assets, liabilities, revenues and expenses in the Group's financial statements (such as assumptions related to the Group's capital requirements and anticipated liabilities), including assumed and ceded business. For example, the Group estimates premiums pending receipt of actual data from ceding companies, which actual data could deviate from the estimates (and could be adversely affected if premiums turn out to be lower, while claims stay the same). In addition, particularly with respect to large natural catastrophes, it may be difficult to estimate losses, and preliminary estimates may be subject to a high degree of uncertainty and change as new information becomes available. Deterioration in market conditions could have an adverse impact on assumptions used for financial reporting purposes, which could affect possible impairment of present value of future profits, fair value of assets and liabilities, deferred acquisition costs or goodwill. Moreover, regulators could require the use of standard models instead of permitting the use of internal models. To the extent that management's estimates or assumptions prove to be incorrect, it could have a material impact on underwriting results (in the case of risk models) or on reported financial condition or results of operations (in the case of accounting judgments), and such impact could be material.

The Group's results may be impacted by changes in accounting standards, or changes in the interpretation of accounting standards. Changes in accounting standards could impact future reported results or require restatement of past reported results. The Group's results may also be impacted if regulatory authorities take issue with any conclusions the Group may reach in respect of accounting matters.

The Group uses non-GAAP financial measures in its external financial reporting. These measures are not prepared in accordance with US GAAP or any other comprehensive set of accounting rules or principles and should not be viewed as a substitute for measures prepared in accordance with US GAAP. Moreover, these may be different from, or otherwise inconsistent with, non-GAAP financial measures used by other companies. These measures have inherent limitations, are not required to be uniformly applied and are not audited.

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