Income statement

For the years ended 31 December

USD millions	Note	2018	2019
Revenues			
Gross premiums written	4	36 406	**42 228**
Net premiums written	4	34 042	**39 649**
Change in unearned premiums		–167	**–1 675**
Premiums earned	3	33 875	**37 974**
Fee income from policyholders	3	586	**620**
Net investment income – non-participating business[1]	7	4 075	**4 171**
Net realised investment gains/losses – non-participating business[2]	7	65	**1 580**
Net investment result – unit-linked and with-profit business	7	–1 593	**4 939**
Other revenues		39	**30**
Total revenues		37 047	**49 314**
Expenses			
Claims and claim adjustment expenses	3	–14 855	**–18 683**
Life and health benefits	3	–11 769	**–13 087**
Return credited to policyholders		1 033	**–4 633**
Acquisition costs	3	–6 919	**–7 834**
Operating expenses		–3 432	**–3 579**
Total expenses before interest expenses		–35 942	**–47 816**
Income before interest and income tax expense		1 105	**1 498**
Interest expenses		–555	**–589**
Income before income tax expense		550	**909**
Income tax expense	15	–69	**–140**
Net income before attribution of non-controlling interests		481	**769**
Income/loss attributable to non-controlling interests		–19	**–42**
Net income after attribution of non-controlling interests		462	**727**
Interest on contingent capital instruments, net of tax		–41	
Net income attributable to common shareholders		421	**727**
Earnings per share in USD			
Basic	14	1.37	**2.46**
Diluted	14	1.37	**2.39**
Earnings per share in CHF[3]			
Basic	14	1.34	**2.46**
Diluted	14	1.34	**2.40**

[1] Total impairments for the years ended 31 December of nil in 2018 and of USD 80 million in 2019, respectively, were fully recognised in earnings.
[2] Total impairments for the years ended 31 December of USD 16 million in 2018 and of USD 10 million in 2019, respectively, were fully recognised in earnings.
[3] The translation from USD to CHF is shown for informational purposes only and has been calculated using the Group's average exchange rates.

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

Statement of comprehensive income

For the years ended 31 December

USD millions	2018	2019
Net income before attribution of non-controlling interests	481	**769**
Other comprehensive income, net of tax:		
Change in net unrealised investment gains/losses	–2 389	**3 375**
Change in other-than-temporary impairment	–1	**2**
Change in cash flow hedges	15	**–9**
Change in foreign currency translation	–408	**46**
Change in adjustment for pension benefits	–4	**–29**
Change in credit risk of financial liabilities at fair value option		**–2**
Transactions with non-controlling interests	–259	**–56**
Other comprehensive income attributable to non-controlling interests	72	**341**
Total comprehensive income before attribution of non-controlling interests	–2 493	**4 437**
Interest on contingent capital instruments, net of tax	–41	
Comprehensive income attributable to non-controlling interests	–91	**–383**
Total comprehensive income attributable to common shareholders	–2 625	**4 054**

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

Reclassification out of accumulated other comprehensive income
For the years ended 31 December

2018 USD millions	Net unrealised investment gains/losses[1]	Other-than-temporary impairment[1]	Cash flow hedges[1]	Foreign currency translation[1, 2]	Adjustment for pension benefits[3]	Credit risk of financial liabilities at fair value option	Accumulated other comprehensive income
Balance as of 1 January	4 746	–2	–10	–5 548	–820	0	–1 634
Transactions with non-controlling interests	–325		1	52	13		–259
Impact of Accounting Standards Update[4]	–127				–17	5	–139
Change during the period	–3 129	–1	25	–303	–75		–3 483
Amounts reclassified out of accumulated other comprehensive income	154		–10	8	68		220
Tax	586			–113	3		476
Balance as of period end	1 905	–3	6	–5 904	–828	5	–4 819

2019 USD millions	Net unrealised investment gains/losses[1]	Other-than-temporary impairment[1]	Cash flow hedges[1]	Foreign currency translation[1, 2]	Adjustment for pension benefits[3]	Credit risk of financial liabilities at fair value option	**Accumulated other comprehensive income**
Balance as of 1 January	1 905	–3	6	–5 904	–828	5	**–4 819**
Transactions with non-controlling interests	–128		1	64	7		**–56**
Change during the period	5 668		–57		–93	–2	**5 516**
Amounts reclassified out of accumulated other comprehensive income	–1 491		48	135	46		**–1 262**
Tax	–802	2		–89	18		**–871**
Balance as of period end	**5 152**	**–1**	**–2**	**–5 794**	**–850**	**3**	**–1 492**

[1] Reclassification adjustment included in net income is presented in "Net realised investment gains/losses – non-participating business".
[2] 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.
[3] Reclassification adjustment included in net income is presented in "Operating expenses".
[4] Impact of ASU 2018-02 "Reclassification of Certain Tax Effects from Accumulated Other Comprehensive income", ASU 2016-16 "Intra-Entity Transfers of Assets Other Than Inventory" and ASU 2016-01 "Recognition and Measurement of Financial Assets and Financial Liabilities". Please refer to the Annual Report 2018 for more details.

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

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Balance sheet

Assets
As of 31 December

USD millions	Note	2018	2019
Investments	7, 8, 9		
Fixed income securities:			
Available-for-sale (including 11 502 in 2018 and 14 175 in 2019 subject to securities lending and repurchase agreements) (amortised cost: 2018: 89 673; 2019: 74 780)		92 538	**79 163**
Trading (including 2 599 in 2018 and 1 911 in 2019 subject to securities lending and repurchase agreements)		3 414	**2 410**
Equity securities at fair value through earnings (including 480 in 2018 and 186 in 2019 subject to securities lending and repurchase agreements)		3 036	**2 993**
Policy loans, mortgages and other loans		4 542	**3 021**
Investment real estate		2 411	**2 528**
Short-term investments (including 552 in 2018 and 1 157 in 2019 subject to securities lending and repurchase agreements)		5 417	**5 768**
Other invested assets		6 398	**7 343**
Investments for unit-linked and with-profit business (including fixed income securities trading: 4 938 in 2018 and nil in 2019, equity securities at fair value through earnings: 23 123 in 2018 and 520 in 2019)		29 546	**520**
Total investments		147 302	**103 746**
Cash and cash equivalents (including 717 in 2018 and 1 257 in 2019 subject to securities lending, and 1 175 in 2018 and 4 in 2019 backing unit-linked and with-profit contracts)		5 985	**7 562**
Accrued investment income		1 052	**673**
Premiums and other receivables		13 789	**15 271**
Reinsurance recoverable on unpaid claims and policy benefits		7 058	**5 898**
Funds held by ceding companies		9 009	**9 472**
Deferred acquisition costs	6	8 217	**7 838**
Acquired present value of future profits	6	1 818	**1 042**
Goodwill		4 071	**3 945**
Income taxes recoverable		526	**466**
Deferred tax assets	15	5 411	**4 726**
Other assets		3 332	**3 489**
Assets held for sale[1]	11		**74 439**
Total assets		207 570	**238 567**

[1] Please refer to Note 11 "Assets held for sale" for more details.

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

Liabilities and Equity

USD millions	Note	2018	2019
Liabilities			
Unpaid claims and claim adjustment expenses	5	67 446	**72 373**
Liabilities for life and health policy benefits	8	39 593	**19 836**
Policyholder account balances		31 938	**5 405**
Unearned premiums		11 721	**13 365**
Funds held under reinsurance treaties		3 224	**3 521**
Reinsurance balances payable		920	**889**
Income taxes payable		597	**378**
Deferred and other non-current tax liabilities	15	6 471	**5 663**
Short-term debt	12	1 633	**185**
Accrued expenses and other liabilities	7	6 798	**7 191**
Long-term debt	12	8 502	**10 138**
Liabilities held for sale[1]	11		**68 586**
Total liabilities		178 843	**207 530**
Equity			
Common shares, CHF 0.10 par value 2018: 338 619 465; 2019: 327 404 704 shares authorised and issued		32	**31**
Additional paid-in capital		496	**256**
Treasury shares, net of tax		–2 291	**–2 220**
Accumulated other comprehensive income:			
Net unrealised investment gains/losses, net of tax		1 905	**5 152**
Other-than-temporary impairment, net of tax		–3	**–1**
Cash flow hedges, net of tax		6	**–2**
Foreign currency translation, net of tax		–5 904	**–5 794**
Adjustment for pension and other post-retirement benefits, net of tax		–828	**–850**
Credit risk of financial liabilities at fair value option, net of tax		5	**3**
Total accumulated other comprehensive income		–4 819	**–1 492**
Retained earnings		34 512	**32 676**
Shareholders' equity		27 930	**29 251**
Non-controlling interests		797	**1 786**
Total equity		28 727	**31 037**
Total liabilities and equity		207 570	**238 567**

[1] Please refer to Note 11 "Assets held for sale" for more details.

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

Statement of shareholders' equity

For the years ended 31 December

USD millions	2018	2019
Contingent capital instruments		
Balance as of 1 January	750	**0**
Changes during the period	–750	
Balance as of period end	0	**0**
Common shares		
Balance as of 1 January	33	**32**
Cancellation of shares bought back	–1	**–1**
Balance as of period end	32	**31**
Additional paid-in capital		
Balance as of 1 January	368	**496**
Transactions with non-controlling interests[1]	123	**–241**
Contingent capital instrument issuance costs	11	
Cancellation of shares bought back	–85	**–23**
Share-based compensation	–6	**–9**
Realised gains/losses on treasury shares	85	**33**
Balance as of period end	496	**256**
Treasury shares, net of tax		
Balance as of 1 January	–1 842	**–2 291**
Purchase of treasury shares	–1 454	**–1 041**
Cancellation of shares bought back	1 032	**1 020**
Issuance of treasury shares, including share-based compensation to employees	–27	**92**
Balance as of period end	–2 291	**–2 220**
Net unrealised investment gains/losses, net of tax		
Balance as of 1 January	4 746	**1 905**
Transactions with non-controlling interests[1]	–325	**–128**
Impact of ASU 2018-02[2]	176	
Impact of ASU 2016-16[2]	44	
Impact of ASU 2016-01[2]	–347	
Changes during the period	–2 389	**3 375**
Balance as of period end	1 905	**5 152**
Other-than-temporary impairment, net of tax		
Balance as of 1 January	–2	**–3**
Changes during the period	–1	**2**
Balance as of period end	–3	**–1**
Cash flow hedges, net of tax		
Balance as of 1 January	–10	**6**
Transactions with non-controlling interests[1]	1	**1**
Changes during the period	15	**–9**
Balance as of period end	6	**–2**

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

USD millions	2018	2019
Foreign currency translation, net of tax		
Balance as of 1 January	–5 548	**–5 904**
Transactions with non-controlling interests[1]	52	**64**
Changes during the period	–408	**46**
Balance as of period end	–5 904	**–5 794**
Adjustment for pension and other post-retirement benefits, net of tax		
Balance as of 1 January	–820	**–828**
Transactions with non-controlling interests[1]	13	**7**
Impact of ASU 2018-02[2]	–17	
Changes during the period	–4	**–29**
Balance as of period end	–828	**–850**
Credit risk of financial liabilities at fair value option, net of tax		
Balance as of 1 January	0	**5**
Impact of ASU 2016-01[2]	5	
Changes during the period		**–2**
Balance as of period end	5	**3**
Retained earnings		
Balance as of 1 January	36 449	**34 512**
Net income after attribution of non-controlling interests	462	**727**
Interest on contingent capital instruments, net of tax	–41	
Dividends on common shares	–1 592	**–1 659**
Cancellation of shares bought back	–946	**–996**
Impact of ASU 2018-02[2]	–159	
Impact of ASU 2016-16[2]	–3	
Impact of ASU 2016-01[2]	342	
Impact of ASU 2016-02[3]		**92**
Balance as of period end	34 512	**32 676**
Shareholders' equity	27 930	**29 251**
Non-controlling interests		
Balance as of 1 January	170	**797**
Transactions with non-controlling interests[1]	688	**606**
Income/loss attributable to non-controlling interests	19	**42**
Other comprehensive income attributable to non-controlling interests:		
Change in net unrealised investment gains/losses	191	**380**
Change in foreign currency translation	–109	**–25**
Other	–10	**–14**
Dividends to non-controlling interests	–152	
Balance as of period end	797	**1 786**
Total equity	28 727	**31 037**

[1] In 2018, MS&AD Insurance Group Holdings Inc (MS&AD) acquired a 15% non-controlling interest in ReAssure Group Plc (ReAssure), a subsidiary of the Group. In the first quarter of 2019, MS&AD acquired an additional 10% stake, increasing its total non-controlling interest to 25%. In the second quarter of 2019, MS&AD restructured its 25% holding within ReAssure. In the fourth quarter of 2019, the Group agreed to reacquire the 25% stake in ReAssure in connection with the agreement to sell ReAssure to Phoenix Group Holdings plc.
[2] Impact of ASU 2018-02 "Reclassification of Certain Tax Effects from Accumulated Other Comprehensive income", ASU 2016-16 "Intra-Entity Transfers of Assets Other Than Inventory" and ASU 2016-01 "Recognition and Measurement of Financial Assets and Financial Liabilities". Please refer to the Annual Report 2018 for more details.
[3] Impact of ASU 2016-02 "Leases". Please refer to Note 1 "Organisation and summary of significant accounting policies" for more details.

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

Statement of cash flows

For the years ended 31 December

USD millions	2018	2019
Cash flows from operating activities		
Net income attributable to common shareholders	421	**727**
Add income/loss attributable to non-controlling interests	19	**42**
Adjustments to reconcile net income to net cash provided/used by operating activities:		
Depreciation, amortisation and other non-cash items	331	**538**
Net realised investment gains/losses	2 530	**–5 515**
Income from equity-accounted investees, net of dividends received	4	**–283**
Change in:		
Technical provisions and other reinsurance assets and liabilities, net	–1 796	**10 659**
Funds held by ceding companies and under reinsurance treaties	212	**–5**
Reinsurance recoverable on unpaid claims and policy benefits	656	**–571**
Other assets and liabilities, net	–421	**–472**
Income taxes payable/recoverable	–682	**–471**
Trading positions, net	298	**–252**
Net cash provided/used by operating activities	1 572	**4 397**
Cash flows from investing activities		
Fixed income securities:		
Sales	44 679	**51 008**
Maturities	5 159	**7 732**
Purchases	–49 816	**–58 240**
Net purchases/sales/maturities of short-term investments	–761	**–405**
Equity securities:		
Sales	1 908	**2 225**
Purchases	–1 578	**–1 495**
Securities purchased/sold under agreement to resell/repurchase, net	3 464	**–869**
Cash paid/received for acquisitions/disposals and reinsurance transactions, net	–11	**340**
Net purchases/sales/maturities of other investments	–869	**581**
Net purchases/sales/maturities of investments held for unit-linked and with-profit business	1 288	**1 584**
Net cash provided/used by investing activities	3 463	**2 461**
Cash flows from financing activities		
Policyholder account balances, unit-linked and with-profit business:		
Deposits	557	**551**
Withdrawals	–2 939	**–2 629**
Issuance/repayment of long-term debt	346	**3 614**
Issuance/repayment of short-term debt	–428	**–2 205**
Issuance/repayment of contingent capital instrument	–750	
Purchase/sale of treasury shares	–1 446	**–946**
Dividends paid to shareholders	–1 592	**–1 659**
Dividends paid to non-controlling interests	–152	
Transactions with non-controlling interests	811	**634**
Net cash provided/used by financing activities	–5 593	**–2 640**

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

USD millions	2018	2019
Total net cash provided/used	–558	**4 218**
Effect of foreign currency translation	–263	**88**
Change in cash and cash equivalents	–821	**4 306**
Cash and cash equivalents as of 1 January	6 806	**5 985**
Reclassified to assets held for sale		**–2 729**
Cash and cash equivalents as of 31 December	5 985	**7 562**

Interest paid was USD 631 million and USD 572 million (thereof USD 43 million and USD 24 million for letter of credit fees) for 2018 and 2019, respectively. Tax paid was USD 740 million and USD 611 million for 2018 and 2019, respectively.

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.

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Notes to the Group financial statements

1 Organisation and summary of significant accounting policies

Nature of operations
The Swiss Re Group, which is headquartered in Zurich, Switzerland, comprises Swiss Re Ltd (the parent company) and its subsidiaries (collectively, the "Swiss Re Group" or the" Group"). The Swiss Re 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 made up of insurance companies, mid- to large-sized corporations and public-sector clients.

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) and comply with Swiss law. All significant intra-group transactions and balances have been eliminated on consolidation.

The Group agreed to sell its subsidiary ReAssure Group plc in December 2019 to Phoenix Group Holdings plc. The corresponding held for sale assets and liabilities are separately disclosed on the balance sheet. Further details on the agreed sale are provided in Note 11 "Assets held for sale".

The Board of Directors of Swiss Re Ltd 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.

Principles of consolidation
The Group's financial statements include the consolidated financial statements of Swiss Re Ltd and its subsidiaries. Voting entities which Swiss Re Ltd directly or indirectly controls through holding a majority of the voting rights are consolidated in the Group's accounts. Variable interest entities (VIEs) are consolidated when the Swiss Re Group is the primary beneficiary. The Group is the primary beneficiary when it has power over the activities that impact the VIE's economic performance and at the same time has the obligation to absorb losses or the right to receive benefits that could potentially be significant to the VIE. Companies which the Group does not control, but over which it directly or indirectly exercises significant influence, are accounted for using the equity method or the fair value option and are included in other invested assets. The Swiss Re Group's share of net profit or loss in investments accounted for under the equity method is included in net investment income. Equity and net income of these companies are adjusted as necessary to be in line with the Group's accounting policies. The results of consolidated subsidiaries and investments accounted for using the equity method are included in the financial statements for the period commencing from the date of acquisition.

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 Swiss Re 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.

Foreign currency remeasurement and translation
Transactions denominated in foreign currencies are remeasured to the respective subsidiary's functional currency at average exchange rates. Monetary assets and liabilities are remeasured to the functional currency at closing exchange rates, whereas non-monetary assets and liabilities are remeasured to the functional currency at historical rates. Remeasurement gains and losses on monetary assets and liabilities and trading securities are reported in earnings. Remeasurement gains and losses on available-for-sale securities, investments in consolidated subsidiaries and investments accounted for using the equity method are reported in shareholders' equity.

For consolidation purposes, assets and liabilities of subsidiaries with functional currencies other than US dollars are translated from the functional currency to US dollars at closing rates. Revenues and expenses are translated at average exchange rates. Translation adjustments are reported in shareholders' equity.

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 by incorporating 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 a manner consistent with the aforementioned approach, with consideration given to 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 investment 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 inputs 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 related to 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 31 December 2019, the Group had not provided any collateral on financial instruments in excess of its own market value estimates.

Investments

The Group's investments in fixed income securities are classified as available-for-sale (AFS) or trading. Fixed income securities AFS are carried at fair value, based on quoted market prices, with the difference between the applicable measure of cost and fair value being recognised in shareholders' equity. Trading fixed income securities are carried at fair value with unrealised gains and losses recognised in earnings. A trading classification is used for securities that are bought and held principally for the purpose of selling them in the near term.

For fixed income securities AFS that are other-than-temporary impaired and for which there is not an intention to sell, the impairment is separated into (i) the estimated amount relating to credit loss, and (ii) the amount relating to all other factors. The estimated credit loss amount is recognised in earnings, with the remainder of the loss amount recognised in other comprehensive income. In cases where there is an intention or requirement to sell and the fair value is lower than cost expressed in functional currency terms, the cost of fixed income securities AFS is reduced to fair value, with a corresponding charge to realised investment losses. Subsequent recoveries are not recognised in earnings.

Equity investments are carried at fair value with unrealised gains and losses recognised in earnings, with the exception of equity method investments and investments that result in consolidation.

Interest on fixed income securities is recorded in net investment income when earned and is adjusted for the amortisation of any purchase premium or discount. Dividends on equity securities are recognised as investment income on the ex-dividend date. Realised gains and losses on sales are included in earnings and are calculated using the specific identification method.

Policy loans, mortgages and other loans are carried at amortised cost. Interest income is recognised in accordance with the effective yield method.

Investment in real estate that the Group intends to hold for the production of income is carried at depreciated cost, net of any write-downs for impairment in value. Depreciation on buildings is recognised on a straight-line basis over the estimated useful life of the asset. Land is recognised at cost and not depreciated. Impairment in value is recognised if the sum of the estimated future undiscounted cash flows from the use of the real estate is lower than its carrying value. The impairment loss is measured as the amount by which the asset's carrying amount exceeds its fair value and is recognised in realised investment losses. Depreciation and other related charges or credits are included in net investment income. Investment in real estate held for sale is carried at the lower of cost or fair value, less estimated selling costs, and is not depreciated. Reductions in the carrying value of real estate held for sale are included in realised investment losses.

Short-term investments are measured at fair value with changes in fair value recognised in net income. The Group considers highly liquid investments with a remaining maturity at the date of acquisition of one year or less, but greater than three months, to be short-term investments.

Other invested assets include affiliated companies, equity accounted companies, derivative financial instruments, collateral receivables, securities purchased under agreement to resell, deposits and time deposits, and investments without readily determinable fair value (including limited partnership investments). Investments in limited partnerships where the Group's interest equals or exceeds 3% are accounted for using the equity method. Investments in limited partnerships where the Group's interest is below 3% and equity investments in corporate entities which are not publicly traded are accounted for at estimated fair value with changes in fair value recognised in earnings.

The Group enters into securities lending arrangements under which it loans certain securities in exchange for collateral and receives securities lending fees. The Group's policy is to require collateral, consisting of cash or securities, equal to at least 102% of the carrying value of the securities loaned. In certain arrangements, the Group may accept collateral of less than 102% if the structure of the overall transaction offers an equivalent level of security. Cash received as collateral is recognised along with an obligation to return the cash. Securities received as collateral that can be sold or repledged are also recognised along with an obligation to return those securities. Securities lending fees are recognised over the term of the related loans.

Derivative financial instruments and hedge accounting

The Group uses a variety of derivative financial instruments including swaps, options, forwards and exchange-traded financial futures for the Group's trading and hedging strategy in line with the overall risk management strategy. Derivative financial instruments are primarily used as a means of managing exposure to price, foreign currency and/or interest rate risk on planned or anticipated investment purchases, existing assets or existing liabilities and also to lock in attractive investment conditions for funds which become available in the future. The Group recognises all of its derivative instruments on the balance sheet at fair value. Changes in fair value on derivatives that are not designated as hedging instruments are recorded in income.

If the derivative is designated as a hedge of the fair value of assets or liabilities, changes in the fair value of the derivative are recognised in earnings, together with changes in the fair value of the related hedged item. If the derivative is designated as a hedge of the variability in expected future cash flows related to a particular risk, changes in the fair value of the derivative are reported in other comprehensive income until the hedged item is recognised in earnings. The ineffective portion of the hedge is recognised in earnings. When hedge accounting is discontinued on a cash flow hedge, the net gain or loss remains in accumulated other comprehensive income and is reclassified to earnings in the period in which the formerly hedged transaction is reported in earnings. When the Group discontinues hedge accounting because it is no longer probable that a forecasted transaction will occur within the required time period, the derivative continues to be carried on the balance sheet at fair value, and gains and losses that were previously recorded in accumulated other comprehensive income are recognised in earnings.

The Group recognises separately derivatives that are embedded within other host instruments if the economic characteristics and risks are not clearly and closely related to the economic characteristics and risks of the host contract and if it meets the definition of a derivative if it were a free-standing contract.

Derivative financial instrument assets are generally included in other invested assets and derivative financial instrument liabilities are generally included in accrued expenses and other liabilities.

The Group also designates non-derivative and derivative monetary financial instruments as hedges of the foreign currency exposure of its net investment in certain foreign operations. From the inception of the hedging relationship, remeasurement gains and losses on the designated non-derivative and derivative monetary financial instruments and translation gains and losses on the hedged net investment are reported as translation gains and losses in shareholders' equity.

Cash and cash equivalents

Cash and cash equivalents include cash on hand, short-term deposits, certain short-term investments in money market funds and highly liquid debt instruments with a remaining maturity at the date of acquisition of three months or less.

Deferred acquisition costs

The Group incurs costs in connection with acquiring new and renewal reinsurance and insurance business. Some of these costs, which consist primarily of commissions, are deferred as they are directly related to the successful acquisition of such business.

Deferred acquisition costs for short-duration contracts are amortised in proportion to premiums earned. Future investment income is considered in determining the recoverability of deferred acquisition costs for short-duration contracts. Deferred acquisition costs for long-duration contracts are amortised over the life of underlying contracts. Deferred acquisition costs for universal-life and similar products are amortised based on the present value of estimated gross profits. Estimated gross profits are updated quarterly.

Modifications of insurance and reinsurance contracts

The Group accounts for modifications of insurance and reinsurance contracts that result in a substantially unchanged contract as a continuation of the replaced contract. The associated deferred acquisition costs and present value of future profits (PVFP) will continue to be amortised. The Group accounts for modifications of insurance and reinsurance contracts that result in a substantially changed contract as an extinguishment of the replaced contract. The associated deferred acquisition costs or PVFP are written off immediately through income and any new deferrable costs associated with the replacement contract are deferred.

Business combinations

The Group applies the acquisition method of accounting for business combinations. This method allocates the cost of the acquired entity to the assets and liabilities assumed based on their estimated fair values at the date of acquisition.

Life Capital closed blocks of business can be acquired in different legal forms, either through an acquisition of an entity's share capital or through a reinsurance transaction. The Group's policy is to treat these transactions consistently regardless of the legal form of the acquisition. Accordingly, the Group records the acquired assets and liabilities directly to the balance sheet. Premiums, life and health benefits and other income statement items are not recorded in the income statement on the date of the acquisition.

The underlying assets and liabilities acquired are subsequently accounted for according to the relevant US GAAP guidance. This includes specific requirements applicable to subsequent accounting for assets and liabilities recognised as part of the acquisition method of accounting, including present value of future profits, goodwill and other intangible assets.

Acquired present value of future profits

The acquired present value of future profits (PVFP) of business in force is recorded in connection with the acquisition of life and health business. The initial value is calculated as the difference between established reserves, which are set up in line with US GAAP accounting policies and assumptions of the Group, and their fair value at the acquisition date. The resulting PVFP, which could be positive or negative, is amortised on a constant yield basis over the expected revenue recognition period of the business acquired, generally over periods ranging up to 30 years, with the accrual of interest added to the unamortised balance at the earned rate. Amortisation and accrual of interest are recognised in acquisition costs. The earned rate corresponds to either the current earned rate or the original earned rate depending on the business written. The rate is consistently applied for the entire life of the applicable business. For universal-life and similar products, PVFP is amortised in line with estimated gross profits, which are updated quarterly. The carrying value of PVFP is reviewed periodically for indicators of impairment in value. Adjustments to PVFP reflecting impairment in value are recognised in acquisition costs during the period in which the determination of impairment is made, or in other comprehensive income for shadow loss recognition.

Goodwill

The excess of the purchase price of acquired businesses over the estimated fair value of net assets acquired is recorded as goodwill, which is reviewed periodically for indicators of impairment in value. Adjustments to reflect impairment in value are recognised in earnings in the period in which the determination of impairment is made.

Other assets

Other assets include deferred expenses on retroactive reinsurance, prepaid reinsurance premiums, receivables related to investing activities, real estate for own use, other classes of property, plant and equipment, accrued income, certain intangible assets and prepaid assets.

The excess of estimated liabilities for claims and claim adjustment expenses payable over consideration received in respect of retroactive property and casualty reinsurance contracts is recorded as a deferred expense. The deferred expense on retroactive reinsurance contracts is amortised through earnings over the expected claims-paying period.

Real estate for own use as well as other classes of property, plant and equipment are carried at depreciated cost. Depreciation on buildings is recognised on a straight-line basis over the estimated useful life. Land is recognised at cost and not depreciated.

Capitalised software costs

External direct costs of materials and services incurred to develop or obtain software for internal use, payroll and payroll-related costs for employees directly associated with software development and interest cost incurred while developing software for internal use are capitalised and amortised on a straight-line basis through earnings over the estimated useful life.

Income taxes

Deferred income tax assets and liabilities are recognised based on the difference between financial statement carrying amounts and the corresponding income tax bases of assets and liabilities using enacted income tax rates and laws. A valuation allowance is recorded against deferred tax assets when it is deemed more likely than not that some or all of the deferred tax assets may not be realised.

The Group recognises the effect of income tax positions only if sustaining those positions is more likely than not. Changes in recognition or measurement are reflected in the period in which a change in judgement occurs.

The Group releases stranded tax effects for unrealised gains/losses on AFS securities to earnings on a straight-line basis over the average duration of the relevant AFS portfolio as an approximation of when the individual securities within the portfolio are sold or mature. For adjustment for pension and other post-retirement benefits, stranded tax effects are released to earnings when the relevant pension plan is terminated. For foreign currency translation, stranded tax effects are released to earnings in line with the recycling of the underlying foreign currency translation amounts.

Unpaid claims and claim adjustment expenses

Liabilities for unpaid claims and claim adjustment expenses for property and casualty and life and health insurance and reinsurance contracts are accrued when insured events occur and are based on the estimated ultimate cost of settling the claims, using reports and individual case estimates received from ceding companies. A provision is also included for claims incurred but not reported, which is developed on the basis of past experience adjusted for current trends and other factors that modify past experience. The establishment of the appropriate level of reserves is an inherently uncertain process involving estimates and judgements made by management, and therefore there can be no assurance that ultimate claims and claim adjustment expenses will not exceed the loss reserves currently established. These estimates are regularly reviewed, and adjustments for differences between estimates and actual payments for claims and for changes in estimates are reflected in income in the period in which the estimates are changed or payments are made.

The Group does not discount liabilities arising from prospective property and casualty insurance and reinsurance contracts, including liabilities which are discounted for US statutory reporting purposes. Liabilities arising from property and casualty insurance and reinsurance contracts acquired in a business combination are initially recognised at fair value in accordance with the acquisition method of accounting.

The Group does not discount life and health claim reserves except for disability income claims in payment and mortality claims paid out in the form of an annuity. These claims are recognised at the estimated present value of the remaining ultimate net costs of the incurred claims.

Experience features which are directly linked to a reinsurance asset or liability are classified in a manner that is consistent with the presentation of that asset or liability.

Liabilities for life and health policy benefits

Liabilities for life and health policy benefits from reinsurance business are generally calculated using the net level premium method, based on assumptions as to investment yields, mortality, withdrawals, lapses and policyholder dividends. Assumptions are set at the time the contract is issued or, in the case of contracts acquired by purchase, at the purchase date. The assumptions are based on projections from past experience, making allowance for possible adverse deviation. Interest rate assumptions for life and health (re)insurance benefit liabilities are based on estimates of expected investment yields. Assumed mortality rates are generally based on experience multiples applied to the actuarial select and ultimate tables based on industry experience.

Liabilities for life and health policy benefits are increased with a charge to earnings if it is determined that future cash flows, including investment income, are insufficient to cover future benefits and expenses. Where assets backing liabilities for policy benefits are held as AFS, these liabilities for policyholder benefits are increased by a shadow adjustment, with a charge to other comprehensive income, where future cash flows at market rates are insufficient to cover future benefits and expenses.

Policyholder account balances

Policyholder account balances relate to universal-life-type contracts and investment contracts.

Universal-life-type contracts are long-duration insurance contracts, providing either death or annuity benefits, with terms that are not fixed and guaranteed.

Investment contracts are long-duration contracts that do not incorporate significant insurance risk, ie there is no mortality and morbidity risk, or the mortality and morbidity risk associated with the insurance benefit features offered in the contract is of insignificant amount or remote probability. Amounts received as payment for investment contracts are reported as policyholder account balances. Related assets are included in general account assets except for investments for unit-linked and with-profit business, which are presented in a separate line item on the face of the balance sheet.

Amounts assessed against policyholders for mortality, administration and surrender are shown as fee income. Amounts credited to policyholders are shown as interest credited to policyholders. Investment income and realised investment gains and losses allocable to policyholders are included in net investment income and net realised investment gains/losses except for unit-linked and with-profit business, which is presented in a separate line item on the face of the income statement.

Unit-linked and with-profit business are presented together as they are similar in nature. For unit-linked contracts, the investment risk is borne by the policyholder. For with-profit contracts, the majority of the investment risk is also borne by the policyholder, although there are certain guarantees that limit the downside risk for the policyholder, and a certain proportion of the returns may be retained by Swiss Re Group (typically 10%). Additional disclosures are provided in Note 7 "Investments".

Funds held assets and liabilities

On the asset side, funds held by ceding companies consist mainly of amounts retained by the ceding company for business written on a funds withheld basis. In addition, the account also includes amounts arising from the application of the deposit method of accounting to ceded retrocession or reinsurance contracts.

On the liability side, funds held under reinsurance treaties consist mainly of amounts arising from the application of the deposit method of accounting to inward insurance and reinsurance contracts. In addition, the account also includes amounts retained from ceded business written on a funds withheld basis.

Funds withheld assets are assets that would normally be paid to the Group but are withheld by the cedent to reduce a potential credit risk or to retain control over investments. In case of funds withheld liabilities, it is the Group that withholds assets related to ceded business in order to reduce its credit risk or retain control over the investments.

The deposit method of accounting is applied to insurance and reinsurance contracts that do not indemnify the ceding company or the Group against loss or liability relating to insurance risk. Under the deposit method of accounting, the deposit asset or liability is initially measured based on the consideration paid or received. For contracts that transfer neither significant timing nor underwriting risk, and contracts that transfer only significant timing risk, changes in estimates of the timing or amounts of cash flows are accounted for by recalculating the effective yield. The deposit is then adjusted to the amount that would have existed had the new effective yield been applied since the inception of the contract. The revenue and expense recorded for such contracts is included in net investment income. For contracts that transfer only significant underwriting risk, once a loss is incurred, the deposit is adjusted by the present value of the incurred loss. At each subsequent balance sheet date, the portion of the deposit attributable to the incurred loss is recalculated by discounting the estimated future cash flows. The resulting changes in the carrying amount of the deposit are recognised in claims and claim adjustment expenses.

Funds withheld balances are presented together with assets and liabilities arising from the application of the deposit method because of their common deposit-type character.

Shadow adjustments
Shadow adjustments are recognised in other comprehensive income reflecting the offset of adjustments to deferred acquisition costs and PVFP, typically related to universal-life-type contracts, and policyholder liabilities. The purpose is to reflect the fact that certain amounts recorded as unrealised investment gains and losses within shareholders' equity will ultimately accrue to policyholders and not shareholders.

Shadow loss recognition testing becomes relevant in low interest rate environments. The test considers whether the hypothetical sale of AFS securities and the reinvestment of proceeds at lower yields would lead to negative operational earnings in future periods, thereby causing a loss recognition event. For shadow loss recognition testing, the Group uses current market yields to determine best estimate US GAAP reserves rather than using locked-in or current book yields. If the unlocked best estimate US GAAP reserves based on current market rates are in excess of reserves based on locked-in or current book yields, a shadow loss recognition reserve is set up. These reserves are recognised in other comprehensive income and do not impact net income. In addition, shadow loss recognition reserves can reverse up to the amount of losses recognised due to past loss events.

Premiums
Property and casualty reinsurance premiums are recorded when written and include an estimate for written premiums receivable at period end. Premiums earned are generally recognised in income over the contract period in proportion to the amount of reinsurance provided. Unearned premiums consist of the unexpired portion of reinsurance provided. Life reinsurance premiums are earned when due. Related policy benefits are recorded in relation to the associated premium or gross profits so that profits are recognised over the expected lives of the contracts.

Life and health reinsurance premiums for group coverages are generally earned over the term of the coverage. For group contracts that allow experience adjustments to premiums, such premiums are recognised as the related experience emerges.

Reinstatement premiums are due where coverage limits for the remaining life of the contract are reinstated under pre-defined contract terms. The recognition of reinstatement premiums as written depends on individual contract features. Reinstatement premiums are either recognised as written at the time a loss event occurs or in line with the recognition pattern of premiums written of the underlying contract. The accrual of reinstatement premiums is based on actuarial estimates of ultimate losses. Reinstatement premiums are generally earned in proportion to the amount of reinsurance provided.

Insurance and reinsurance ceded
The Group uses retrocession arrangements to increase its aggregate underwriting capacity, to diversify its risk and to reduce the risk of catastrophic loss on reinsurance assumed. The ceding of risks to retrocessionaires does not relieve the Group of its obligations to its ceding companies. The Group regularly evaluates the financial condition of its retrocessionaires and monitors the concentration of credit risk to minimise its exposure to financial loss from retrocessionaires' insolvency. Premiums and losses ceded under retrocession contracts are reported as reductions of premiums earned and claims and claim adjustment expenses. Amounts recoverable for ceded short- and long-duration contracts, including universal-life-type and investment contracts, are reported as assets in the accompanying consolidated balance sheet.

The Group provides reserves for uncollectible amounts on reinsurance balances ceded, based on management's assessment of the collectability of the outstanding balances.

Receivables
Premium and claims receivables which have been invoiced are accounted for at face value. Together with assets arising from the application of the deposit method of accounting that meet the definition of financing receivables they are regularly assessed for impairment. Evidence of impairment is the age of the receivable and/or any financial difficulties of the counterparty. Allowances are set up on the net balance, meaning all balances related to the same counterparty are considered. The amount of the allowance is set up in relation to the time a receivable has been due and any financial difficulties of the debtor and can be as high as the outstanding net balance.

Pensions and other post-retirement benefits
The Group accounts for its pension and other post-retirement benefit costs using the accrual method of accounting. Amounts charged to expense are based on periodic actuarial determinations.

Share-based payment transactions
As of 31 December 2019, the Group has a Leadership Performance Plan, restricted shares and a Global Share Participation Plan. These plans are described in more detail in Note 17 "Share-based payments". The Group accounts for share-based payment transactions with employees using the fair value method. Under the fair value method, the fair value of the awards is recognised in earnings over the vesting period.

For share-based compensation plans which are settled in cash, compensation costs are recognised as liabilities, whereas for equity-settled plans, compensation costs are recognised as an accrual to additional paid-in capital within shareholders' equity.

Treasury shares
Treasury shares are reported at cost in shareholders' equity.

Earnings per common share
Basic earnings per common share are determined by dividing net income available to shareholders by the weighted average number of common shares entitled to dividends during the year. Diluted earnings per common share reflect the effect on earnings and average common shares outstanding associated with dilutive securities.

Subsequent events
Subsequent events for the current reporting period have been evaluated up to 18 March 2020. This is the date on which the financial statements are available to be issued.

Adoption of new accounting standards
In February 2016, the FASB issued ASU 2016-02 "Leases", which creates topic 842, "Leases". The core principle of topic 842 is that a lessee should recognise the assets and liabilities that arise from leases. A lessee should recognise in the statement of financial position a liability to make lease payments (the lease liability) and a right-of-use asset representing the right to use the underlying asset for the lease term. This accounting treatment applies to finance leases and operating leases. The accounting applied by a lessor is largely unchanged from that applied under the former lease guidance. The ASU also requires that for qualifying sale-leaseback transactions the seller recognises any gain or loss (based on the estimated fair value of the asset at the time of sale) when control of the asset is transferred instead of amortising it over the lease period. The Group adopted ASU 2016-02 on 1 January 2019 together with the following related ASUs on topic 842, "Leases": ASU 2018-01, ASU 2018-10, ASU 2018-11, ASU 2018-20 and ASU 2019-01. In line with the modified retrospective adoption approach provided by ASU 2018-11"Targeted Improvements", the Group applied the new leases standard to its leases on the adoption date and recognised at the same time a cumulative-effect adjustment to the opening balance of retained earnings. For operating leases, the adoption on 1 January 2019 led to the balance sheet recognition of a lease liability of USD 538 million and a right-of-use asset of USD 490 million, which equals the lease liability adjusted by existing lease incentive and straight-line rent reserve balances. The lease right-of-use asset is included in "other assets" and the lease liability is included in "accrued expenses and other liabilities" on the balance sheet. The Group elected a package of practical expedients under the transition guidance within the new standard, which among other things allowed it to carry forward the historical lease classification. The cumulative-effect adjustment to the opening balance of retained earnings of USD 92 million resulted from the release of a deferred profit from past sale-leaseback transactions which was carried in accrued expenses and other liabilities. The deferred profit release can be found in the statement of shareholders' equity. The required new disclosures on leases are provided in Note 13 "Leases".

In March 2017, the FASB issued ASU 2017-08, "Premium Amortization on Purchased Callable Debt Securities", an update to subtopic 310-20, "Receivables – Nonrefundable Fees and Other Costs". The update applies to certain purchased callable debt securities held at a premium. The ASU requires that those premiums should be amortised to the earliest call date and not to the maturity date. The Group adopted ASU 2017-08 on a modified retrospective basis on 1 January 2019. The adoption did not have a material impact on the Group's financial statements.

In July 2017, the FASB issued ASU 2017-11, "Accounting for Certain Financial Instruments with Down Round Features", an update to topic 260, "Earnings Per Share", topic 480, "Distinguishing Liabilities from Equity" and topic 815, "Derivatives and Hedging". A down round feature is a provision in an equity-linked financial instrument (or embedded features) that reduces the exercise price if the entity later sells stock for a lower price or issues an equity-linked instrument with a lower exercise price than the instrument's original exercise price. The amendments in this update change the classification analysis of certain equity-linked financial instruments (or embedded features) with down round features and require that a down round feature no longer precludes equity classification when assessing whether the instrument is indexed to an entity's own stock. The Group adopted ASU 2017-11 on 1 January 2019. The adoption did not have an impact on the Group's financial statements.

In August 2017, the FASB issued ASU 2017-12, "Targeted Improvements to Accounting for Hedging Activities", an update to topic 815, "Derivatives and Hedging". The update expands and refines hedge accounting for both nonfinancial and financial risk components and aligns the recognition and presentation of the effects of the hedging instrument and the hedged item in the financial statements. The ASU eliminates the requirement to separately measure and report hedge ineffectiveness and requires the presentation of all items that affect earnings in the same income statement line as the hedged item. The new standard also provides alternatives for applying hedge accounting to additional hedging strategies and for measuring the hedged item in fair value hedges of interest rate risk. Further, the standard reduces the cost and complexity of applying hedge accounting by easing the requirements for effectiveness testing, hedge documentation and application of the critical terms match method. The Group adopted ASU 2017-12 on 1 January 2019. The adoption did not have a material impact on the Group's financial statements. The additional and extended disclosures required by ASU 2017-12 are presented in Note 9 "Derivative financial instruments".

In June 2018, the FASB issued ASU 2018-07, "Improvements to Nonemployee Share-Based Payment Accounting", an update to topic 718, "Compensation – Stock Compensation". The update expands the scope of topic 718 to include share-based payment transactions for acquiring goods and services from nonemployees. The Group adopted ASU 2018-07 on 1 January 2019. The adoption did not have an impact on the Group's financial statements.

In June 2018, the FASB issued ASU 2018-08, "Clarifying the Scope and the Accounting Guidance for Contributions Received and Contributions Made", an update to topic 958, "Not-for-Profit Entities". The amendments in this update clarify and improve the former guidance about whether a transfer of assets (or the reduction, settlement, or cancellation of liabilities) is a contribution or an exchange transaction. The Group adopted ASU 2018-08 on a modified prospective basis on 1 January 2019. The adoption did not have an impact on the Group's financial statements.

In October 2018, the FASB issued ASU 2018-16, "Inclusion of the Secured Overnight Financing Rate (SOFR) Overnight Index Swap (OIS) Rate as a Benchmark Interest Rate for Hedge Accounting Purposes", an update to topic 815, "Derivatives and Hedging". The amendments in this update permit the use of the OIS rate based on SOFR as a US benchmark interest rate in order to facilitate the LIBOR to SOFR transition. The Group adopted ASU 2018-16 on 1 January 2019. The adoption did not have an impact on the Group's financial statements.

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 2019-09 "Effective Date", ASU 2018-12 is effective for annual periods beginning after 15 December 2023, and interim periods beginning after 15 December 2024. Due to the decision of the Board of Directors of Swiss Re Ltd 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 four core operating business segments: Property & Casualty Reinsurance, Life & Health Reinsurance, Corporate Solutions and Life Capital. 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 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).

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.

Corporate Solutions
Corporate Solutions offers innovative insurance capacity to mid-sized and large multinational corporations across the globe. Offerings range from standard risk transfer covers and multi-line programmes to customised solutions tailored to the needs of clients. Corporate Solutions serves customers from over 50 offices worldwide.

Life Capital
Life Capital manages Swiss Re's primary life and health business. It encompasses the closed and open life and health insurance books, including the ReAssure business and the primary life and health insurance business comprising elipsLife and iptiQ.

Through ReAssure, Swiss Re acquires closed blocks of inforce life and health insurance business, either through reinsurance or corporate acquisition, and typically assumes responsibility for administering the underlying policies. The administration of the business may be managed directly or, where appropriate, in partnership with a third party. In the open books business, elipsLife, the Group life and health insurance business, offers solutions to pension funds, corporates and affinity groups through an intermediated business to business to consumer ("B2B2C") model. The iptiQ business, primarily the individual life and health business, partners with distributors and enables individuals to address their protection needs on a white labelled basis.

In the fourth quarter of 2019, the Group entered into an agreement to sell its subsidiary ReAssure Group plc, currently within the Life Capital business segment, to Phoenix Group Holdings plc. For more details on the transaction, please refer to Note 11 "Assets held for sale".

Group items
Items not allocated to the business segments are included in the "Group items" column, which encompasses Swiss Re Ltd, the Group's ultimate parent company, the former Legacy business in run-off, Principal Investments and certain Treasury units. Swiss Re Ltd charges trademark licence fees to the business segments which are reported as other revenues. Certain administrative expenses of the corporate centre functions that are not recharged to the operating segments are reported as Group items.

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 year ended 31 December

2018 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Group items	Consolidation	Total
Revenues							
Gross premiums written	16 545	14 527	4 694	2 739		–2 099	36 406
Net premiums written	16 098	12 647	4 122	1 175			34 042
Change in unearned premiums	–3	36	–197	–3			–167
Premiums earned	16 095	12 683	3 925	1 172			33 875
Fee income from policyholders		152		434			586
Net investment income – non-participating business	1 380	1 305	207	1 256	262	–335	4 075
Net realised investment gains/losses – non-participating business	–16	347	16	66	–348		65
Net investment result – unit-linked and with-profit business		–33		–1 560			–1 593
Other revenues	36	1	3		353	–354	39
Total revenues	17 495	14 455	4 151	1 368	267	–689	37 047
Expenses							
Claims and claim adjustment expenses	–11 614		–3 241				–14 855
Life and health benefits		–10 280		–1 489			–11 769
Return credited to policyholders		–5		1 038			1 033
Acquisition costs	–4 012	–2 045	–607	–255			–6 919
Operating expenses	–1 114	–758	–763	–549	–599	351	–3 432
Total expenses before interest expenses	–16 740	–13 088	–4 611	–1 255	–599	351	–35 942
Income/loss before interest and income tax expense/benefit	755	1 367	–460	113	–332	–338	1 105
Interest expenses	–313	–410	–24	–41	–105	338	–555
Income/loss before income tax expense/benefit	442	957	–484	72	–437	0	550
Income tax expense/benefit	–72	–155	75	–26	109		–69
Net income/loss before attribution of non-controlling interests	370	802	–409	46	–328	0	481
Income/loss attributable to non-controlling interests			4	–23			–19
Net income/loss after attribution of non-controlling interests	370	802	–405	23	–328	0	462
Interest on contingent capital instruments, net of tax		–41					–41
Net income/loss attributable to common shareholders	370	761	–405	23	–328	0	421
Claims ratio in %	72.2		82.6				74.2
Expense ratio in %	31.8		34.9				32.4
Combined ratio in %	104.0		117.5				106.6
Management expense ratio[1] in %		5.4					
Net operating margin[2] in %	4.3	9.4	–11.1	3.9			2.9

[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 and with-profit business".
[2] Net operating margin is calculated as "Income before interest and income tax expense" divided by "Total revenues" excluding "Net investment result – unit-linked and with-profit business".

Business segments – income statement
For the year ended 31 December

2019 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Group items	Consolidation	Total
Revenues							
Gross premiums written	21 562	14 452	4 974	2 831		–1 591	42 228
Net premiums written	20 882	12 734	4 253	1 780			39 649
Change in unearned premiums	–1 607	101	–87	–82			–1 675
Premiums earned	19 275	12 835	4 166	1 698			37 974
Fee income from policyholders		169		451			620
Net investment income – non-participating business	1 419	1 207	234	1 193	552	–434	4 171
Net realised investment gains – non-participating business	883	628	162	18	–111		1 580
Net investment result – unit-linked and with-profit business		118		4 821			4 939
Other revenues	18	4	5	1	414	–412	30
Total revenues	**21 595**	**14 961**	**4 567**	**8 182**	**855**	**–846**	**49 314**
Expenses							
Claims and claim adjustment expenses	–14 783		–3 900				–18 683
Life and health benefits		–10 587		–2 500			–13 087
Return credited to policyholders		–162		–4 471			–4 633
Acquisition costs	–4 810	–1 975	–640	–409			–7 834
Operating expenses	–1 189	–746	–788	–721	–547	412	–3 579
Total expenses before interest expenses	**–20 782**	**–13 470**	**–5 328**	**–8 101**	**–547**	**412**	**–47 816**
Income/loss before interest and income tax expense/benefit	**813**	**1 491**	**–761**	**81**	**308**	**–434**	**1 498**
Interest expenses	–352	–445	–40	–72	–114	434	–589
Income/loss before income tax expense/benefit	**461**	**1 046**	**–801**	**9**	**194**	**0**	**909**
Income tax expense/benefit	–65	–147	143	–133	62		–140
Net income/loss before attribution of non-controlling interests	**396**	**899**	**–658**	**–124**	**256**	**0**	**769**
Income/loss attributable to non-controlling interests			11	–53			–42
Net income/loss after attribution of non-controlling interests	**396**	**899**	**–647**	**–177**	**256**	**0**	**727**
Interest on contingent capital instruments, net of tax							0
Net income/loss attributable to common shareholders	**396**	**899**	**–647**	**–177**	**256**	**0**	**727**
Claims ratio in %	76.7		93.6				79.7
Expense ratio in %	31.1		34.3				31.7
Combined ratio in %	107.8		127.9				111.4
Management expense ratio[1] in %		5.2					
Net operating margin[2] in %	3.8	10.0	–16.7	2.4			3.4

[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 and with-profit business".
[2] Net operating margin is calculated as "Income before interest and income tax expense" divided by "Total revenues" excluding "Net investment result – unit-linked and with-profit business".

Business segments – balance sheet
As of 31 December

2018 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Group items	Consolidation	Total
Assets							
Fixed income securities	35 968	29 158	8 157	22 637	32		95 952
Equity securities	1 776	670	180	69	341		3 036
Other investments	13 298	3 200	132	2 550	6 447	–12 276	13 351
Short-term investments	2 547	1 174	451	1 207	38		5 417
Investments for unit-linked and with-profit business		424		29 122			29 546
Cash and cash equivalents	1 651	1 705	796	1 605	228		5 985
Deferred acquisition costs	2 156	4 784	488	789			8 217
Acquired present value of future profits		804		1 014			1 818
Reinsurance recoverable	2 345	4 359	5 486	4 914		–10 046	7 058
Other reinsurance assets	9 715	9 304	2 461	6 859		–5 541	22 798
Goodwill	1 908	1 823	206	134			4 071
Other	8 798	4 169	2 108	1 823	1 752	–8 329	10 321
Total assets	80 162	61 574	20 465	72 723	8 838	–36 192	207 570
Liabilities							
Unpaid claims and claim adjustment expenses	45 659	12 192	11 929	2 601	1	–4 936	67 446
Liabilities for life and health policy benefits		17 888	501	26 314		–5 110	39 593
Policyholder account balances		1 356		30 582			31 938
Other reinsurance liabilities	10 331	4 162	3 816	3 365	3	–5 812	15 865
Short-term debt	2 735	5 075		238		–6 415	1 633
Long-term debt	2 402	7 749	798	1 515	552	–4 514	8 502
Other	9 551	6 878	1 483	2 342	3 017	–9 405	13 866
Total liabilities	70 678	55 300	18 527	66 957	3 573	–36 192	178 843
Shareholders' equity	9 483	6 274	1 795	5 113	5 265	0	27 930
Non-controlling interests	1		143	653			797
Total equity	9 484	6 274	1 938	5 766	5 265	0	28 727
Total liabilities and equity	80 162	61 574	20 465	72 723	8 838	–36 192	207 570

Business segments – balance sheet

As of 31 December

2019 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Group items	Consolidation	Total
Assets							
Fixed income securities	38 877	32 008	7 473	3 088	127		81 573
Equity securities	1 749	620	172	57	395		2 993
Other investments	14 606	4 871	147	865	5 009	–12 606	12 892
Short-term investments	3 283	1 678	380	377	50		5 768
Investments for unit-linked and with-profit business		520					520
Cash and cash equivalents	3 674	1 694	1 698	494	2		7 562
Deferred acquisition costs	2 613	4 529	483	213			7 838
Acquired present value of future profits		577		465			1 042
Reinsurance recoverable	2 325	4 887	7 058	3 111		–11 483	5 898
Other reinsurance assets	12 524	8 471	2 667	5 951	3	–4 873	24 743
Goodwill	1 895	1 846	204				3 945
Other	7 723	5 325	2 342	658	2 256	–8 950	9 354
Assets held for sale[1]				74 983		–544	74 439
Total assets	**89 269**	**67 026**	**22 624**	**90 262**	**7 842**	**–38 456**	**238 567**
Liabilities							
Unpaid claims and claim adjustment expenses	49 963	13 094	12 881	2 489		–6 054	72 373
Liabilities for life and health policy benefits		20 679	728	4 250		–5 821	19 836
Policyholder account balances		1 401		4 004			5 405
Other reinsurance liabilities	12 899	2 904	4 987	2 034	2	–5 051	17 775
Short-term debt	915	1 500		66	60	–2 356	185
Long-term debt	5 511	11 225	798	838	494	–8 728	10 138
Other	11 662	7 970	1 093	1 015	1 900	–10 408	13 232
Liabilities held for sale[1]				68 624		–38	68 586
Total liabilities	**80 950**	**58 773**	**20 487**	**83 320**	**2 456**	**–38 456**	**207 530**
Shareholders' equity	**8 318**	**8 253**	**2 005**	**5 289**	**5 386**	**0**	**29 251**
Non-controlling interests	1		132	1 653			1 786
Total equity	**8 319**	**8 253**	**2 137**	**6 942**	**5 386**	**0**	**31 037**
Total liabilities and equity	**89 269**	**67 026**	**22 624**	**90 262**	**7 842**	**–38 456**	**238 567**

[1] Please refer to Note 11 "Assets held for sale" for more details.

b) Property & Casualty Reinsurance business segment – by line of business
For the year ended 31 December

2018 USD millions	Property	Casualty	Specialty	Unallocated	Total
Revenues					
Gross premiums written	6 403	7 595	2 547		16 545
Net premiums written	6 047	7 548	2 503		16 098
Change in unearned premiums	–18	116	–101		–3
Premiums earned	6 029	7 664	2 402		16 095
Net investment income				1 380	1 380
Net realised investment gains/losses				–16	–16
Other revenues				36	36
Total revenues	6 029	7 664	2 402	1 400	17 495
Expenses					
Claims and claim adjustment expenses	–4 284	–5 860	–1 470		–11 614
Acquisition costs	–1 189	–2 228	–595		–4 012
Operating expenses	–547	–388	–179		–1 114
Total expenses before interest expenses	–6 020	–8 476	–2 244	0	–16 740
Income/loss before interest and income tax expense	9	–812	158	1 400	755
Interest expenses				–313	–313
Income/loss before income tax expense	9	–812	158	1 087	442
Claims ratio in %	71.1	76.5	61.2		72.2
Expense ratio in %	28.8	34.1	32.2		31.8
Combined ratio in %	99.9	110.6	93.4		104.0

Property & Casualty Reinsurance business segment – by line of business
For the year ended 31 December

2019 USD millions	Property	Casualty	Specialty	Unallocated	Total
Revenues					
Gross premiums written	7 927	10 497	3 138		21 562
Net premiums written	7 329	10 452	3 101		20 882
Change in unearned premiums	–122	–1 166	–319		–1 607
Premiums earned	7 207	9 286	2 782		19 275
Net investment income				1 419	1 419
Net realised investment gains/losses				883	883
Other revenues				18	18
Total revenues	**7 207**	**9 286**	**2 782**	**2 320**	**21 595**
Expenses					
Claims and claim adjustment expenses	–5 328	–7 675	–1 780		–14 783
Acquisition costs	–1 365	–2 758	–687		–4 810
Operating expenses	–610	–395	–184		–1 189
Total expenses before interest expenses	**–7 303**	**–10 828**	**–2 651**	**0**	**–20 782**
Income/loss before interest and income tax expense	**–96**	**–1 542**	**131**	**2 320**	**813**
Interest expenses				–352	–352
Income/loss before income tax expense	**–96**	**–1 542**	**131**	**1 968**	**461**
Claims ratio in %	73.9	82.6	64.0		76.7
Expense ratio in %	27.4	34.0	31.3		31.1
Combined ratio in %	101.3	116.6	95.3		107.8

c) Life & Health Reinsurance business segment – by line of business
For the year ended 31 December

2018 USD millions	Life	Health	Unallocated	Total
Revenues				
Gross premiums written	10 356	4 171		14 527
Net premiums written	8 606	4 041		12 647
Change in unearned premiums	29	7		36
Premiums earned	8 635	4 048		12 683
Fee income from policyholders	152			152
Net investment income – non-participating business	1 001	304		1 305
Net realised investment gains/losses – non-participating business	59	–4	292	347
Net investment result – unit-linked and with-profit business	–33			–33
Other revenues	1			1
Total revenues	9 815	4 348	292	14 455
Expenses				
Life and health benefits	–7 128	–3 152		–10 280
Return credited to policyholders	–5			–5
Acquisition costs	–1 449	–596		–2 045
Operating expenses	–513	–245		–758
Total expenses before interest expenses	–9 095	–3 993	0	–13 088
Income before interest and income tax expense	720	355	292	1 367
Interest expenses			–410	–410
Income/loss before income tax expense	720	355	–118	957
Management expense ratio[1] in %	5.2	5.6		5.4
Net operating margin[2] in %	7.3	8.2		9.4

[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 and with-profit business".
[2] Net operating margin is calculated as "Income before interest and income tax expense" divided by "Total revenues" excluding "Net investment result – unit-linked and with-profit business".

Life & Health Reinsurance business segment – by line of business

For the year ended 31 December

2019 USD millions	Life	Health	Unallocated	Total
Revenues				
Gross premiums written	10 123	4 329		14 452
Net premiums written	8 522	4 212		12 734
Change in unearned premiums	126	–25		101
Premiums earned	8 648	4 187		12 835
Fee income from policyholders	169			169
Net investment income – non-participating business	912	295		1 207
Net realised investment gains/losses – non-participating business	–24		652	628
Net investment result – unit-linked and with-profit business	118			118
Other revenues	3	1		4
Total revenues	**9 826**	**4 483**	**652**	**14 961**
Expenses				
Life and health benefits	–7 316	–3 271		–10 587
Return credited to policyholders	–162			–162
Acquisition costs	–1 295	–680		–1 975
Operating expenses	–472	–274		–746
Total expenses before interest expenses	**–9 245**	**–4 225**	**0**	**–13 470**
Income before interest and income tax expense	**581**	**258**	**652**	**1 491**
Interest expenses			–445	–445
Income before income tax expense	**581**	**258**	**207**	**1 046**
Management expense ratio[1] in %	4.8	6.1		5.2
Net operating margin[2] in %	6.0	5.8		10.0

[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 and with-profit business".

[2] Net operating margin is calculated as "Income before interest and income tax expense" divided by "Total revenues" excluding "Net investment result – unit-linked and with-profit business".

d) Net premiums earned and fee income from policyholders by geography

Net premiums earned and fee income from policyholders by region for the years ended 31 December

USD millions	2018	2019
Americas	16 075	18 158
Europe (including Middle East and Africa)	11 044	12 017
Asia-Pacific	7 342	8 419
Total	34 461	**38 594**

Net premiums earned and fee income from policyholders by country for the years ended 31 December.

USD millions	2018	2019
United States	13 519	15 804
United Kingdom	3 487	3 593
China	1 644	2 136
Australia	2 061	2 026
Japan	1 426	1 620
Germany	1 226	1 330
Canada	1 209	1 205
Switzerland	952	1 071
France	789	941
Netherlands	837	913
South Korea	558	731
Other	6 753	7 224
Total	34 461	**38 594**

Net premiums earned and fee income from policyholders are allocated by country, based on the underlying contract.

3 Insurance information

Premiums earned and fees assessed against policyholders

For the years ended 31 December

2018 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Premiums earned, thereof:					
Direct		67	3 429	2 053	5 549
Reinsurance	16 314	13 358	916	110	30 698
Intra-group transactions (assumed and ceded)	161	577	–161	–577	0
Premiums earned before retrocession to external parties	16 475	14 002	4 184	1 586	36 247
Retrocession to external parties	–380	–1 319	–259	–414	–2 372
Net premiums earned	16 095	12 683	3 925	1 172	33 875
Fee income from policyholders, thereof:					
Direct				337	337
Reinsurance		153		97	250
Gross fee income before retrocession to external parties		153		434	587
Retrocession to external parties		–1			–1
Net fee income	0	152	0	434	586

2019 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Premiums earned, thereof:					
Direct		14	3 837	2 211	6 062
Reinsurance	19 577	13 836	910	95	34 418
Intra-group transactions (assumed and ceded)	265	205	–265	–205	0
Premiums earned before retrocession to external parties	19 842	14 055	4 482	2 101	40 480
Retrocession to external parties	–567	–1 220	–316	–403	–2 506
Net premiums earned	**19 275**	**12 835**	**4 166**	**1 698**	**37 974**
Fee income from policyholders, thereof:					
Direct				360	360
Reinsurance		170		91	261
Gross fee income before retrocession to external parties		170		451	621
Retrocession to external parties		–1			–1
Net fee income	**0**	**169**	**0**	**451**	**620**

Claims and claim adjustment expenses

For the year ended 31 December

2018 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Claims paid, thereof:					
Gross claims paid to external parties	–10 802	–10 346	–3 150	–3 454	–27 752
Intra-group transactions (assumed and ceded)	–209	–408	209	408	0
Claims before receivables from retrocession to external parties	–11 011	–10 754	–2 941	–3 046	–27 752
Retrocession to external parties	748	1 214	444	501	2 907
Net claims paid	–10 263	–9 540	–2 497	–2 545	–24 845
Change in unpaid claims and claim adjustment expenses; life and health benefits, thereof:					
Gross – with external parties	–1 251	–629	–261	1 031	–1 110
Intra-group transactions (assumed and ceded)	294	–78	–294	78	0
Unpaid claims and claim adjustment expenses; life and health benefits before impact of retrocession to external parties	–957	–707	–555	1 109	–1 110
Retrocession to external parties	–394	–33	–189	–53	–669
Net unpaid claims and claim adjustment expenses; life and health benefits	–1 351	–740	–744	1 056	–1 779
Claims and claim adjustment expenses; life and health benefits	–11 614	–10 280	–3 241	–1 489	–26 624

Acquisition costs

For the year ended 31 December

2018 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Acquisition costs, thereof:					
Gross acquisition costs with external parties	–4 073	–2 211	–660	–364	–7 308
Intra-group transactions (assumed and ceded)	–4	–58	4	58	0
Acquisition costs before impact of retrocession to external parties	–4 077	–2 269	–656	–306	–7 308
Retrocession to external parties	65	224	49	51	389
Net acquisition costs	–4 012	–2 045	–607	–255	–6 919

Claims and claim adjustment expenses

For the year ended 31 December

2019 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Claims paid, thereof:					
Gross claims paid to external parties	–12 453	–10 077	–3 836	–3 481	–29 847
Intra-group transactions (assumed and ceded)	–585	–165	585	165	0
Claims before receivables from retrocession to external parties	–13 038	–10 242	–3 251	–3 316	–29 847
Retrocession to external parties	352	1 049	264	472	2 137
Net claims paid	**–12 686**	**–9 193**	**–2 987**	**–2 844**	**–27 710**
Change in unpaid claims and claim adjustment expenses; life and health benefits, thereof:					
Gross – with external parties	–2 151	–1 394	–1 143	409	–4 279
Intra-group transactions (assumed and ceded)	–25	–8	25	8	0
Unpaid claims and claim adjustment expenses; life and health benefits before impact of retrocession to external parties	–2 176	–1 402	–1 118	417	–4 279
Retrocession to external parties	79	8	205	–73	219
Net unpaid claims and claim adjustment expenses; life and health benefits	**–2 097**	**–1 394**	**–913**	**344**	**–4 060**
Claims and claim adjustment expenses; life and health benefits	**–14 783**	**–10 587**	**–3 900**	**–2 500**	**–31 770**

Acquisition costs

For the year ended 31 December

2019 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Acquisition costs, thereof:					
Gross acquisition costs with external parties	–4 875	–2 148	–729	–458	–8 210
Intra-group transactions (assumed and ceded)	–28	–4	28	4	0
Acquisition costs before impact of retrocession to external parties	–4 903	–2 152	–701	–454	–8 210
Retrocession to external parties	93	177	61	45	376
Net acquisition costs	**–4 810**	**–1 975**	**–640**	**–409**	**–7 834**

Reinsurance recoverable on unpaid claims and policy benefits

As of 31 December 2018 and 2019, the Group had a reinsurance recoverable of USD 7 058 million and USD 5 898 million, respectively. The concentration of credit risk is regularly monitored and evaluated. The reinsurance programme with Berkshire Hathaway and subsidiaries accounted for 29% and 33% of the Group's reinsurance recoverable as of year-end 2018 and 2019, respectively.

Reinsurance receivables

Reinsurance receivables as of 31 December were as follows:

USD millions	2018	**2019**
Premium receivables invoiced	3 041	3 589
Receivables invoiced from ceded re/insurance business	445	444
Assets arising from the application of the deposit method of accounting and meeting the definition of financing receivables	124	249
Recognised allowance	–58	–56

Policyholder dividends

Policyholder dividends are recognised as an element of policyholder benefits. The relative percentage of participating insurance of the life and health policy benefits in 2018 and 2019 was 9% and 10%, respectively. The amount of policyholder dividend expense in 2018 and 2019 was USD 245 million and USD 165 million, respectively.

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4 Premiums written

For the years ended 31 December

2018 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Consolidation	Total
Gross premiums written, thereof:						
Direct		67	3 648	2 055		5 770
Reinsurance	16 269	13 310	947	110		30 636
Intra-group transactions (assumed)	276	1 150	99	574	–2 099	0
Gross premiums written	16 545	14 527	4 694	2 739	–2 099	36 406
Intra-group transactions (ceded)	–99	–574	–276	–1 150	2 099	0
Gross premiums written before retrocession to external parties	16 446	13 953	4 418	1 589		36 406
Retrocession to external parties	–348	–1 306	–296	–414		–2 364
Net premiums written	16 098	12 647	4 122	1 175	0	34 042

2019 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Consolidation	Total
Gross premiums written, thereof:						
Direct		14	3 869	2 230		6 113
Reinsurance	21 189	13 794	1 037	95		36 115
Intra-group transactions (assumed)	373	644	68	506	–1 591	0
Gross premiums written	21 562	14 452	4 974	2 831	–1 591	42 228
Intra-group transactions (ceded)	–68	–506	–373	–644	1 591	0
Gross premiums written before retrocession to external parties	21 494	13 946	4 601	2 187		42 228
Retrocession to external parties	–612	–1 212	–348	–407		–2 579
Net premiums written	**20 882**	**12 734**	**4 253**	**1 780**	**0**	**39 649**

5 Unpaid claims and claim adjustment expenses

A reconciliation of the opening and closing reserve balances for unpaid claims and claim adjustment expenses for the years ended 31 December is presented as follows:

USD millions	2018	**2019**
Balance as of 1 January	66 795	67 446
Reinsurance recoverable	−4 458	−3 606
Deferred expense on retroactive reinsurance	−240	−169
Net balance as of 1 January	62 097	**63 671**
Incurred related to:		
Current year	27 457	29 338
Prior year	42	2 231
Amortisation of deferred expense on retroactive reinsurance and impact of commutations	−41	−23
Total incurred	27 458	**31 546**
Paid related to:		
Current year	−9 344	−9 702
Prior year	−15 501	−18 008
Total paid	−24 845	**−27 710**
Foreign exchange	−1 748	161
Effect of acquisitions, disposals, new retroactive reinsurance and other items	709	1 302
Net balance as of period end	63 671	**68 970**
Reinsurance recoverable	3 606	3 732
Deferred expense on retroactive reinsurance	169	168
Reclassified to liabilities held for sale		−497
Balance as of period end	67 446	**72 373**

Prior-year development

Non-life claims development during 2019 on prior accident years is mainly due to adverse development for Casualty impacted by large man-made losses predominantly in North America. Property was impacted by adverse natural catastrophe development in Asia as well as large man-made losses, partly offset by reserves releases from North America natural catastrophe events. Specialty was impacted by large man-made losses and adverse development, partly offset by reserves releases from North America natural catastrophe events.

For life and health lines of business, claims development on prior year business was mainly driven by adverse development for the disability portfolio in Australia, Continental Europe and the US. This was partly offset by positive experience in other regions and lines of business including Canada, Asia, and the UK. Claims development related to prior years for the disability portfolio also includes an element of interest accretion for unpaid claims reported at an estimated present value. Unfavourable claims development for the Australia group disability portfolio is offset by a reduction in profit share reserve.

A summary of prior year net claims and claim adjustment expenses development by lines of business for the years ended 31 December is shown below[1]:

USD millions	2018	**2019**
Line of business:		
Property	–340	367
Casualty	428	1 425
Specialty	–295	105
Life and health	249	334
Total	42	**2 231**

[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.

US asbestos and environmental claims exposure

The Group's obligation for claims payments and claims settlement charges also includes obligations for long-latent injury claims arising out of policies written prior to 1986, in particular in the area of US asbestos and environmental liability.

At the end of 2019, the Group carried net reserves for US asbestos and environmental liabilities equal to USD 1 584 million. During 2019, the Group incurred net losses of USD 32 million and net paid of USD 308 million in relation to these liabilities.

The net paid losses include a settlement of USD 190 million for late asbestos and environmental reported claims presented by one cedent in Q2 2019.

Estimating ultimate asbestos and environmental liabilities is particularly complex for a number of reasons relating in part to the long period between exposure and manifestation of claims, and in part to other factors, which include risks and lack of predictability inherent in complex litigation, changes in projected costs to resolve, and in the projected number of, asbestos and environmental claims, the effect of bankruptcy protection, insolvencies, and changes in the legal, legislative and regulatory environment. As a result, the Group believes that projection of exposures for asbestos and environmental claims is subject to far less predictability relative to non-environmental and non-asbestos exposures. Management believes that its reserves for asbestos and environmental claims are appropriately established based upon known facts and the current state of the law. However, reserves are subject to revision as new information becomes available and as claims develop. Additional liabilities may arise for amounts in excess of reserves, and the Group's estimate of claims and claim adjustment expenses may change. Any such additional liabilities or increases in estimates cannot be reasonably estimated in advance but could result in charges that could be material to operating results.

Short duration contract unpaid claims and claim adjustment expenses

Basis of presentation for claims development information

This section of the note provides claims development information on an accident year basis.

Claims development information and information on reserves for claims relating to insured events that have occurred but have not yet been reported or not enough reported ("IBNR") are generally presented by line of business for individually significant categories. Starting from a line of business split, additional aggregation or disaggregation is provided where appropriate, necessary and practicable ("disaggregation categories"). For instance, Reinsurance liability and motor lines of business are further disaggregated into proportional and non-proportional treaty types to provide more specific information on claims development, whereas specialty is shown as one distinct category.

In the Property & Casualty Reinsurance and Corporate Solutions segments, all contracts that transfer significant insurance risk are included in scope to the extent they can be allocated to a disaggregation category. For many reinsurance contracts, proportional contracts in particular, ceding companies do not report losses by accident year. In these cases, the Group has allocated reported losses by underwriting year to accident year to produce the accident year tables. Similarly, IBNR is calculated on an underwriting year basis and then the liabilities are allocated to accident year.

In the Life & Health Reinsurance segment, contracts classified as short duration include group life business, certain types of disability and long-term care contracts, group accident, health coverage including critical illness and medical expenses. The Group provides claims development information for Life & Health Reinsurance where reported accident year information is available and there is potential for claims development. This primarily applies to the Group's disability lines classified as short duration. This business is generally considered to have relatively higher claims estimation uncertainty than other life and health lines such as group life, due to longer claims development periods.

In the Life Capital segment, short duration contracts include mainly disability medical expenses business. The Group provides no claims development information for Life Capital as its short duration reserves are not material.

Amounts shown in the claims development tables are net of external retrocession and retrocession between business segments to the extent a retrocession program can be allocated to a disaggregation category. Ceded retroactive reinsurance is not included in the claims development table if it cannot be allocated on a reasonable basis to the disaggregation categories used to present claims development information.

Claims development information and information on IBNR reserves are shown on a nominal basis, also for cases where the Group discounts claims liabilities for measurement under US GAAP. Information is shown per accident year and by reporting period. The number of years shown in the claims development tables differs by business segment:

For Property & Casualty Reinsurance and for Life & Health Reinsurance long-tail, the Group discloses data for ten accident years and reporting periods.

The Corporate Solutions business segment was created in 2012. Therefore, seven accident years and reporting periods are shown for this business unit. All but an immaterial portion of claims arising from accident years prior to 2012 relate to accident years which are over ten years ago and therefore out of the required range of disclosure. Business ceded to Property & Casualty Reinsurance prior to 2012 is included in the net claims development information reported by this segment.

The current reporting period estimate of net claims liabilities for accident years older than the number of years shown in the claims development tables is presented as a total after disclosure of cumulative paid claims.

The information presented in claims development tables is presented at current balance sheet foreign exchange rates as of the date of these financial statements to permit an analysis of claims development excluding the impact of foreign exchange movements.

Some of the information provided in the following tables, is Required Supplementary Information (RSI) under US GAAP. Therefore it does not form part of these consolidated audited financial statements. Claims development information for all periods except the current reporting period and any information derived from it – including average annual percentage payout of claims incurred – is considered RSI and is identified as RSI in the tables presented.

Methodology for determining the presented amounts of liabilities for IBNR claims
The liability for unpaid claims and claim adjustment expenses is based on an estimate of the ultimate cost of settling the claims based on both information reported to us by ceding companies and internal estimates.

Non-life re/insurance contracts
For reinsurance business, cedents report their case reserves and their estimated IBNR to the Group. The Group develops and recognises its own estimate of IBNR claims, which includes circumstances in which the cedent has not reported any claims to the Group or where the Group's estimate of reserves needed to cover reported claims differs from the amounts reported by cedents. For reinsurance business, case reserves and estimated IBNR reported by cedents to the Group have been accounted for as case reserves in previous years. IBNR reported by cedents are presented together with the Group's own estimate of IBNR as IBNR in the claims development tables. Reserving for insurance business is performed similarly, except that the Group estimates case reserves as well. Reserving is done on portfolio or contract level depending on the features of the contract:

For business reviewed on a portfolio level, the expected ultimate losses are set for most lines and types of business based on analysis performed using standard actuarial techniques. In general, contracts are aggregated into portfolios by combining contracts with similar features.

In most cases, these standard actuarial techniques encompass a number of loss development factor techniques applied to claim tables of paid and reported losses. Other actuarial techniques may be applicable to specific categories. For instance, the analysis of frequency and severity could be applied in all disaggregation categories. Life contingency techniques for projecting regular payments related to bodily injury claims are applied to motor proportional, motor non-proportional, liability proportional, liability non-proportional, accident and health and similar Corporate Solutions lines, where the information is available. In some cases, techniques specific to the projection of future payments for specific risks such as asbestos or pollution claims are applied to both proportional and non-proportional liability claims, also in Corporate Solutions (see also separate section "US asbestos and environmental claims exposure" on page 207).

Contract-level reserving is based on standard actuarial techniques but requires more detailed contract, pricing, claim and exposure information than required for the business reviewed on a portfolio level.

In addition, the following applies to all non-life re/insurance business:

- For the most recent underwriting years, reliance may be made on the Group's costing and underwriting functions for the initial estimates of claims, although the initial reserving estimates may differ from these pricing estimates if there is good reason to believe losses are likely to emerge higher or lower, and in light of the limited claims experience to date. Reviews of those initial estimates are performed regularly, forming a basis for adjustments on both the current and prior underwriting years.

- The reserving process considers any information available in respect of either a specific case or a large loss event and the impact of any unusual features in the technical accounting of information provided by cedents.

Life and health re/insurance contracts
For the Life & Health Reinsurance long tail business, the liability for IBNR claims includes provision for "not yet reported claims" expected to have been incurred in respect of both already processed and not yet processed reinsurance accounts and generally includes provisions for the cost of claims on disability contracts that currently are within their deferred period. The IBNR reserving calculations have been made using appropriate techniques, such as chain ladder and/or Bornhuetter-Ferguson approaches, depending upon the level of detail available and the assumed level of development of the claim. For certain lines of business, IBNR claims reserves include reported but not admitted claims, allowing for expected rates of decline for these claims.

Claims frequency information
Claims frequency information is not available for the disaggregation categories of Property & Casualty Reinsurance, as cedents do not report claims frequency information to the Group for most of the assumed reinsurance contract types. These contracts are to be found in all disaggregation categories presented.

Life & Health Reinsurance reports claims frequency information based on individual incidence. The number of reported claims is the actual number of claims booked. For Group income protection business, claims with multiple payments in a year are counted as one claim with the corresponding amount annualised. Claims that are reported but not admitted are included in the claim count.

For Corporate Solutions, claims frequency is displayed for direct business only, as individual claims information is generally not available for assumed and ceded business. Claims are counted individually per contract to produce the claims frequency table. For some direct business, summary reports are received and multiple claims are booked under a single claim code; this is usually done at a program, policy year, state, country and/or line of business level of detail. This approach may be applied to business which has a high volume of claim counts, but with only minor claims dollars associated with each claim.

Property & Casualty Reinsurance – Property

Incurred claims and allocated claim adjustment expenses, net of reinsurance

USD millions Accident year	Reporting year 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	thereof IBNR
2010	2 494	2 447	2 317	2 337	2 422	2 464	2 572	2 544	2 504	2 482	9
2011		4 311	4 372	4 187	4 242	4 195	4 190	4 208	4 245	4 247	12
2012			2 683	2 512	2 311	2 269	2 240	2 225	2 225	2 219	4
2013				3 111	3 128	2 954	2 870	2 846	2 831	2 826	0
2014					2 719	2 562	2 383	2 351	2 348	2 335	4
2015						2 817	2 753	2 579	2 548	2 508	31
2016							3 901	3 632	3 333	3 327	47
2017								6 024	5 929	5 692	66
2018	RSI								4 648	5 110	392
2019										5 166	2 553
Total										**35 912**	**3 118**

Cumulative claims paid and allocated claim adjustment expenses, net of reinsurance

USD millions Accident year	Reporting year 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
2010	381	1 494	1 785	1 895	2 090	2 242	2 385	2 428	2 442	2 450
2011		673	2 407	3 215	3 654	3 938	4 039	4 159	4 182	4 196
2012			236	1 584	1 971	2 090	2 133	2 152	2 164	2 172
2013				537	1 988	2 489	2 682	2 741	2 762	2 778
2014					462	1 702	2 081	2 208	2 253	2 269
2015						465	1 646	2 160	2 325	2 401
2016							637	2 211	2 840	3 051
2017								978	3 666	4 754
2018	RSI								631	3 443
2019										915
Total										**28 429**
All liabilities before 2010										170
Liabilities for claims and claim adjustment expenses, net of reinsurance										**7 653**

Average annual percentage payout of incurred claims by age, net of reinsurance

Years	1	2	3	4	5	6	7	8	9	10
Property (RSI)	16.6%	49.7%	17.6%	6.5%	3.9%	2.2%	2.4%	0.9%	0.4%	0.3%

The liability for unpaid claims and claim adjustment expenses for property in Property & Casualty Reinsurance shows positive development on most recent accident years. Claims in accident year 2011 were at a high level due to several large natural catastrophes including the earthquake and tsunami in Japan, the earthquakes in Christchurch, New Zealand, and floods in Thailand. The 2017 accident year claims incurred are higher due to natural catastrophes, mainly stemming from Cyclone Debbie, hurricanes Harvey, Irma and Maria in the Americas, the two earthquakes in Mexico and the wildfires in California. The 2018 to 2019 accident year claims incurred are lower than 2017 but include a higher level of natural catastrophes than 2012 to 2016.

Property & Casualty Reinsurance – Liability, proportional

Incurred claims and allocated claim adjustment expenses, net of reinsurance

USD millions	Reporting year										
Accident year	2010	2011	2012	2013	2014	2015	2016	2017	2018	**2019**	**thereof IBNR**
2010	836	982	922	902	898	901	890	856	832	837	69
2011		640	697	721	668	626	622	596	590	589	62
2012			518	602	558	530	502	511	502	516	61
2013				727	749	757	752	756	746	745	108
2014					993	984	997	986	975	1 010	223
2015						1 260	1 309	1 400	1 473	1 546	390
2016							1 705	1 714	1 712	1 815	750
2017								1 960	2 069	2 210	1 177
2018	RSI								1 894	2 071	1 459
2019										2 703	2 331
Total										**14 042**	**6 630**

Cumulative claims paid and allocated claim adjustment expenses, net of reinsurance

USD millions	Reporting year									
Accident year	2010	2011	2012	2013	2014	2015	2016	2017	2018	**2019**
2010	29	159	318	409	517	612	662	693	713	732
2011		3	108	181	250	336	382	416	439	461
2012			13	115	181	240	294	352	387	423
2013				14	126	232	347	429	504	558
2014					23	157	291	429	565	660
2015						34	209	423	652	902
2016							46	101	396	662
2017								50	251	542
2018	RSI								52	309
2019										83
Total										**5 332**
All liabilities before 2010										1 117
Liabilities for claims and claim adjustment expenses, net of reinsurance										**9 827**

Average annual percentage payout of incurred claims by age, net of reinsurance

Years	1	2	3	4	5	6	7	8	9	10
Liability, proportional (RSI)	2.3%	13.0%	14.4%	13.2%	13.1%	10.0%	6.5%	4.9%	3.1%	2.2%

The increase in the incurred losses for accident years 2013 to 2019 is driven by volume increases of business being written. The increases in the incurred losses in reporting year 2019 for accident years 2015 to 2018 are driven by US business.

In line with the Group's policy, cash flows under Loss Portfolio Transfers are reported through claims paid. For longer-tailed lines and depending on the business volume written, timing of cash flows can lead to net inward payments across the whole portfolio in the first development year of the contract for some accident years.

Property & Casualty Reinsurance – Liability, non-proportional

Incurred claims and allocated claim adjustment expenses, net of reinsurance

USD millions	Reporting year										
Accident year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	thereof IBNR
2010	526	440	405	380	359	338	329	314	318	312	31
2011		403	432	469	428	384	351	344	329	331	42
2012			329	347	307	279	258	248	225	220	49
2013				409	390	354	299	274	252	253	67
2014					434	439	407	364	336	355	118
2015						1 806	1 846	1 815	1 832	1 857	154
2016							585	568	594	641	175
2017								491	508	591	219
2018	RSI								449	452	298
2019										2 412	580
Total										**7 424**	**1 733**

Cumulative claims paid and allocated claim adjustment expenses, net of reinsurance

USD millions	Reporting year									
Accident year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
2010	1	12	36	53	88	106	125	149	157	166
2011		1	10	65	111	138	145	158	172	189
2012			–4	11	35	53	84	99	113	128
2013				–2	11	37	59	83	108	132
2014					–2	8	40	71	99	141
2015						0	92	199	329	480
2016							13	208	233	285
2017								–2	18	47
2018	RSI								–1	21
2019										209
Total										**1 798**
All liabilities before 2010										4 063
Liabilities for claims and claim adjustment expenses, net of reinsurance										**9 689**

Average annual percentage payout of incurred claims by age, net of reinsurance

Years	1	2	3	4	5	6	7	8	9	10
Liability, non-proportional (RSI)	0.8%	7.1%	8.7%	8.6%	9.8%	7.3%	6.5%	6.2%	3.9%	3.0%

The increase in incurred losses for accident year 2015 compared to other years is due to an increase in volume of business written in that year. Accident year 2019 includes an Adverse Development Cover and a Loss Portfolio Transfer written with Corporate Solutions. Liabilities before 2010 include reserves for historic US asbestos and environmental losses.

In line with the Group's policy, cash flows under Loss Portfolio Transfers are reported through claims paid. For longer-tailed lines and depending on the business volume written, timing of cash flows can lead to net inward payments across the whole portfolio in the first development year of the contract for some accident years.

Property & Casualty Reinsurance – Accident & Health

Incurred claims and allocated claim adjustment expenses, net of reinsurance

USD millions	Reporting year										
Accident year	2010	2011	2012	2013	2014	2015	2016	2017	2018	**2019**	**thereof IBNR**
2010	*273*	*225*	*231*	*219*	*216*	*218*	*211*	*206*	*201*	200	22
2011		*228*	*248*	*244*	*236*	*239*	*233*	*233*	*229*	228	26
2012			*321*	*331*	*316*	*306*	*303*	*297*	*295*	290	29
2013				*342*	*349*	*336*	*326*	*318*	*316*	311	44
2014					*300*	*334*	*326*	*314*	*304*	302	56
2015						*432*	*430*	*408*	*398*	389	64
2016							*590*	*625*	*620*	584	141
2017								*731*	*765*	726	238
2018	*RSI*								*722*	810	249
2019										799	476
Total										**4 639**	**1 345**

Cumulative claims paid and allocated claim adjustment expenses, net of reinsurance

USD millions	Reporting year									
Accident year	2010	2011	2012	2013	2014	2015	2016	2017	2018	**2019**
2010	*25*	*84*	*115*	*130*	*138*	*145*	*148*	*156*	*158*	160
2011		*48*	*120*	*141*	*152*	*161*	*165*	*174*	*177*	180
2012			*76*	*174*	*200*	*216*	*226*	*235*	*239*	243
2013				*53*	*137*	*177*	*200*	*214*	*221*	228
2014					*30*	*102*	*144*	*171*	*189*	205
2015						*61*	*136*	*189*	*221*	240
2016							*73*	*177*	*269*	325
2017								*95*	*232*	331
2018	*RSI*								*97*	311
2019										111
Total										**2 334**
All liabilities before 2010										3 164
Liabilities for claims and claim adjustment expenses, net of reinsurance										**5 469**

Average annual percentage payout of incurred claims by age, net of reinsurance

Years	1	2	3	4	5	6	7	8	9	10
Accident & Health (RSI)	*15.4%*	*25.3%*	*13.0%*	*7.4%*	*4.4%*	*3.2%*	*2.3%*	*2.0%*	*1.2%*	*1.4%*

The increase in incurred losses from accident year 2015 onwards is due to an increase in the volume of workers´ compensation written on a proportional basis. The 2010 and prior accident years include the run-off of business written by entities acquired as part of the acquisition of General Electric Insurance Solutions during 2006. This business, which generally had a longer payment pattern, was not renewed.

Property & Casualty Reinsurance – Motor, proportional

Incurred claims and allocated claim adjustment expenses, net of reinsurance

USD millions	Reporting year										
Accident year	2010	2011	2012	2013	2014	2015	2016	2017	2018	**2019**	**thereof IBNR**
2010	585	646	686	692	690	692	691	690	690	690	0
2011		989	983	954	911	913	912	911	902	905	–18
2012			1 467	1 457	1 440	1 429	1 420	1 418	1 415	1 415	22
2013				1 536	1 511	1 517	1 491	1 485	1 480	1 480	10
2014					1 975	1 939	1 938	1 922	1 912	1 910	–4
2015						1 902	1 902	1 906	1 910	1 910	10
2016							2 475	2 592	2 642	2 644	63
2017								2 366	2 385	2 371	216
2018	RSI								2 026	2 061	393
2019										2 024	1 088
Total										**17 410**	**1 780**

Cumulative claims paid and allocated claim adjustment expenses, net of reinsurance

USD millions	Reporting year									
Accident year	2010	2011	2012	2013	2014	2015	2016	2017	2018	**2019**
2010	197	449	533	569	646	655	664	669	671	673
2011		263	662	842	875	893	903	910	913	916
2012			468	1 089	1 247	1 296	1 327	1 347	1 360	1 369
2013				566	1 156	1 336	1 382	1 412	1 427	1 436
2014					731	1 453	1 696	1 773	1 808	1 828
2015						788	1 428	1 669	1 770	1 814
2016							818	1 811	2 158	2 338
2017								753	1 515	1 847
2018	RSI								619	1 326
2019										651
Total										**14 198**
All liabilities before 2010										311
Liabilities for claims and claim adjustment expenses, net of reinsurance										**3 523**

Average annual percentage payout of incurred claims by age, net of reinsurance

Years	1	2	3	4	5	6	7	8	9	10
Motor, proportional (RSI)	33.3%	37.7%	13.5%	4.5%	3.6%	1.2%	0.9%	0.5%	0.3%	0.2%

The increase in the incurred losses from accident years 2010 to 2016 is driven by new business volume across all regions. Proportional motor business includes both longer-tailed liability business and shorter-tailed hull business.

The negative IBNRs are due to overstated case reserves, mainly on the German business, and accident year 2011 includes the effects of an outwards proportional contract on inwards non-proportional business.

Property & Casualty Reinsurance – Motor, non-proportional

Incurred claims and allocated claim adjustment expenses, net of reinsurance

USD millions	Reporting year										
Accident year	2010	2011	2012	2013	2014	2015	2016	2017	2018	**2019**	**thereof IBNR**
2010	*324*	*288*	*283*	*269*	*262*	*254*	*246*	*242*	*244*	244	31
2011		*406*	*444*	*429*	*427*	*412*	*405*	*393*	*420*	412	105
2012			*335*	*352*	*331*	*316*	*317*	*300*	*309*	304	58
2013				*433*	*455*	*458*	*441*	*427*	*432*	432	62
2014					*408*	*441*	*437*	*435*	*429*	408	72
2015						*388*	*411*	*446*	*442*	455	96
2016							*471*	*588*	*551*	545	154
2017								*580*	*611*	599	210
2018	*RSI*								*492*	532	260
2019										1 190	434
Total										**5 121**	**1 482**

Cumulative claims paid and allocated claim adjustment expenses, net of reinsurance

USD millions	Reporting year									
Accident year	2010	2011	2012	2013	2014	2015	2016	2017	2018	**2019**
2010	*5*	*22*	*48*	*67*	*83*	*100*	*113*	*120*	*130*	138
2011		*-10*	*20*	*56*	*80*	*104*	*118*	*134*	*144*	151
2012			*2*	*25*	*50*	*85*	*111*	*137*	*158*	170
2013				*7*	*84*	*148*	*193*	*219*	*246*	261
2014					*4*	*60*	*104*	*143*	*187*	217
2015						*–1*	*33*	*92*	*157*	203
2016							*8*	*65*	*126*	181
2017								*9*	*59*	126
2018	*RSI*								*4*	36
2019										91
Total										**1 574**
All liabilities before 2010										2 802
Liabilities for claims and claim adjustment expenses, net of reinsurance										**6 349**

Average annual percentage payout of incurred claims by age, net of reinsurance

Years	1	2	3	4	5	6	7	8	9	10
Motor, non-proportional (RSI)	*1.4%*	*9.5%*	*11.1%*	*9.9%*	*8.0%*	*6.5%*	*4.9%*	*3.1%*	*2.9%*	*3.4%*

Claims development in non-proportional motor business is considered long-tailed as it is dominated by liability exposures leading to bodily injury claims which pay out for the lifetime of the claimant.

For accident year 2011, negative claims paid in the first year are due to the commutation of an external retrocession on acquired retroactive business and the increase in incurred losses for accident year 2019 compared to other years is due to an increase in volume of business written.

In line with the Group's policy, cash flows under Loss Portfolio Transfers are reported through claims paid. For longer-tailed lines and depending on the business volume written, timing of cash flows can lead to net inward payments across the whole portfolio in the first development year of the contract for some accident years.

Property & Casualty Reinsurance – Specialty

Incurred claims and allocated claim adjustment expenses, net of reinsurance

USD millions	Reporting year										
Accident year	2010	2011	2012	2013	2014	2015	2016	2017	2018	**2019**	**thereof IBNR**
2010	*1 219*	*1 231*	*1 176*	*1 151*	*1 131*	*1 100*	*1 079*	*1 080*	*1 071*	1 081	27
2011		*1 285*	*1 276*	*1 190*	*1 107*	*1 152*	*1 148*	*1 164*	*1 146*	1 144	4
2012			*940*	*1 000*	*1 021*	*1 002*	*1 002*	*990*	*987*	982	11
2013				*1 086*	*1 013*	*973*	*938*	*928*	*906*	894	21
2014					*1 098*	*1 090*	*990*	*964*	*950*	954	36
2015						*1 232*	*1 212*	*1 197*	*1 189*	1 187	61
2016							*1 280*	*1 268*	*1 222*	1 226	148
2017								*1 608*	*1 531*	1 400	229
2018	*RSI*								*1 641*	1 730	707
2019										1 745	1 084
Total										**12 343**	**2 328**

Cumulative claims paid and allocated claim adjustment expenses, net of reinsurance

USD millions	Reporting year									
Accident year	2010	2011	2012	2013	2014	2015	2016	2017	2018	**2019**
2010	*195*	*462*	*653*	*752*	*829*	*944*	*965*	*983*	*995*	1 006
2011		*165*	*559*	*775*	*877*	*927*	*963*	*1 027*	*1 049*	1 065
2012			*125*	*441*	*675*	*765*	*821*	*863*	*897*	916
2013				*147*	*415*	*597*	*706*	*760*	*796*	819
2014					*172*	*406*	*586*	*683*	*739*	778
2015						*134*	*385*	*688*	*848*	951
2016							*142*	*475*	*718*	886
2017								*181*	*579*	859
2018	*RSI*								*184*	646
2019										276
Total										**8 202**
All liabilities before 2010										635
Liabilities for claims and claim adjustment expenses, net of reinsurance										**4 776**

Average annual percentage payout of incurred claims by age, net of reinsurance

Years	1	2	3	4	5	6	7	8	9	10
Specialty (RSI)	*14.2%*	*27.7%*	*20.6%*	*11.0%*	*6.3%*	*5.2%*	*3.4%*	*1.8%*	*1.3%*	*1.0%*

This category contains several individual large losses on marine, aviation and space lines, including the Costa Concordia event in accident year 2012. The 2017 accident year claims incurred is higher due to natural catastrophes mainly stemming from hurricanes Harvey, Irma and Maria in the Americas which have reduced in reporting year 2019.

Corporate Solutions

Incurred claims and allocated claim adjustment expenses, net of reinsurance

USD millions	Reporting year									
Accident year	2012	2013	2014	2015	2016	2017	2018	**2019**	**thereof IBNR**	**Cumulative number of reported claims (in nominals)**
2012	*1 299*	*1 227*	*1 152*	*1 120*	*1 117*	*1 174*	*1 155*	1 201	49	12 955
2013		*1 597*	*1 576*	*1 506*	*1 422*	*1 420*	*1 409*	1 383	105	26 173
2014			*1 833*	*1 774*	*1 704*	*1 708*	*1 679*	1 608	202	21 507
2015				*1 888*	*2 054*	*2 123*	*2 093*	1 910	243	17 785
2016					*2 013*	*2 099*	*2 137*	2 124	380	16 806
2017						*3 009*	*3 237*	2 987	488	19 928
2018	*RSI*						*2 695*	2 621	545	23 430
2019								2 792	1 500	12 707
Total								**16 626**	**3 512**	**151 291**

Cumulative claims paid and allocated claim adjustment expenses, net of reinsurance

USD millions	Reporting year							
Accident year	2012	2013	2014	2015	2016	2017	2018	**2019**
2012	*182*	*556*	*717*	*811*	*900*	*972*	*1 005*	1 034
2013		*272*	*667*	*936*	*1 092*	*1 161*	*1 237*	1 285
2014			*272*	*829*	*1 121*	*1 264*	*1 354*	1 452
2015				*350*	*907*	*1 303*	*1 500*	1 634
2016					*372*	*1 140*	*1 392*	1 657
2017						*383*	*1 506*	2 112
2018	*RSI*						*415*	1 422
2019								527
Total								**11 123**
All liabilities before 2012								457
Liabilities for claims and claim adjustment expenses, net of reinsurance								**5 960**

Average annual percentage payout of incurred claims by age, net of reinsurance

Years	1	2	3	4	5	6	7	8
Corporate Solutions (RSI)	*16.9%*	*33.7%*	*17.3%*	*10.2%*	*6.2%*	*5.9%*	*3.1%*	*2.5%*

For the 2019 reporting year, a Loss Portfolio Transfer to P&C Reinsurance of US liability lines of business reduced reserves by USD 1.2 billion in total across all accident years. Excluding this impact, there was unfavourable prior-year development across all lines of business, in particular US liability, mainly driven by large and medium-sized man-made losses. The impact of this unfavourable development was reduced by recoveries under an Adverse Development Cover with P&C Reinsurance in place for the second half of the year. A recovery in 2019 of USD 0.6 billion under this cover is included in the 2018 accident year above. P&C Reinsurance reports both the Adverse Development Cover and the Loss Portfolio Transfer under accident year 2019 (see ˝Property & Casualty Reinsurance – Liability, non-proportional˝ on page 212).

Life & Health Reinsurance, long tail

Incurred claims and allocated claim adjustment expenses, net of reinsurance

USD millions Accident year	Reporting year 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	thereof IBNR	Cumulative number of reported claims (in nominals)
2010	184	186	181	204	205	216	191	188	190	195	24	4 827
2011		210	219	277	289	302	281	275	276	282	31	6 801
2012			260	347	350	374	339	341	338	352	30	9 300
2013				468	461	458	424	422	424	447	36	11 881
2014					458	418	398	400	422	445	44	13 736
2015						392	425	411	412	441	51	16 395
2016							412	428	414	443	101	13 571
2017								420	426	447	149	15 348
2018	RSI								391	422	182	13 060
2019										363	248	4 914
Total										**3 837**	**896**	**109 833**

Cumulative claims paid and allocated claim adjustment expenses, net of reinsurance

USD millions Accident year	Reporting year 2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
2010	8	39	61	78	91	102	111	120	125	131
2011		18	59	96	120	140	160	175	188	198
2012			26	84	134	171	203	224	242	258
2013				36	117	178	236	276	301	323
2014					31	104	190	250	285	312
2015						34	102	181	229	266
2016							13	83	152	204
2017								11	72	156
2018	RSI								11	71
2019										12
Total										**1 931**
All liabilities before 2010										263
Liabilities for claims and claim adjustment expenses, net of reinsurance										**2 169**

Average annual percentage payout of incurred claims by age, net of reinsurance

Years	1	2	3	4	5	6	7	8	9	10
Life & Health Reinsurance, long tail (RSI)	5.2%	15.6%	15.5%	11.0%	7.9%	6.1%	5.0%	4.5%	3.3%	3.0%

In the reporting year 2013, the Group significantly strengthened IBNR claims liabilities in Australia for some lines of business. In addition, for 2013 and 2014 the effect of business volume increases is discernible as well. The decrease in incurred losses for accident year 2019 is due to the lower volume of business being written in Australia.

Reconciliation of gross liability for unpaid claims and claim adjustment expenses
The following table reconciles the Group´s net outstanding liabilities to the gross liabilities for unpaid claims and claim adjustment expenses.

The net outstanding liabilities correspond to the total liabilities for unpaid claims and claim adjustment expenses, net of reinsurance for each disaggregation category.

Other short duration contract lines includes reserves for business that is not material to the Group and where accident year information is not available. For Life & Health Reinsurance, in certain markets, cedents do not provide sufficient information to reinsurers to split claims incurred and claims paid by accident year. This is based on existing market practice. For these markets, an assessment of available information from other sources was made along with investigating approximations that could be used to provide claims development information by accident year. However, these alternate sources and estimates, based on currently available data and methods, could not be used to generate meaningful and representative accident year information and therefore have been excluded from disclosure. Other short duration contract lines also contain other treaties from Property & Casualty Reinsurance and Corporate Solutions which could not be allocated on a consistent basis to disaggregation categories or specific accident years.

For details on consolidation please refer to Note 2.

For the year ended 31 December

USD millions	2019
Net outstanding liabilities	
Property & Casualty Reinsurance	
Property	7 653
Liability, proportional	9 827
Liability, non-proportional	9 689
Accident & Health	5 469
Motor, proportional	3 523
Motor, non-proportional	6 349
Specialty	4 776
Corporate Solutions	5 960
Life & Health Reinsurance, long tail	2 169
Total net undiscounted outstanding liabilities excluding other short duration contract lines and before unallocated reinsurance recoverable	55 415
Discounting impact on (Life & Health Reinsurance) short duration contracts	–305
Impact of acquisition accounting	–489
Total net discounted outstanding liabilities excluding other short duration contract lines and before unallocated reinsurance recoverable	54 621
Other short duration contract lines	3 028
Total net discounted outstanding short duration liabilities	**57 649**
Allocated reinsurance recoverables on unpaid claims:	
Property & Casualty Reinsurance	
Property	674
Liability, proportional	289
Liability, non-proportional	235
Accident & Health	216
Motor, proportional	65
Motor, non-proportional	224
Specialty	551
Corporate Solutions	5 506
Consolidation	–5 360
Impact of acquisition accounting	–92
Other short duration contract lines	618
Total short duration reinsurance recoverable on outstanding liabilities	**2 926**
Exclusions:	
Unallocated claim adjustment expenses	1 111
Long duration contracts	11 184
Total other reconciling items	**12 295**
Liabilities reclassified to held for sale	–497
Total unpaid claims and claim adjustment expenses	**72 373**

Discounting information

The following disclosure covers the discounting impact for the disaggregation categories included in the claims development information. Discounting information for Life & Health Reinsurance long tail as of 31 December was as follows:

USD millions	2018	2019
Carrying amount of discounted claims	1 223	1 318
Aggregate amount of the discount	−291	−305
Interest accretion[1]	35	28
Range of interest rates	3.0–3.6%	3.0–3.4%

[1] Interest accretion is shown as part of "Life and health benefits" in the income statement.

Please refer to Note 1 for more details about the Group's discounting approach for unpaid claims and claim adjustment expenses.

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

As of 31 December, the DAC were as follows:

2018 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Opening balance as of 1 January	2 146	4 234	454	37	6 871
Deferred	4 048	1 235	634	978	6 895
Amortisation	–4 012	–496	–595	–187	–5 290
Effect of foreign currency translation and other changes	–26	–189	–5	–39	–259
Closing balance	2 156	4 784	488	789	8 217

2019 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Opening balance as of 1 January	2 156	4 784	488	789	8 217
Deferred	5 269	434	621	229	6 553
Effect of acquisitions/disposals and retrocessions		–256		68	–188
Amortisation	–4 809	–445	–626	–240	–6 120
Effect of foreign currency translation and other changes	–3	12		24	33
Reclassified to assets held for sale				–657	–657
Closing balance	**2 613**	**4 529**	**483**	**213**	**7 838**

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, the PVFP was as follows:

2018 USD millions	Life & Health Reinsurance	Life Capital Positive PVFP	Life Capital Negative PVFP	Life Capital Total	Total
Opening balance as of 1 January	921	1 612	–544	1 068	1 989
Amortisation	–140	–170	40	–130	–270
Interest accrued on unamortised PVFP	45	107	–17	90	135
Effect of change in unrealised gains/losses		18		18	18
Effect of foreign currency translation	–22	–62	30	–32	–54
Closing balance	804	1 505	–491	1 014	1 818

2019 USD millions	Life & Health Reinsurance	Life Capital Positive PVFP	Life Capital Negative PVFP	Life Capital Total	**Total**
Opening balance as of 1 January	**804**	1 505	–491	**1 014**	**1 818**
Effect of acquisitions/disposals and retrocessions	**–161**[1]	203[2]		**203**	**42**
Amortisation	**–108**	–220	46	**–174**	**–282**
Interest accrued on unamortised PVFP	**32**	103	–15	**88**	**120**
Effect of change in unrealised gains/losses		–13		**–13**	**–13**
Effect of foreign currency translation	**10**	43	–16	**27**	**37**
Reclassified to assets held for sale		–1 156	476	**–680**	**–680**
Closing balance	**577**	**465**	**0**	**465**	**1 042**

[1] Impact from termination of a reinsurance arrangement included.
[2] Please refer to Note 10 "Acquisitions".

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.

The percentage of PVFP which is expected to be amortised in each of the next five years is 16%, 14%, 13%, 12% and 12%.

7 Investments

Investment income

Net investment income by source (excluding unit-linked and with-profit business) was as follows:

USD millions	2018	2019
Fixed income securities	2 905	2 859
Equity securities	71	66
Policy loans, mortgages and other loans	213	162
Investment real estate	220	226
Short-term investments	62	93
Other current investments	128	127
Share in earnings of equity-accounted investees	166	387
Cash and cash equivalents	47	75
Net result from deposit-accounted contracts	250	149
Deposits with ceding companies	447	452
Gross investment income	4 509	**4 596**
Investment expenses	–419	–412
Interest charged for funds held	–15	–13
Net investment income – non-participating business	4 075	**4 171**

Dividends received from investments accounted for using the equity method were USD 170 million and USD 104 million for 2018 and 2019, respectively.

Share in earnings of equity-accounted investees included impairments of the carrying amount of equity-accounted investees of USD 80 million for 2019.

Realised gains and losses

Realised gains and losses for fixed income securities, equity securities and other investments (excluding unit-linked and with-profit business) were as follows:

USD millions	2018	2019
Fixed income securities available-for-sale:		
Gross realised gains	526	1 590
Gross realised losses	–225	–143
Other-than-temporary impairments	–9	–5
Net realised investment gains/losses on equity securities	21	200
Change in net unrealised investment gains/losses on equity securities	–483	478
Net realised investment gains/losses on trading securities	–69	153
Change in net unrealised investment gains/losses on trading securities	39	–26
Net realised/unrealised gains/losses on other investments	117	–197
Net realised/unrealised gains/losses on insurance-related activities	97	108
Foreign exchange gains/losses	51	–348
Loss related to agreed sale of ReAssure[1]		–230
Net realised investment gains/losses – non-participating business	65	**1 580**

[1] For more details on the transaction, please refer to Note 11 "Assets held for sale".

Net realised/unrealised gains/losses on insurance-related activities included impairments of USD 7 million and USD 5 million for 2018 and 2019, respectively.

Investment result – unit-linked and with-profit business

For unit-linked contracts, the investment risk is borne by the policyholder. For with-profit contracts, the majority of the investment risk is also borne by the policyholder, although there are certain guarantees that limit the downside risk for the policyholder, and a certain proportion of the returns may be retained by the Group (typically 10%).

Net investment result on unit-linked and with-profit business credited to policyholders was as follows:

USD millions	2018 Unit-linked	2018 With-profit	2019 Unit-linked	2019 With-profit
Investment income – fixed income securities	68	120	58	101
Investment income – equity securities	715	72	733	76
Investment income – other	17	10	25	11
Total investment income – unit-linked and with-profit business	800	202	**816**	**188**
Realised gains/losses – fixed income securities	–61	–140	89	135
Realised gains/losses – equity securities	–2 124	–257	3 333	279
Realised gains/losses – other	–14	1	90	9
Total realised gains/losses – unit-linked and with-profit business	–2 199	–396	**3 512**	**423**
Total net investment result – unit-linked and with-profit business	–1 399	–194	**4 328**	**611**

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 was as follows:

USD millions	2018	2019
Balance as of 1 January	91	80
Credit losses for which an other-than-temporary impairment was not previously recognised	5	5
Reductions for securities sold during the period	–12	–24
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	2	2
Impact of increase in cash flows expected to be collected	–4	–3
Impact of foreign exchange movements	–2	1
Balance as of 31 December	80	**61**

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 were as follows:

2018 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	12 144	218	–156		12 206
US Agency securitised products	6 416	18	–130		6 304
States of the United States and political subdivisions of the states	1 584	55	–19		1 620
United Kingdom	7 837	1 085	–74		8 848
Germany	2 723	229	–7		2 945
Canada	2 721	192	–29		2 884
France	1 723	205	–6		1 922
Japan	872	74	–8		938
Other	9 812	213	–130		9 895
Total	45 832	2 289	–559		47 562
Corporate debt securities	39 630	1 617	–542		40 705
Mortgage- and asset-backed securities	4 211	117	–56	–1	4 271
Fixed income securities available-for-sale	89 673	4 023	–1 157	–1	92 538

2019 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	14 192	377	–31		14 538
US Agency securitised products	7 034	104	–14		7 124
States of the United States and political subdivisions of the states	1 783	168	–3		1 948
United Kingdom	7 936	1 309	–26		9 219
Germany	2 870	298	–35		3 133
Canada	2 256	139	–4		2 391
France	2 095	343	–13		2 425
Japan	2 028	98	–2		2 124
Other	10 589	583	–33		11 139
Total	50 783	3 419	–161		54 041
Corporate debt securities	37 293	3 749	–46		40 996
Mortgage- and asset-backed securities	4 397	195	–14	–2	4 576
Reclassified to assets held for sale	–17 693	–2 785	28		–20 450
Fixed income securities available-for-sale	74 780	4 578	–193	–2	79 163

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 2018 and 2019.

2018 USD millions	Less than 12 months Fair value	Less than 12 months Unrealised losses	12 months or more Fair value	12 months or more Unrealised losses	Total Fair value	Total Unrealised losses
Debt securities issued by governments and government agencies:						
US Treasury and other US government corporations and agencies	1 157	33	6 170	123	7 327	156
US Agency securitised products	1 013	11	3 710	119	4 723	130
States of the United States and political subdivisions of the states	108	2	518	17	626	19
United Kingdom	1 372	47	442	27	1 814	74
Germany	109	4	156	3	265	7
Canada	549	8	855	21	1 404	29
France	381	5	15	1	396	6
Japan	160	0	73	8	233	8
Other	2 629	70	1 097	60	3 726	130
Total	7 478	180	13 036	379	20 514	559
Corporate debt securities	12 135	275	6 334	267	18 469	542
Mortgage- and asset-backed securities	1 111	15	1 718	42	2 829	57
Total	20 724	470	21 088	688	41 812	1 158

2019 USD millions	Less than 12 months Fair value	Less than 12 months Unrealised losses	12 months or more Fair value	12 months or more Unrealised losses	Total Fair value	Total Unrealised losses
Debt securities issued by governments and government agencies:						
US Treasury and other US government corporations and agencies	2 357	31	97	0	2 454	31
US Agency securitised products	1 842	7	654	7	2 496	14
States of the United States and political subdivisions of the states	39	1	30	2	69	3
United Kingdom	1 297	22	83	4	1 380	26
Germany	669	34	17	1	686	35
Canada	863	3	62	1	925	4
France	340	12	16	1	356	13
Japan	443	1	2	1	445	2
Other	1 492	17	315	16	1 807	33
Total	9 342	128	1 276	33	10 618	161
Corporate debt securities	2 562	18	531	28	3 093	46
Mortgage- and asset-backed securities	730	5	404	11	1 134	16
Reclassified to assets held for sale	–1 071	–8	–301	–20	–1 372	–28
Total	**11 563**	**143**	**1 910**	**52**	**13 473**	**195**

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 2018 and 2019, USD 18 601 million and USD 20 188 million, respectively, of fixed income securities available-for-sale were callable.

USD millions	2018 Amortised cost or cost	2018 Estimated fair value	**2019** Amortised cost or cost	**2019** Estimated fair value
Due in one year or less	10 449	10 379	7 294	7 324
Due after one year through five years	24 547	24 614	27 559	28 083
Due after five years through ten years	16 183	16 471	15 994	17 115
Due after ten years	34 749	37 262	37 865	43 144
Mortgage- and asset-backed securities with no fixed maturity	3 745	3 812	3 761	3 947
Reclassified to assets held for sale			–17 693	–20 450
Total fixed income securities available-for-sale	89 673	92 538	**74 780**	**79 163**

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 and with-profit business) as of 31 December were as follows:

USD millions	2018	2019
Debt securities issued by governments and government agencies	3 314	2 358
Corporate debt securities	37	
Mortgage- and asset-backed securities	63	52
Fixed income securities trading – non-participating business	3 414	**2 410**
Equity securities at fair value through earnings – non-participating business	3 036	**2 993**

Investments held for unit-linked and with-profit business

The carrying amounts of investments held for unit-linked and with-profit business as of 31 December were as follows:

		2018		2019
USD millions	Unit-linked	With-profit	Unit-linked	With-profit
Fixed income securities trading	2 253	2 685	1 963	2 717
Equity securities at fair value through earnings	21 326	1 797	35 528	2 078
Investment real estate	537	230	512	200
Other	702	16	692	3
Reclassified to assets held for sale			–38 175	–4 998
Total investments for unit-linked and with-profit business	24 818	4 728	**520**	**0**

Mortgage, policy and other loans, and investment real estate

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

		2018		2019
USD millions	Carrying value	Fair value	Carrying value[1]	Fair value
Policy loans	84	84	50	50
Mortgage loans	2 890	2 882	2 104	2 144
Other loans	1 568	1 587	2 314	2 376
Investment real estate	2 411	4 307	2 674	4 706

[1] Policy loans, mortgages and other loans include a total of USD 1 447 million which were reclassified to assets held for sale. Investment real estate of USD 146 million was reclassified to assets held for sale.

Depreciation expense related to investment real estate was USD 57 million and USD 61 million for 2018 and 2019, respectively. Accumulated depreciation on investment real estate totalled USD 609 million and USD 660 million as of 31 December 2018 and 2019, respectively. Investment real estate held by the Group includes residential and commercial investment real estate.

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

Maturity of lessor cash flows

As of 31 December 2019, the total undiscounted cash flows to be received from operating leases of investment real estate for the next five years and thereafter were as follows:

USD millions	Operating leases
2020	191
2021	174
2022	157
2023	136
2024	107
After 2024	420
Total cash flows	1 185

The Group manages risk associated with the residual value of its leased properties through careful property selection as well as diversification by geographical region and property type. Lease contracts for residential real estate in Switzerland and Germany are usually open-ended. Cash flows for such contracts have been projected taking into consideration the average turnover rate in the region. Lease contracts for residential real estate in the US with a lease term of one year or less have been excluded from the projected cash flows in the table above. Rental income for those leases for the year ended 31 December 2019 was USD 28 million.

Other financial assets and liabilities by measurement category

As of 31 December 2018 and 2019, "Other invested assets" and "Accrued expenses and other liabilities" by measurement category were as follows:

2018 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	564					564
Reverse repurchase agreements			1 051			1 051
Securities lending/borrowing	302		11			313
Equity-accounted investments	312			2 660		2 972
Other	52	812	634			1 498
Other invested assets	1 230	812	1 696	2 660	0	6 398
Accrued expenses and other liabilities						
Derivative financial instruments	582					582
Repurchase agreements			581			581
Securities lending	301		59			360
Securities sold short	1 538					1 538
Other			1 077		2 660	3 737
Accrued expenses and other liabilities	2 421	0	1 717	0	2 660	6 798

2019 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	472					472
Reverse repurchase agreements			2 089			2 089
Securities lending/borrowing	457		21			478
Equity-accounted investments	335			2 580		2 915
Other	76	913	905			1 894
Reclassified to assets held for sale	–60		–445			–505
Other invested assets	**1 280**	**913**	**2 570**	**2 580**	**0**	**7 343**
Accrued expenses and other liabilities						
Derivative financial instruments	692					692
Repurchase agreements			678			678
Securities lending	458		115			573
Securities sold short	1 764					1 764
Other			1 653		2 512	4 165
Reclassified to liabilities held for sale	–161		–329		–191	–681
Accrued expenses and other liabilities	**2 753**	**0**	**2 117**	**0**	**2 321**	**7 191**

[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 was as follows:

2018 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	1 620	–1 052	568		568
Reverse repurchase agreements	4 285	–3 234	1 051	–1 051	0
Securities borrowing	110	–99	11	–11	0
Total	6 015	–4 385	1 630	–1 062	568

2018 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	–1 505	923	–582	21	–561
Repurchase agreements	–3 334	2 753	–581	581	0
Securities lending	–940	580	–360	339	–21
Total	–5 779	4 256	–1 523	941	–582

2019 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	1 662	–1 184	478	–2	**476**
Reverse repurchase agreements	5 185	–3 096	2 089	–2 061	**28**
Securities borrowing	171	–150	21	–20	**1**
Total	**7 018**	**–4 430**	**2 588**	**–2 083**	**505**

2019 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	–1 750	1 058	–692	75	**–617**
Repurchase agreements	–3 352	2 674	–678	653	**–25**
Securities lending	–1 145	572	–573	524	**–49**
Total	**–6 247**	**4 304**	**–1 943**	**1 252**	**–691**

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 the 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", "Investments for unit-linked and with-profit business" and "Accrued expenses and other liabilities".

Assets pledged

As of 31 December 2018 and 2019, investments with a carrying value of USD 5 776 million and USD 5 239 million, respectively, were on deposit with regulatory agencies in accordance with local requirements, of which USD 277 million and USD 223 million, respectively, were cash and cash equivalents. As of 31 December 2018 and 2019, investments with a carrying value of USD 12 959 million and USD 14 659 million, respectively, were placed on deposit or pledged to secure certain reinsurance liabilities, including pledged investments in subsidiaries, of which USD 404 million and USD 485 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 2018 and 2019, securities of USD 15 850 million and USD 18 686 million, respectively, were transferred to third parties under securities lending transactions and repurchase agreements on a fully collateralised basis. Corresponding liabilities of USD 941 million and USD 1 251 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 2018 and 2019, a real estate portfolio with a carrying value of USD 191 million and USD 188 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 2018 and 2019, the fair value of the equity securities, government and corporate debt securities received as collateral was USD 4 239 million and USD 5 477 million, respectively. Of this, the amount that was sold or repledged as of 31 December 2018 and 2019 was USD 1 721 million and USD 2 025 million, respectively. The sources of the collateral are securities borrowing, reverse repurchase agreements and derivative transactions.

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

As of 31 December 2018 and 2019, 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.

2018 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	149	2 894	100	141	3 284
Corporate debt securities	9	41			50
Total repurchase agreements	158	2 935	100	141	3 334
Securities lending					
Debt securities issued by governments and government agencies	110	146	242	431	929
Corporate debt securities	7	4			11
Total securities lending	117	150	242	431	940
Gross amount of recognised liabilities for repurchase agreements and securities lending					4 274

2019 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	30	3 312			3 342
Corporate debt securities	3	7			10
Total repurchase agreements	**33**	**3 319**	**0**	**0**	**3 352**
Securities lending					
Debt securities issued by governments and government agencies	295		493	299	1 087
Corporate debt securities	58				58
Total securities lending	**353**	**0**	**493**	**299**	**1 145**
Gross amount of recognised liabilities for repurchase agreements and securities lending					**4 497**

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

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 2019, 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 Group items.

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, 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 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 includes 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.

Governance around level 3 fair valuation

The Asset Valuation Committee, endorsed by the Group Executive Committee, has a primary responsibility for governing and overseeing all of the Group's asset and derivative valuation policies and operating parameters (including level 3 measurements). The Asset Valuation Committee delegates the responsibility for implementation and oversight of consistent application of the Group's pricing and valuation policies to the Pricing and Valuation Committee.

The Pricing and Valuation Committee, which is a joint Risk Management & Finance management control committee, is responsible for the implementation and consistent application of the pricing and valuation policies. Key functions of the Pricing and Valuation Committee include: oversight over the entire valuation process, approval of internal valuation methodologies, approval of external pricing vendors, monitoring of the independent price verification (IPV) process and resolution of significant or complex valuation issues.

A formal IPV process is undertaken monthly by members of the Valuation Risk Management team within a Financial Risk Management function. The process includes monitoring and in-depth analyses of approved pricing methodologies and valuations of the Group's financial instruments aimed at identifying and resolving pricing discrepancies.

The Risk Management function is responsible for independent validation and ongoing review of the Group's valuation models. The Product Control group within Finance is tasked with reporting of fair values through the vendor- and model-based valuations, the results of which are also subject to the IPV process.

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Assets and liabilities measured at fair value on a recurring basis

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

2018 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]	Investments measured at net asset value as practical expedient	Total
Assets						
Fixed income securities held for proprietary investment purposes	11 668	82 906	1 378			95 952
Debt securities issued by US government and government agencies	11 668	2 186				13 854
US Agency securitised products		6 551				6 551
Debt securities issued by non-US governments and government agencies		30 468	3			30 471
Corporate debt securities		39 372	1 370			40 742
Mortgage- and asset-backed securities		4 329	5			4 334
Fixed income securities backing unit-linked and with-profit business		4 938				4 938
Equity securities held for proprietary investment purposes	3 023	13				3 036
Equity securities backing unit-linked and with-profit business	23 111	12				23 123
Short-term investments held for proprietary investment purposes	1 220	4 197				5 417
Short-term investments backing unit-linked and with-profit business		11				11
Derivative financial instruments	11	1 205	404	–1 052		568
Interest rate contracts	6	424	6			436
Foreign exchange contracts		399				399
Equity contracts	1	377	339			717
Credit contracts						0
Other contracts	2		59			61
Contracts backing unit-linked and with-profit business	2	5				7
Investment real estate			166			166
Other invested assets	286	16	364		812	1 478
Funds held by ceding companies		206				206
Total assets at fair value	39 319	93 504	2 312	–1 052	812	134 895
Liabilities						
Derivative financial instruments	–14	–974	–517	923		–582
Interest rate contracts	–3	–318	–3			–324
Foreign exchange contracts		–169				–169
Equity contracts	–8	–484	–43			–535
Credit contracts		–1				–1
Other contracts			–471			–471
Contracts backing unit-linked and with-profit business	–3	–2				–5
Liabilities for life and health policy benefits			–119			–119
Accrued expenses and other liabilities	–302	–1 538				–1 840
Total liabilities at fair value	–316	–2 512	–636	923	0	–2 541

[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.

2019 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]	Investments measured at net asset value as practical expedient	Reclassified to assets held for sale	Total
Assets							
Fixed income securities held for proprietary investment purposes	14 057	86 270	1 696			–20 450	81 573
Debt securities issued by US government and government agencies	14 057	2 510				–121	16 446
US Agency securitised products		7 175					7 175
Debt securities issued by non-US governments and government agencies		32 654	3			–5 283	27 374
Corporate debt securities		39 303	1 693			–14 671	26 325
Mortgage- and asset-backed securities		4 628				–375	4 253
Fixed income securities backing unit-linked and with-profit business		4 680				–4 680	0
Equity securities held for proprietary investment purposes	2 992	1					2 993
Equity securities backing unit-linked and with-profit business	37 550	56				–37 086	520
Short-term investments held for proprietary investment purposes	1 098	4 812				–142	5 768
Short-term investments backing unit-linked and with-profit business							0
Derivative financial instruments	11	1 426	225	–1 184		–65	413
Interest rate contracts		492				–8	484
Foreign exchange contracts		381				–51	330
Equity contracts	2	530	186				718
Credit contracts		17					17
Other contracts	6	3	39				48
Contracts backing unit-linked and with-profit business	3	3				–6	0
Investment real estate			143			–143	0
Other invested assets	317	140	411		913		1 781
Funds held by ceding companies		174					174
Total assets at fair value	**56 025**	**97 559**	**2 475**	**–1 184**	**913**	**–62 566**	**93 222**
Liabilities							
Derivative financial instruments	–5	–1 280	–465	1 058		161	–531
Interest rate contracts		–415	–2			50	–367
Foreign exchange contracts		–296				1	–295
Equity contracts	–5	–506	–20				–531
Credit contracts		–63					–63
Other contracts			–443			111	–332
Contracts backing unit-linked and with-profit business						–1	–1
Liabilities for life and health policy benefits			–91				–91
Accrued expenses and other liabilities	–340	–1 882					–2 222
Total liabilities at fair value	**–345**	**–3 162**	**–556**	**1 058**	**0**	**161**	**–2 844**

[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, the reconciliations of the fair values of assets and liabilities measured on a recurring basis using significant unobservable inputs were as follows:

2018 USD millions	Fixed income securities	Equity securities	Derivative assets	Investment real estate	Other invested assets	Total assets	Derivative liabilities	Liabilities for life and health policy benefits	Total liabilities
Assets and liabilities									
Balance as of 1 January	1 353	4	386	198	509	2 450	–479	–126	–605
Realised/unrealised gains/losses:									
Included in net income			67	13	–19	61	44	7	51
Included in other comprehensive income	–39					–39			0
Purchases	201		11			212			0
Issuances						0	–159		–159
Sales	–7		–8	–33	–129	–177	23		23
Settlements	–44		–52			–96	48		48
Transfers into level 3[1]					19	19	–3		–3
Transfers out of level 3[1]	–18	–4			–3	–25			0
Impact of foreign exchange movements	–68			–12	–13	–93	9		9
Closing balance as of 31 December	1 378	0	404	166	364	2 312	–517	–119	–636

[1] Transfers are recognised at the date of the event or change in circumstances that caused the transfer.

2019 USD millions	Fixed income securities	Equity securities	Derivative assets	Investment real estate	Other invested assets	**Total assets**	Derivative liabilities	Liabilities for life and health policy benefits	**Total liabilities**
Assets and liabilities									
Balance as of 1 January	1 378	0	404	166	364	**2 312**	–517	–119	**–636**
Realised/unrealised gains/losses:									
Included in net income	4		–151	16	20	**–111**	120	32	**152**
Included in other comprehensive income	73					**73**		–4	**–4**
Purchases	417		16		20	**453**			**0**
Issuances						**0**	–147		**–147**
Sales	–56		–9	–46	–2	**–113**	24		**24**
Settlements	–82		–37			**–119**	60		**60**
Transfers into level 3[1]					2	**2**			**0**
Transfers out of level 3[1]	–76					**–76**			**0**
Impact of foreign exchange movements	38		2	7	7	**54**	–5		**–5**
Closing balance as of 31 December	**1 696**	**0**	**225**	**143**	**411**	**2 475**	**–465**	**–91**	**–556**

[1] Transfers are recognised at the date of the event or change in circumstances that caused the transfer.

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 years ended 31 December were as follows:

USD millions	2018	2019
Gains/losses included in net income for the period	112	41
Whereof change in unrealised gains/losses relating to assets and liabilities still held at the reporting date	33	−45

Quantitative information about level 3 fair value measurements

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

USD millions	2018 Fair value	2019 Fair value	Valuation technique	Unobservable input	Range (weighted average)
Assets					
Corporate debt securities	1 370	**1 693**			
Infrastructure loans	920	1 147	Discounted cash flow model	Valuation spread	75–526 bps (173 bps)
Private placement corporate debt	341	504	Corporate spread matrix	Credit spread	48–321 bps (175 bps)
Private placement credit tenant leases	42	42	Discounted cash flow model	Illiquidity premium	125–150 bps (146 bps)
Derivative equity contracts	339	**186**			
OTC equity option referencing correlated equity indices	339	186	Proprietary option model	Correlation	−50–55% (20%)[1]
Investment real estate	166	**143**	Discounted cash flow model	Discount rate	5% per annum
Liabilities					
Derivative equity contracts	−43	**−20**			
OTC equity option referencing correlated equity indices	−43	−20	Proprietary option model	Correlation	−30–95% (42%)[1]
Other derivative contracts and liabilities for life and health policy benefits	−590	**−534**			
Variable annuity and fair valued GMDB contracts	−327	−311	Discounted cash flow model	Risk margin	4% (n/a)
				Volatility	9.5–46.5%
				Lapse	1.5–15%
				Mortality improvement	0–2%
				Withdrawal rate	0–90%
Swap liability referencing real estate investments	−127	−110	Discounted cash flow model	Discount rate	5% per annum
Weather contracts	−77	−76	Proprietary option model	Risk margin	5–11% (9%)
				Correlation	−74–60% (25%)
				Volatility (power/gas)	27–118% (67%)
				Volatility (temperature)	69–304 (95) HDD/CAT[2]
				Index value (temperature)	199–2 894 (1 115) HDD/CAT[2]

[1] Represents average input value for the reporting period.
[2] Heating Degree Days (HDD); Cumulative Average Temperature (CAT).

Sensitivity of recurring level 3 measurements to changes in 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 result 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 result 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 result 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 result 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 result in a significantly lower (higher) fair value measurement.

The significant unobservable input used in the fair value measurement of the Group's investment real estate and swap liability referencing real estate investment is the rate used to discount future cash flows from property sales. A significant increase (decrease) in this input in isolation would result 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 result in a significantly lower (higher) fair value of the Group's obligation. A significant increase (decrease) in isolation in lapse rate would, in general, result 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 result 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 result in an increase (decrease) in fair value of the Group's liability.

The significant unobservable inputs used in the fair value measurement of the Group's weather contracts are risk margin, correlation, volatility and index value. Where the Group has a long position, a significant increase (decrease) in the risk margin input in isolation would result in a significantly higher (lower) fair value measurement. Where the Group has a long volatility or correlation position, a significant increase (decrease) in the correlation and volatility inputs would result in a significantly higher (lower) fair value measurement. Where the Group has a long index position, an increase (decrease) in the index value input in isolation would result in a significantly higher (lower) fair value measurement. Where the Group has a short position, a significant increase (decrease) in the risk margin input in isolation would result in a significantly lower (higher) fair value measurement. Where the Group has a short volatility or correlation position, a significant increase (decrease) in the correlation and volatility inputs would result in a significantly lower (higher) fair value measurement. Where the Group has a short index position, an increase (decrease) in the index value input in isolation would result in a significantly lower (higher) fair value measurement.

Other invested assets measured at net asset value

Other invested assets measured at net asset value as of 31 December were as follows:

USD millions	2018 Fair value	2019 Fair value	Unfunded commitments	Redemption frequency (if currently eligible)	Redemption notice period
Private equity funds	504	565	647	non-redeemable	n/a
Hedge funds	196	208		redeemable[1]	45–95 days[2]
Private equity direct	69	128	42	non-redeemable	n/a
Real estate funds	43	12	15	non-redeemable	n/a
Total	812	**913**	**704**		

[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 over the life of the fund, which is generally from 10 to 12 years.

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 which are classified as universal-life-type 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.

Other derivative liabilities

For operational efficiencies, the Group elected the fair value option on a hybrid financial instrument, where the host contract is a debt instrument and the embedded derivative is pegged to the performance of the fund's real estate portfolio. The liability is carried at fair value and changes in fair value are reported as a component of earnings. In the balance sheet and the following fair value disclosures, this item was included under "Accrued expenses and other liabilities" for the year ended 31 December 2018 and is included under "Liabilities held for sale" for the year ended 31 December 2019.

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 were as follows:

USD millions	2018	2019
Assets		
Other invested assets	6 398	7 343
of which at fair value pursuant to the fair value option	312	335
Funds held by ceding companies	9 009	9 472
of which at fair value pursuant to the fair value option	206	174
Liabilities		
Liabilities for life and health policy benefits	–39 593	–19 836
of which at fair value pursuant to the fair value option	–119	–91
Accrued expenses and other liabilities	–6 798	
of which at fair value pursuant to the fair value option	–127	
Liabilities held for sale		–68 586
of which at fair value pursuant to the fair value option		–110

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 years ended 31 December were as follows:

USD millions	2018	2019
Other invested assets	6	16
Funds held by ceding companies		11
Liabilities for life and health policy benefits	6	32
Accrued expenses and other liabilities	–11	
Liabilities held for sale		–10
Total	1	**49**

Fair value changes from other invested assets and funds held by ceding companies are reported in “Net investment income – non-participating business”. Fair value changes from the GMDB reserves are shown in “Life and health benefits”. Fair value changes from accrued expenses and other liabilities are reported in “Net realised investment gains/losses – non-participating business”.

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 were as follows:

2018 USD millions	Significant other observable inputs (level 2)	Significant unobservable inputs (level 3)	Total
Assets			
Policy loans		84	84
Mortgage loans		2 882	2 882
Other loans		1 587	1 587
Investment real estate		4 141	4 141
Total assets	0	8 694	8 694
Liabilities			
Debt	–7 576	–4 109	–11 685
Total liabilities	–7 576	–4 109	–11 685

2019 USD millions	Significant other observable inputs (level 2)	Significant unobservable inputs (level 3)	Total
Assets			
Policy loans		50	50
Mortgage loans		2 144	2 144
Other loans		2 376	2 376
Investment real estate		4 563	4 563
Total assets	**0**	**9 133**	**9 133**
Liabilities			
Debt	–10 639	–3 565	–14 204
Total liabilities	**–10 639**	**–3 565**	**–14 204**

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 over-the-counter 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, the fair values and notional amounts of the derivatives outstanding were as follows:

2018 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	52 719	441	–326	115
Foreign exchange contracts	19 415	186	–148	38
Equity contracts	12 493	719	–538	181
Credit contracts	379		–1	–1
Other contracts	11 385	61	–471	–410
Total	96 391	1 407	–1 484	–77
Derivatives designated as hedging instruments				
Foreign exchange contracts	12 679	213	–21	192
Total	12 679	213	–21	192
Total derivative financial instruments	109 070	1 620	–1 505	115
Amount offset				
Where a right of set-off exists		–623	623	
Due to cash collateral		–429	300	
Total net amount of derivative financial instruments		568	–582	–14

2019 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	27 544	494	–395	99
Foreign exchange contracts	26 256	291	–108	183
Equity contracts	16 089	721	–531	190
Credit contracts	3 283	17	–63	–46
Other contracts	10 290	48	–443	–395
Total	**83 462**	**1 571**	**–1 540**	**31**
Derivatives designated as hedging instruments				
Interest rate contracts	1 403	1	–22	–21
Foreign exchange contracts	15 038	90	–188	–98
Total	**16 441**	**91**	**–210**	**–119**
Total derivative financial instruments	**99 903**	**1 662**	**–1 750**	**–88**
Amount offset				
Where a right of set-off exists		–675	675	
Due to cash collateral		–509	383	
Total net amount of derivative financial instruments		**478**	**–692**	**–214**

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", "Investments for unit-linked and with-profit business" and "Assets held for sale". The fair value liabilities are included in "Accrued expenses and other liabilities" and "Liabilities held for sale". The fair value amounts that were not offset were nil as of 31 December 2018 and 2019.

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" and "Net investment result — unit-linked and with-profit business" in the income statement.

For the years ended 31 December, the gains and losses of derivative financial instruments not designated as hedging instruments were as follows:

USD millions	2018	2019
Derivatives not designated as hedging instruments		
Interest rate contracts	–178	–116
Foreign exchange contracts	–60	8
Equity contracts	30	–183
Credit contracts	–7	–51
Other contracts	73	112
Total gains/losses recognised in income	–142	**–230**

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 31 December 2018 and 2019, 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 years ended 31 December, the gains and losses attributable to the hedged risks were as follows:

			2018			2019
USD millions	Net realised investment gains/losses — non-participating business	Interest expenses	Other comprehensive income - Net unrealised investment gains/losses	Net realised investment gains/losses — non-participating business	Interest expenses	Other comprehensive income - Net unrealised investment gains/losses
Total amounts of income and expense line items	65	–555	1 905	1 580	–589	5 152
Foreign exchange contracts						
Gains/losses on derivatives	430			40		
Gains/losses on hedged items	–430			–40		
Amounts excluded from the effectiveness assessment						–2
Interest rate contracts						
Gains/losses on derivatives					–18	
Gains/losses on hedged items					20	

As of 31 December, the carrying values of the hedged assets and liabilities, and the cumulative amounts of fair value hedging adjustments included there within, recognised in the balance sheet, were as follows:

		2019
USD millions	Carrying value	Cumulative basis adjustment
Assets		
Fixed income securities available-for-sale	9 555	
Liabilities		
Long-term debt	–1 355	20

Cash flow hedges

The Group entered into cross-currency swaps to reduce the exposure to foreign exchange volatility for a long-term debt instrument issued in the second quarter of 2016. These derivative instruments are designated as cash flow hedging instruments.

For the years ended 31 December, the gains and losses recorded in accumulated other comprehensive income, and reclassified into income were as follows:

USD millions	2018 Net realised investment gains/losses — non-participating business	2018 Other comprehensive income - Cash flow hedges	2019 Net realised investment gains/losses — non-participating business	2019 Other comprehensive income - Cash flow hedges
Total amounts of income and expense line items	65	6	1 580	–2
Foreign exchange contracts				
Gains/losses on derivatives	10	25	–48	–57

As of 31 December 2019, the maximum length of time over which the Group hedged its exposure to the variability in future cash flows for forecasted transactions, excluding those forecasted transactions related to the payment of variable interest on existing financial instruments, was three years.

The Group believes that the net gains and losses associated with cash flow hedges expected to be reclassified from accumulated other comprehensive income within the next 12 months cannot be reasonably estimated as they relate to foreign exchange volatility.

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.

For the years ended 31 December 2018 and 2019, the Group recorded an accumulated net unrealised foreign currency remeasurement gain of USD 2 102 million and USD 1 895 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 2018 and 2019 was approximately USD 997 million and USD 987 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 108 million and USD 75 million as of 31 December 2018 and 2019, respectively. For derivative financial instruments containing credit risk-related contingent features, the Group posted collateral of nil as of 31 December 2018 and 2019, respectively. In the event of a reduction of the Group's credit rating to below investment grade, a fair value of USD 75 million additional collateral would have had to be posted as of 31 December 2019. The total equals the amount needed to settle the instruments immediately as of 31 December 2019.

10 Acquisitions

Old Mutual Wealth Life Assurance Limited

On 31 December 2019, the Group through its ReAssure subsidiary acquired 100% of the UK closed book business of Quilter plc, consisting of Old Mutual Wealth Life Assurance Limited and its subsidiary Old Mutual Wealth Pensions Trustees Limited, including around 300 employees. The business acquired provides pension schemes, protection products, investment solutions and savings offerings predominantly to the UK retail market.

The transaction is consistent with ReAssure's strategy to grow its closed-book business and adds approximately 0.2 million customer policies increasing ReAssure's total policy count to 3.2 million. The acquisition was funded from ReAssure's internal resources.

The total consideration paid was USD 591 million in cash. The purchase price has been allocated based on estimated fair values of assets acquired and liabilities assumed as of the date of acquisition. The allocation required significant judgement.

Historic intangibles have been eliminated. The Group established acquired PVFP of USD 209 million which qualifies as purchased intangible assets. There was no goodwill recognised upon acquisition.

As the business was acquired by ReAssure, it was recognised as held for sale upon acquisition and the pro forma revenue and earnings related to the acquisition are not presented. Assets held for sale of USD 13 603 million (including investments of USD 10 994 million) and liabilities held for sale of USD 13 382 million (including policyholder account balances of USD 12 184 million) related to this acquisition are included in the balances which are further discussed in Note 11 "Assets held for sale".

11 Assets held for sale

In the fourth quarter of 2019, the Group entered into an agreement to sell its subsidiary ReAssure Group plc (ReAssure), currently within the Life Capital business segment, to Phoenix Group Holdings plc (Phoenix). The transaction is expected to close in mid-2020, subject to approvals by regulators and anti-trust authorities.

Swiss Re will receive a cash payment of USD 1.6 billion, shares in Phoenix representing a 13% to 17% stake and be entitled to a seat on its Board of Directors. ReAssure's minority shareholder, MS&AD Insurance Group Holdings Inc, will receive shares in Phoenix representing an 11% to 15% stake. An expected future loss of USD 230 million on the disposal of the net assets was recognised in the fourth quarter 2019.

The principal products administered by ReAssure are long-term life and pension products, permanent health insurance, critical illness products and retirement annuities. The Group reassessed goodwill based on the agreement to sell ReAssure to Phoenix. USD 139 million of the estimated loss has been allocated against the goodwill held by ReAssure, reducing its carrying amount to zero. For the remainder of USD 91 million an additional liability has been established within "Liabilities held for sale". The loss has been reflected in the "Net realised investment gains/losses" line in the income statement. This loss will be adjusted based on the ultimate purchase price to be determined as of the closing of the transaction.

For the year ended 31 December 2018 and 2019, ReAssure reported a pre-tax income of USD 272 million and USD 120 million, of which USD 231 million and USD 32 million were attributable to the Swiss Re Group respectively.

The major classes of assets and liabilities held for sale are listed below.

USD millions	2019
Assets	
Fixed income securities available-for-sale	20 450
Short-term and other investments	2 240
Investments for unit-linked and with-profit business	43 173
Cash and cash equivalents	2 729
Reinsurance recoverable	3 134
Deferred acquisition costs	657
Acquired present value of future profits	680
Other assets	1 376
Total assets held for sale	74 439
Liabilities	
Unpaid claims and claim adjustment expenses	497
Liabilities for life and health policy benefits	22 624
Policyholder account balances	41 459
Other reinsurance liabilities	309
Other liabilities	3 606
Loss accrual upon held for sale	91
Total liabilities held for sale	68 586

12 Debt and contingent capital instruments

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 was as follows:

USD millions	2018	2019
Senior financial debt	235	
Subordinated financial debt	637	
Contingent capital instruments classified as financial debt	761	185
Short-term debt	1 633	**185**
Senior financial debt	3 428	2 809
Senior operational debt	388	244
Subordinated financial debt	1 892	5 993
Subordinated operational debt	2 112	1 918
Contingent capital instruments classified as financial debt	682	494
Reclassified to liabilities held for sale		–1 320
Long-term debt	8 502	**10 138**
Total carrying value	10 135	**10 323**
Total fair value	11 685	**14 204**

As of 31 December 2018 and 2019, operational debt, ie debt related to operational leverage, amounted to USD 2.5 billion (thereof USD 2.1 billion limited- or non-recourse) and USD 2.2 billion (thereof USD 1.9 billion limited- or non-recourse), respectively. Operational leverage is subject to asset/liability matching and is excluded from rating agency financial leverage calculations.

Maturity of long-term debt

As of 31 December, long-term debt as reported above had the following maturities:

USD millions	2018	2019
Due in 2020	188	0
Due in 2021	816	152
Due in 2022	817	804
Due in 2023	855	840
Due in 2024	1 246	2 573
Due after 2024	4 580	7 089
Reclassified to liabilities held for sale		–1 320
Total carrying value	8 502	**10 138**

Senior long-term debt

Maturity	Instrument	Issued in	Currency	Nominal in millions	Interest rate	Book value in USD millions
2022	Senior notes	2012	USD	250	2.88%	249
2023	Senior notes	2016	EUR	750	1.38%	838
2024	EMTN	2014	CHF	250	1.00%	257
2026	Senior notes[1]	1996	USD	397	7.00%	465
2027	EMTN	2015	CHF	250	0.75%	259
2030	Senior notes[1]	2000	USD	193	7.75%	251
2042	Senior notes	2012	USD	500	4.25%	490
Various	Payment undertaking agreements	various	USD	226	various	244
Total senior long-term debt as of 31 December 2019						**3 053**
Total senior long-term debt as of 31 December 2018						3 816

[1] Assumed in the acquisition of GE Insurance Solutions.

Subordinated long-term debt

Maturity	Instrument	Issued in	Currency	Nominal in millions	Interest rate	First call in	Book value in USD millions
2026	Tier 3 subordinated notes[1]	2019	GBP	250	4.02%		333
2029	Tier 2 resettable callable subordinated notes[1]	2019	GBP	250	5.77%	2024	331
2029	Tier 2 subordinated notes[1]	2019	GBP	500	5.87%		656
2042	Subordinated fixed-to-floating rate loan note	2012	EUR	500	6.63%	2022	555
2044	Subordinated fixed rate resettable callable loan note	2014	USD	500	4.50%	2024	498
2049	Subordinated fixed rate reset step-up callable loan note	2019	USD	1 000	5.00%	2029	991
2050	Subordinated fixed rate reset step-up callable loan note	2019	EUR	750	2.53%	2030	838
2057	Subordinated private placement (amortising, limited recourse)	2007	GBP	1 448	6.04%		1 918
	Perpetual subordinated fixed spread callable note	2019	USD	1 000	4.25%	2024	991
	Perpetual subordinated fixed-to-floating rate callable loan note	2015	EUR	750	2.60%	2025	800
Total subordinated long-term debt as of 31 December 2019							**7 911**
Total subordinated long-term debt as of 31 December 2018							4 004

[1] Reclassified to liabilities held for sale.

Contingent capital instruments classified as long-term debt

Maturity	Instrument	Issued in	Currency	Nominal in millions	Interest rate	Book value in USD millions
2024	Senior unsecured exchangeable instrument with issuer stock settlement	2018	USD	500	3.25%	494
Total contingent capital instruments classified as long-term debt as of 31 December 2019						**494**
Total contingent capital instruments classified as long-term debt as of 31 December 2018						682

Interest expense on long-term debt and contingent capital instruments classified as equity
Interest expense on long-term debt for the years ended 31 December was as follows:

USD millions	2018	2019
Senior financial debt	100	87
Senior operational debt	11	10
Subordinated financial debt	108	174
Subordinated operational debt	118	111
Contingent capital instruments classified as financial debt	38	22[1]
Total	375	**404**

[1] The figure includes interest expense on the senior unsecured exchangeable instrument with issuer stock settlement in the amount of USD 17 million.

In addition to the above, interest expense on contingent capital instruments classified as equity was USD 41 million and nil for the years ended 31 December 2018 and 2019, respectively.

Long-term debt issued in 2019
In March 2019, Swiss Re Finance (Luxembourg) S.A., a subsidiary of Swiss Reinsurance Company Ltd, issued 31-year guaranteed subordinated fixed rate reset step-up callable notes, which are callable after 11 years. The instruments have an aggregate face value of EUR 750 million, with a fixed coupon of 2.534% per annum until the first optional redemption date (30 April 2030). The notes are guaranteed on a subordinated basis by Swiss Reinsurance Company Ltd.

In April 2019, Swiss Re Finance (Luxembourg) S.A., a subsidiary of Swiss Reinsurance Company Ltd, issued 30-year guaranteed subordinated fixed rate reset step-up callable notes, which are callable after ten years. The instruments have an aggregate face value of USD 1 billion, with a fixed coupon of 5% per annum until the first optional redemption date (2 April 2029). The notes are guaranteed on a subordinated basis by Swiss Reinsurance Company Ltd.

In June 2019, ReAssure Group plc issued Tier 2 subordinated notes due 2029. The notes have an aggregate face value of GBP 500 million, with a fixed coupon of 5.867% per annum.

In June 2019, ReAssure Group plc issued Tier 3 subordinated notes due 2026. The notes have an aggregate face value of GBP 250 million, with a fixed coupon of 4.016% per annum. The notes were initially issued to Swiss Re Finance (Jersey) Limited and, in July 2019, were sold to a third party outside the Swiss Re Group.

In June 2019, ReAssure Group plc issued callable Tier 2 subordinated notes due 2029, which are callable in 2024. The notes have an aggregate face value of GBP 250 million, with a fixed coupon of 5.766% per annum until the first optional redemption date (13 June 2024). The notes were initially issued to Swiss Re Finance (Jersey) Limited and, in July 2019, a portion was sold to a third party outside the Swiss Re Group. In August 2019, the remaining portion was sold to the same third party.

In September 2019, Swiss Re Finance (Luxembourg) S.A., a subsidiary of Swiss Reinsurance Company Ltd, issued perpetual guaranteed subordinated fixed spread callable notes, which are callable every five years. The instruments have an aggregate face value of USD 1 billion, with a fixed coupon of 4.25% per annum until the first optional redemption date (4 September 2024). The coupon is reset every five years to the then prevailing US Treasury rate plus the initial credit spread. The notes are guaranteed on a subordinated basis by Swiss Reinsurance Company Ltd.

13 Leases

As part of its normal business operations, the Group as a lessee enters into a number of lease agreements mainly for office space. Certain lease agreements include rental payments adjusted periodically for inflation. Renewal or termination options that are reasonably certain of exercise by the lessee are included in the lease term. The lease agreements do not contain any material residual value guarantees or material restrictive covenants.

In line with the elected transition method provided by ASU 2018-11 "Targeted Improvements", the comparative lease information was not restated and continues to be reported in line with the requirements in ASC 840 Leases.

Lease liabilities and right-of-use assets

Lease liabilities and right-of-use assets for operating leases as of 31 December were as follows:

USD millions	2019
Operating lease right-of-use assets	485
Operating lease liabilities	531

Operating lease right-of-use assets are included in "Other assets" and operating lease liabilities are included in "Accrued expenses and other liabilities" on the balance sheet.

Maturity of lease liabilities

As of 31 December 2019, the total undiscounted cash flows due to operating leases for the next five years and thereafter were as follows:

USD millions	**2019**
2020	89
2021	77
2022	69
2023	61
2024	55
After 2024	239
Total undiscounted cash flows	**590**
Less imputed interest	–59
Total lease liability	**531**

Undiscounted sublease cash flows over the next four years are USD 15 million.

The discount rates used to determine the lease liability reflect the collateralised borrowing rates for the Group, where the underlying collateral is assumed to be real estate.

The weighted average discount rate for operating leases as of 31 December 2019 was 2.5%. The weighted average remaining lease term for operating leases as of 31 December 2019 was 8.9 years.

As of 31 December 2018, future minimum lease commitments as determined prior to the adoption of ASU 2016-02 were as follows:

USD millions	2018
2019	86
2020	78
2021	63
2022	57
2023	49
After 2023	255
Total operating lease commitments	**588**
Less minimum non-cancellable sublease rentals	–12
Total net future minimum lease commitments	**576**

Lease cost

The composition of total lease cost for all operating leases for the year ended 31 December was as follows:

USD millions	2018	2019
Fixed operating lease cost		87
Other lease cost[1]		3
Total operating lease cost[2]	86	**90**
Less sublease income from operating leases	–2	–9
Total lease cost	84	**81**

[1] "Other lease cost" includes variable lease cost.
[2] A distinction between "Fixed operating lease cost" and "Other lease cost" is not available for 2018 comparative information.

Other information

For the year ended 31 December 2019, cash paid for amounts included in the measurement of operating lease liabilities was USD 91 million and right-of-use assets obtained in exchange for new operating lease liabilities were USD 68 million.

14 Earnings per share

Earnings per share for the years ended 31 December were as follows:

USD millions (except share data)	2018	2019
Basic earnings per share		
Net income	481	769
Non-controlling interests	–19	–42
Interest on contingent capital instruments[1]	–41	
Net income attributable to common shareholders	421	**727**
Weighted average common shares outstanding	306 841 773	295 660 059
Net income per share in USD	1.37	**2.46**
Net income per share in CHF[2]	1.34	**2.46**
Effect of dilutive securities		
Change in income available to common shares due to contingent capital instruments[1]	8	14
Change in average number of shares due to contingent capital instruments	6 203 404	13 143 130
Change in average number of shares due to employee options	604 473	704 411
Diluted earnings per share		
Net income assuming debt conversion and exercise of options	429	**741**
Weighted average common shares outstanding	313 649 650	309 507 600
Net income per share in USD	1.37	**2.39**
Net income per share in CHF[2]	1.34	**2.40**

[1] Please refer to Note 12 "Debt and contingent capital instruments".
[2] The translation from USD to CHF is shown for informational purposes only and has been calculated using the Group's average exchange rates.

Dividends are declared in Swiss francs. During the years ended 31 December 2018 and 2019, the parent company of the Group (Swiss Re Ltd) paid dividends per share of CHF 5.00 and CHF 5.60, respectively.

At the 2018 Annual General Meeting held on 20 April 2018, Swiss Re Ltd's shareholders authorised the SRL Board of Directors to repurchase up to a maximum CHF 1 billion purchase value of Swiss Re Ltd's own shares by way of a public share buyback programme for cancellation purposes prior to the 2019 Annual General Meeting.

At the 2019 Annual General Meeting held on 17 April 2019, Swiss Re Ltd's shareholders authorised a public share buyback programme consisting of two tranches of each up to CHF 1 billion purchase value of Swiss Re Ltd's own shares for cancellation purposes prior to the 2020 Annual General Meeting, the first tranche being conditional on obtaining all necessary legal and regulatory approvals and Board of Directors approval and the second tranche being conditional on (in addition to obtaining all necessary legal and regulatory approvals and Board of Directors approval) the 2019 development of the Group's excess capital position and subject to the Group's capital management priorities.

The public share buyback programme approved by the 2018 Annual General Meeting was completed as of 15 February 2019. The total number of shares repurchased amounted to 11.2 million, of which 10 million and 1.2 million shares were repurchased as of 31 December 2018 and between 1 January and 15 February 2019, respectively.

On 17 April 2019, the 2019 Annual General Meeting resolved the cancellation of the 11.2 million repurchased shares by way of share capital reduction. The share capital reduction was registered in the Commercial Register of the Canton of Zurich on 11 July 2019 and publication in the Swiss Commercial Gazette occurred on 16 July 2019.

The first tranche of the public share buyback programme approved by the 2019 Annual General Meeting commenced on 6 May 2019 and was completed on 18 February 2020. The total number of shares repurchased amounted to 9.9 million, of which 8.2 million and 1.7 million shares were repurchased as of 31 December 2019 and between 1 January and 18 February 2020, respectively.

As announced on 31 October 2019, the SRL Board of Directors decided not to launch the second tranche of the public share buyback programme approved by the 2019 Annual General Meeting.

15 Income taxes

The Group is generally subject to corporate income taxes based on the taxable net income in various jurisdictions in which it operates. The components of the income tax expense were:

USD millions	2018	2019
Current taxes	636	496
Deferred taxes	–567	–356
Income tax expense	69	**140**

Tax rate reconciliation

The following table reconciles the expected tax expense at the Swiss statutory tax rate to the actual tax expense in the accompanying income statement:

USD millions	2018	2019
Income tax at the Swiss statutory tax rate of 21.0%	115	191
Increase (decrease) in the income tax charge resulting from:		
Foreign income taxed at different rates	122	27
Impact of foreign exchange movements	–64	16
Tax exempt income/dividends received deduction	–61	–142
Change in valuation allowance	–92	–16
Non-deductible expenses	55	38
Change in statutory rate	25	6
Other income based taxes	–2	76
Change in liability for unrecognised tax benefits including interest and penalties	72	–42
Intra-entity transfers	–68	20
Other, net[1]	–33	–34
Total	69	**140**

[1] Other, net includes tax return to tax provision adjustments from various jurisdictions.

For the year ended 31 December 2019, the Group reported a tax charge of USD 140 million on a pre-tax income of USD 909 million, compared to a charge of USD 69 million on a pre-tax income of USD 550 million for 2018. This translates into an effective tax rate in the current and prior year reporting periods of 15.4% and 12.5%, respectively.

For the year ended 31 December 2019, the tax rate was largely driven by tax benefits from effective settlement of tax audits and tax-exempt income, partially offset by tax charges from other income-based taxes and non-deductible expenses. The lower rate in the year ended 31 December 2018 was largely driven by tax benefits from foreign currency translation differences between statutory and US GAAP accounts, the releases of valuation allowances on net operating losses and tax benefits from intra-entity transfers, partially offset by the impact of different rates in various jurisdictions and tax charges from unrecognised tax benefits.

Deferred and other non-current taxes

The components of deferred and other non-current taxes were as follows:

USD millions	2018	2019
Deferred tax assets		
Income accrued/deferred	212	238
Technical provisions	560	519
Unearned premium reserves	236	318
Pension provisions	293	303
Benefit on loss carryforwards	2 675	2 446
Currency translation adjustments	423	316
Unrealised gains in income	424	651
Investment valuation in income	171	269
Other	805	774
Reclassified to assets held for sale		–604
Gross deferred tax asset	5 799	5 230
Valuation allowance	–366	–505
Unrecognised tax benefits offsetting benefits on loss carryforwards	–22	1
Total deferred tax assets	5 411	**4 726**
Deferred tax liabilities		
Present value of future profits	–294	–241
Income accrued/deferred	–199	–148
Investment valuation in income	–382	–448
Deferred acquisition costs	–1 071	–1 036
Technical provisions	–2 264	–2 230
Unrealised gains on investments	–584	–1 443
Foreign exchange provisions	–602	–489
Other	–780	–728
Reclassified to liabilities held for sale		1 321
Total deferred tax liabilities	–6 176	**–5 442**
Liability for unrecognised tax benefits including interest and penalties	–295	–250
Reclassified to liabilities held for sale		29
Total deferred and other non-current tax liabilities	–6 471	**–5 663**

As of 31 December 2019, a tax benefit of USD 6 million arises from revaluing the Swiss deferred assets and liabilities to the new Swiss statutory tax rate (combined federal and cantonal) of 19.7% (from 21% for ordinary companies and 7.8% for holding companies), under the Swiss tax reform. Accordingly, the revaluing reduced the Swiss deferred tax assets by USD 35 million and the Swiss deferred tax liabilities by USD 41 million (net USD 6 million). Moreover, the transitional impact of Swiss tax reform had led to the recognition of an intangible deferred tax asset of USD 142 million (included within "Other" above) which has been fully offset by a valuation allowance.

As of 31 December 2019, the aggregate amount of temporary differences associated with investment in subsidiaries, branches and associates and interests in joint ventures, for which deferred tax liabilities have not been recognised amount to approximately USD 3.2 billion. In the remote scenario in which these temporary differences were to reverse simultaneously, the resulting tax liabilities would be very limited due to participation exemption rules.

As of 31 December 2019, the Group had USD 10 553 million net operating tax loss carryforwards, expiring as follows: USD 12 million in 2020, USD 8 million in 2021, USD 7 million in 2022, USD 6 million in 2023, USD 6 171 million in 2024 and beyond, and USD 4 349 million never expire.

As of 31 December 2019, the Group had capital loss carryforwards of USD 1 080 million that never expires.

For the year ended 31 December 2019, net operating tax losses of USD 4 051 million and net capital tax losses of USD 43 million were utilised.

Income taxes paid in 2018 and 2019 were USD 740 million and USD 611 million, respectively.

Unrecognised tax benefits

A reconciliation of the opening and closing amount of gross unrecognised tax benefits (excluding interest and penalties) is as follows:

USD millions	2018	2019
Balance as of 1 January	206	257
Additions based on tax positions related to current year	49	38
Additions based on tax positions related to prior years	57	8
Reductions for tax positions of current year	–8	–7
Reductions for tax positions of prior years	–15	–83
Statute expiration	–19	–2
Settlements	–7	–16
Other (including foreign currency translation)	–6	–1
Reclassified to assets/liabilities held for sale		–24
Balance as of 31 December	257	**170**

As of 31 December 2018 and 2019, the amount of gross unrecognised tax benefits within the tabular reconciliation that, if recognised, would affect the effective tax rate were approximately USD 257 million and USD 170 million, respectively.

Interest and penalties related to unrecognised tax benefits are recorded in income tax expense. For the years ended 31 December 2018 and 2019, such expenses were USD 7 million and USD 5 million, respectively. For the years ended 31 December 2018 and 2019, USD 60 million and USD 55 million, respectively, were accrued for the payment of interest (net of tax benefits) and penalties. The accrued interest balance as of 31 December 2019 is included within the deferred and other non-current taxes section reflected above and in the balance sheet.

The balance of gross unrecognised tax benefits as of 31 December 2019 presented in the table above excludes accrued interest and penalties (USD 55 million).

During the year, certain tax positions and audits in Switzerland, the United States, France, the United Kingdom, Brazil, Germany, Japan and Malaysia were effectively settled.

The Group continually evaluates proposed adjustments by taxing authorities. The Group believes that it is reasonably possible (more than remote and less than likely) that the balance of unrecognised tax benefits could increase or decrease over the next 12 months due to settlements or expiration of statutes. However, quantification of an estimated range cannot be made at this time.

The following table summarises jurisdictions and tax years that remain subject to examination:

Australia	2014–2019
Brazil	2014–2019
Canada	2012–2019
China	2009–2019
Colombia	2016–2019
Denmark	2014–2019
France	2017–2019
Germany	2017–2019
Hong Kong	2013–2019
India	2004–2019
Ireland	2015–2019
Israel	2014–2019
Italy	2015–2019
Japan	2011–2019
Korea	2013–2019
Luxembourg	2015–2019
Malaysia	2012–2019
Mexico	2014–2019
Netherlands	2015–2019
New Zealand	2014–2019
Nigeria	2016–2019
Singapore	2014–2019
Slovakia	2014–2019
South Africa	2015–2019
Spain	2015–2019
Switzerland	2015–2019
United Kingdom	2008–2009, 2013–2019
United States	2011–2019

16 Benefit plans

Defined benefit pension plans and post-retirement benefits

The Group sponsors various funded defined benefit pension plans. Employer contributions to the plans are charged to income on a basis which recognises the costs of pensions over the expected service lives of employees covered by the plans. The Group's funding policy for these plans is to contribute annually at a rate that is intended to maintain a level percentage of compensation for the employees covered. A full valuation is prepared at least every three years.

The Group also provides certain healthcare and life insurance benefits for retired employees and their dependants. Employees become eligible for these benefits when they become eligible for pension benefits.

The measurement date of these plans is 31 December for each year presented.

2018 USD millions	Swiss plan	Foreign plans	Other benefits	Total
Benefit obligation as of 1 January	3 948	2 464	413	6 825
Service cost	120	8	5	133
Interest cost	23	68	9	100
Amendments		1	–61	–60
Actuarial gains/losses	–43	–81	–25	–149
Benefits paid	–202	–91	–18	–311
Employee contribution	25			25
Effect of settlement, curtailment and termination	4			4
Effect of foreign currency translation	–43	–99	–4	–146
Benefit obligation as of 31 December	3 832	2 270	319	6 421
Fair value of plan assets as of 1 January	3 887	2 565	0	6 452
Actual return on plan assets	–73	–46		–119
Company contribution	162	16	18	196
Benefits paid	–202	–91	–18	–311
Employee contribution	25			25
Effect of settlement, curtailment and termination	4			4
Effect of foreign currency translation	–43	–108		–151
Fair value of plan assets as of 31 December	3 760	2 336	0	6 096
Funded status	–72	66	–319	–325

2019 USD millions	Swiss plan	Foreign plans	Other benefits	Total
Benefit obligation as of 1 January	3 832	2 270	319	6 421
Service cost	99	8	3	110
Interest cost	29	67	7	103
Amendments			–1	–1
Actuarial gains/losses	307	297	24	628
Benefits paid	–59	–95	–16	–170
Employee contribution	32			32
Effect of settlement, curtailment and termination	–150			–150
Effect of foreign currency translation	75	42	4	121
Benefit obligation as of 31 December	**4 165**	**2 589**	**340**	**7 094**
Fair value of plan assets as of 1 January	3 760	2 336	0	6 096
Actual return on plan assets	391	323		714
Company contribution	97	16	16	129
Benefits paid	–59	–95	–16	–170
Employee contribution	32			32
Effect of settlement, curtailment and termination	–150			–150
Effect of foreign currency translation	74	53		127
Fair value of plan assets as of 31 December	**4 145**	**2 633**	**0**	**6 778**
Funded status	**–20**	**44**	**–340**	**–316**

Amounts recognised in "Other assets" and "Accrued expenses and other liabilities" in the Group's balance sheet as of 31 December were as follows:

2018 USD millions	Swiss plan	Foreign plans	Other benefits	Total
Non-current assets		238		238
Current liabilities		–3	–17	–20
Non-current liabilities	–72	–169	–302	–543
Net amount recognised	–72	66	–319	–325

2019 USD millions	Swiss plan	Foreign plans	Other benefits	Total
Non-current assets		242		242
Current liabilities		–3	–17	–20
Non-current liabilities	–20	–195	–323	–538
Net amount recognised	**–20**	**44**	**–340**	**–316**

Amounts recognised in accumulated other comprehensive income, gross of tax, as of 31 December were as follows:

2018 USD millions	Swiss plan	Foreign plans	Other benefits	Total
Net gain/loss	864	393	–12	1 245
Prior service cost/credit	–100	3	–61	–158
Total	764	396	–73	1 087

2019 USD millions	Swiss plan	Foreign plans	Other benefits	Total
Net gain/loss	818	441	13	1 272
Prior service cost/credit	–85	2	–50	–133
Total	**733**	**443**	**–37**	**1 139**

Components of net periodic benefit cost

The components of pension and post-retirement cost for the years ended 31 December were as follows:

2018 USD millions	Swiss plan	Foreign plans	Other benefits	Total
Service cost (net of participant contributions)	120	8	5	133
Interest cost	23	68	9	100
Expected return on assets	–93	–85		–178
Amortisation of:				
Net gain/loss	64	19		83
Prior service cost	–15			–15
Effect of settlement, curtailment and termination	4			4
Net periodic benefit cost	103	10	14	127

2019 USD millions	Swiss plan	Foreign plans	Other benefits	Total
Service cost (net of participant contributions)	99	8	3	110
Interest cost	29	67	7	103
Expected return on assets	–93	–88		–181
Amortisation of:				
Net gain/loss	35	15	–2	48
Prior service cost	–15		–15	–30
Effect of settlement, curtailment and termination	28			28
Net periodic benefit cost	**83**	**2**	**–7**	**78**

Other changes in plan assets and benefit obligations recognised in other comprehensive income for the years ended 31 December were as follows:

2018 USD millions	Swiss plan	Foreign plans	Other benefits	Total
Net gain/loss	123	50	–25	148
Prior service cost/credit		1	–61	–60
Amortisation of:				
Net gain/loss	–64	–19		–83
Prior service cost	15			15
Effect of settlement, curtailment and termination				0
Exchange rate gain/loss recognised during the year		–13		–13
Total recognised in other comprehensive income, gross of tax	74	19	–86	7
Total recognised in net periodic benefit cost and other comprehensive income, gross of tax	177	29	–72	134

2019 USD millions	Swiss plan	Foreign plans	Other benefits	Total
Net gain/loss	10	55	24	89
Prior service cost/credit			–1	–1
Amortisation of:				
Net gain/loss	–35	–15	2	–48
Prior service cost	15		15	30
Effect of settlement, curtailment and termination	–26			–26
Exchange rate gain/loss recognised during the year		3		3
Total recognised in other comprehensive income, gross of tax	**–36**	**43**	**40**	**47**
Total recognised in net periodic benefit cost and other comprehensive income, gross of tax	**47**	**45**	**33**	**125**

The estimated net loss and prior service credit for the defined benefit pension plans that will be amortised from accumulated other comprehensive income into net periodic benefit cost in 2020 are USD 80 million and USD 15 million, respectively. The estimated net gain and prior service credit for the other defined post-retirement benefits that will be amortised from accumulated other comprehensive income into net periodic benefit cost in 2020 are nil and USD 15 million, respectively.

The accumulated benefit obligation (the current value of accrued benefits excluding future salary increases) for pension benefits was USD 6 043 million and USD 6 687 million as of 31 December 2018 and 2019, respectively.

Pension plans with an accumulated benefit obligation in excess of plan assets as of 31 December were as follows:

USD millions	2018	**2019**
Projected benefit obligation	4 898	628
Accumulated benefit obligation	4 856	619
Fair value of plan assets	4 654	430

Principal actuarial assumptions

	Swiss plan		Foreign plans weighted average		Other benefits weighted average	
	2018	**2019**	2018	**2019**	2018	**2019**
Assumptions used to determine obligations at the end of the year						
Discount rate	0.8%	0.1%	3.0%	2.1%	2.2%	1.5%
Rate of compensation increase	1.8%	1.8%	3.0%	2.9%	2.1%	2.1%
Assumptions used to determine net periodic pension costs for the year ended						
Discount rate	0.6%	0.8%	2.8%	3.0%	2.1%	2.2%
Expected long-term return on plan assets	2.5%	2.5%	3.6%	3.7%		
Rate of compensation increase	1.8%	1.8%	3.0%	3.0%	2.1%	2.1%
Assumed medical trend rates at year end						
Medical trend – initial rate					4.7%	4.4%
Medical trend – ultimate rate					3.6%	3.6%
Year that the rate reaches the ultimate trend rate					2021	2023

The expected long-term rates of return on plan assets are based on long-term expected inflation, interest rates, risk premiums and targeted asset category allocations. The estimates take into consideration historical asset category returns.

Assumed healthcare cost trend rates have a significant effect on the amounts reported for the healthcare plans. A one percentage point change in assumed healthcare cost trend rates would have had the following effects for 2019:

USD millions	1 percentage point increase	1 percentage point decrease
Effect on total of service and interest cost components	0	0
Effect on post-retirement benefit obligation	18	–16

Plan asset allocation by asset category

The actual asset allocation by major asset category for defined benefit pension plans as of the respective measurement dates in 2018 and 2019 was as follows:

	Swiss plan allocation			Foreign plans allocation		
	2018	**2019**	**Target allocation**	2018	**2019**	**Target allocation**
Asset category						
Equity securities	23%	26%	23%	13%	8%	13%
Debt securities	46%	41%	46%	73%	76%	81%
Real estate	24%	18%	23%	2%	0%	0%
Other	7%	15%	8%	12%	16%	6%
Total	100%	**100%**	**100%**	100%	**100%**	**100%**

Actual asset allocation is determined by a variety of current economic and market conditions and considers specific asset class risks.

Equity securities include Swiss Re shares of USD 4 million (0.1% of total plan assets) and USD 3 million (0.04% of total plan assets) as of 31 December 2018 and 2019, respectively.

The Group's pension plan investment strategy is to match the maturity profiles of the assets and liabilities in order to reduce the future volatility of pension expense and funding status of the plans. This involves balancing investment portfolios between equity and fixed income securities. Tactical allocation decisions that reflect this strategy are made on a quarterly basis.

Assets measured at fair value

For a description of the different fair value levels and valuation techniques see Note 8 “Fair value disclosures”.

Certain items reported as pension plan assets at fair value in the following table are not within the scope of Note 8, namely two positions: real estate and an insurance contract.

Real estate positions classified as level 1 and level 2 are exchange-traded real estate funds where a market valuation is readily available. Real estate reported on level 3 is property owned by the pension funds. These positions are accounted for at the capitalised income value. The capitalisation based on sustainable recoverable earnings is conducted at interest rates that are determined individually for each property, based on the property's location, age and condition. If properties are intended for disposal, the estimated selling costs and taxes are recognised in provisions. Sales gains or losses are allocated to income from real estate when the contract is concluded.

The fair value of the insurance contract is based on the fair value of the assets backing the contract.

As of 31 December, the fair values of pension plan assets by level of input were as follows:

2018 USD millions	Quoted prices in active markets for identical assets (level 1)	Significant other observable inputs (level 2)	Significant unobservable inputs (level 3)	Investments measured at net asset value as practical expedient	Total
Assets					
Fixed income securities:					
Debt securities issued by the US government and government agencies	32	209			241
Debt securities issued by non-US governments and government agencies		1 227			1 227
Corporate debt securities		1 769	10		1 779
Residential mortgage-backed securities		16			16
Commercial mortgage-backed securities		1			1
Agency securitised products		7			7
Other asset-backed securities		3			3
Equity securities at fair value through earnings	901	308			1 209
Short-term investments		48			48
Derivative financial instruments		10			10
Real estate			721		721
Other assets		91		659	750
Total assets at fair value	933	3 689	731	659	6 012
Cash	84				84
Total plan assets	1 017	3 689	731	659	6 096

2019 USD millions	Quoted prices in active markets for identical assets (level 1)	Significant other observable inputs (level 2)	Significant unobservable inputs (level 3)	Investments measured at net asset value as practical expedient	Total
Assets					
Fixed income securities:					
Debt securities issued by the US government and government agencies	50	211			261
Debt securities issued by non-US governments and government agencies		1 365			1 365
Corporate debt securities		2 011	11		2 022
Residential mortgage-backed securities		9			9
Commercial mortgage-backed securities		1			1
Agency securitised products					0
Other asset-backed securities		3			3
Equity securities at fair value through earnings	1 082	205			1 287
Short-term investments		43			43
Derivative financial instruments		36			36
Real estate	4		756		760
Other assets		95		698	793
Total assets at fair value	**1 136**	**3 979**	**767**	**698**	**6 580**
Cash	198				198
Total plan assets	**1 334**	**3 979**	**767**	**698**	**6 778**

Assets measured at fair value using significant unobservable inputs (level 3)
For the years ended 31 December, the reconciliation of fair value of pension plan assets using significant unobservable inputs were as follows:

2018 USD millions	Real estate	Other assets	Total
Balance as of 1 January	692	113	805
Realised/unrealised gains/losses:			
Relating to assets still held at the reporting date	27	–14	13
Relating to assets sold during the period		27	27
Purchases, issuances and settlements	10	–11	–1
Transfers in and/or out of level 3		–103	–103
Impact of foreign exchange movements	–8	–2	–10
Closing balance as of 31 December	721	10	731

2019 USD millions	Real estate	Other assets	Total
Balance as of 1 January	721	10	731
Realised/unrealised gains/losses:			
Relating to assets still held at the reporting date	20	1	21
Relating to assets sold during the period			0
Purchases, issuances and settlements	2		2
Transfers in and/or out of level 3			0
Impact of foreign exchange movements	13		13
Closing balance as of 31 December	**756**	**11**	**767**

Expected contributions and estimated future benefit payments
The employer contributions expected to be made in 2020 to the defined benefit pension plans are USD 117 million and to the post-retirement benefit plan are USD 17 million.

As of 31 December 2019, the projected benefit payments, which reflect expected future service, not adjusted for transfers in and for employees' voluntary contributions, are as follows:

USD millions	Swiss plan	Foreign plans	Other benefits	Total
2020	216	96	17	329
2021	212	101	17	330
2022	203	104	18	325
2023	198	106	18	322
2024	201	110	18	329
Years 2025–2029	966	585	90	1 641

Defined contribution pension plans
The Group sponsors a number of defined contribution plans to which employees and the Group make contributions. The accumulated balances are paid as a lump sum at the earlier of retirement, termination, disability or death. The amount expensed in 2018 and 2019 was USD 85 million and USD 86 million, respectively.

17 Share-based payments

As of 31 December 2018 and 2019, the Group had the share-based compensation plans as described below.

The total compensation cost for share-based compensation plans recognised in net income was USD 47 million and USD 30 million in 2018 and 2019, respectively. The related tax benefit was USD 10 million and USD 6 million, respectively.

Restricted shares

The Group granted 24 627 and 51 036 restricted shares to selected employees in 2018 and 2019, respectively. Moreover, as an alternative to the Group's cash bonus plan, 154 743 shares were delivered during 2018 and for 2019 this alternative has been discontinued. In addition, 39 793 and 37 593 shares were delivered to members of the Board of Directors during 2018 and 2019, respectively, which are generally not subject to forfeiture risk.

A summary of the movements in shares relating to outstanding awards granted under the restricted share plans for the year ended 31 December 2019 is as follows:

	Weighted average grant date fair value in CHF[1]	Number of shares
Non-vested at 1 January	93	380 307
Granted	96	88 629
Forfeited	89	–436
Vested	97	–230 375
Outstanding as of 31 December	**91**	**238 125**

[1] Equal to the market price of the shares at grant.

Leadership Performance Plan

The Leadership Performance Plan (LPP) awards are expected to be settled in shares, and the requisite service as well as the maximum contractual term are three years. For LPP 2016, LPP 2017, LPP 2018 and LPP 2019 awards, an additional two-year holding period applies for all members of the Group EC and other key executives. At grant date, the award is split equally into two underlying components — Restricted Share Units (RSUs) and Performance Share Units (PSUs). The RSUs are measured against a return on equity performance condition and will vest within a range of 0–100%. The PSUs are based on relative total shareholder return, measured against a pre-defined group of peers and will vest within a range of 0–200%. The fair values of both components are measured separately, based on stochastic models.

The fair value assumptions in the grant valuations include market estimates for dividends and the risk-free rate based on the average of the 10-year US Treasury bond taken monthly over each year in the performance period. This resulted in risk-free rates between 1.8% and 3.1% for all LPP awards.

For the year ended 31 December 2019, the outstanding units were as follows:

RSUs	LPP 2016	LPP 2017	LPP 2018	LPP 2019
Non-vested at 1 January	323 151	487 353	345 257	0
Granted				324 191
Forfeited	–2 175	–40 242	–28 045	–9 912
Vested	–320 976	–317	–143	–128
Outstanding as of 31 December	**0**	**446 794**	**317 069**	**314 151**
Grant date fair value in CHF	**67.91**	**47.41**	**70.18**	**78.22**

PSUs				
Non-vested at 1 January	438 448	664 378	279 780	0
Granted				312 236
Forfeited	–2 949	–54 856	–22 725	–9 545
Vested	–435 499	–432	–116	–124
Outstanding as of 31 December	**0**	**609 090**	**256 939**	**302 567**
Grant date fair value in CHF	**50.04**	**34.78**	**86.62**	**81.25**

Unrecognised compensation cost

As of 31 December 2019, the total unrecognised compensation cost (net of forfeitures) related to non-vested, share-based compensation awards was USD 46 million and the weighted average period over which that cost is expected to be recognised is 1.9 years.

The number of shares authorised for the Group's share-based payments to employees was 4 172 886 and 3 660 142 as of 31 December 2018 and 2019, respectively. The Group's policy is to ensure that sufficient treasury shares are available at all times to settle future share-based compensation plans.

Global Share Participation Plan

In June 2013, Swiss Re introduced the Global Share Participation Plan, which is a share purchase plan that was rolled out for the benefit of employees of companies within the Group. Swiss Re makes a financial contribution to participants in the plan, by matching the commitment that they make during the plan cycle with additional Swiss Re shares.

If the employee is still employed by Swiss Re at the end of a plan cycle, the employee will receive an additional number of shares equal to 30% of the total number of purchased and dividend shares held at that time. In 2018 and 2019, Swiss Re contributed USD 11 million and USD 12 million to the plans and authorised 197 194 and 169 772 shares as of 31 December 2018 and 2019, respectively.

18 Compensation, participations and loans of members of governing bodies

The disclosure requirements under Swiss law in respect of compensation and loans to the members of the Board of Directors and of the Group Executive Committee, as well as closely related persons, are detailed in the Compensation Report on pages 143–148 of the Financial Report of the Swiss Re Group.

The disclosure requirements under Swiss law in respect of participations of members of the Board of Directors and the Group Executive Committee, as well as closely related persons, are detailed on pages 296–297 of the Annual Report of Swiss Re Ltd.

19 Related parties

The Group defines the following as related parties to the Group: subsidiaries of Swiss Re Ltd, entities in which the Group has significant influence, pension plans, members of the Board of Directors (BoD) and the Group Executive Committee (EC) and their close family members, and entities which are directly and indirectly controlled by members of governing bodies of the Group and their close family members.

As part of the consolidation process, transactions between Swiss Re Ltd and subsidiaries are eliminated in consolidation and are not disclosed in the notes.

As of 31 December 2018 and 2019, the Group's investment in mortgages and other loans included USD 373 million and USD 4 million, respectively, of loans due from employees, and USD 212 million and nil, respectively, due from officers. These loans generally consist of mortgages offered at variable and fixed interest rates.

Contributions made to defined benefit pension plans and post-retirement benefit plans are disclosed in Note 16 "Benefit plans". Plan assets of the defined benefit pension plans include Swiss Re common stock of USD 4 million (0.1% of total plan assets) and USD 3 million (0.04% of total plan assets) as of 31 December 2018 and 2019, respectively.

The total number of shares, options and related instruments held by members of the BoD and the Group EC, as well as closely related persons, amounts to less than 1% of the shares issued by Swiss Re Ltd. None of the members of the BoD and the Group EC has any significant business connection with Swiss Re Ltd or any of its Group companies. The Board member Susan L. Wagner is also a Board member of BlackRock, Inc. BlackRock, Inc. acts as an external asset manager for the Group.

Share in earnings and dividends received from equity-accounted investees for the years ended 31 December, were as follows:

USD millions	2018	**2019**
Share in earnings of equity-accounted investees	166	387
Dividends received from equity-accounted investees	170	104

20 Commitments and contingent liabilities

As a participant in limited and other investment partnerships, the Group commits itself to making available certain amounts of investment funding, callable by the partnerships for periods of up to ten years. The total commitments remaining uncalled as of 31 December 2019 were USD 2 339 million.

The Group enters into a number of contracts in the ordinary course of reinsurance and financial services business which, if the Group's credit rating and/or defined statutory measures decline to certain levels, would require the Group to post collateral or obtain guarantees. The contracts typically provide alternatives for recapture of the associated business.

Legal proceedings
In the normal course of business operations, the Group is involved in various claims, lawsuits and regulatory matters. In the opinion of management, the resolution of these matters is not expected to have a material adverse effect on the Group's business, consolidated financial position, results of operations or cash flows.

21 Significant subsidiaries and equity investees

		Share capital (millions)	Affiliation in % as of 31.12.2019	Method of consolidation
Europe				
Germany				
Swiss Re Germany GmbH, Munich	EUR	45	100	f
Ireland				
Ark Life Assurance Company dac, Dublin	EUR	19	75	f
Jersey				
ReAssure Holdings Limited, St Helier	GBP	0	100	f
ReAssure Jersey One Limited, St Helier	GBP	0	100	f
ReAssure Jersey Two Limited, St Helier	GBP	3	100	f
Swiss Re ReAssure Limited, St Helier	GBP	3	100	f
Swiss Re ReAssure Midco Limited, St Helier	GBP	0	100	f
Liechtenstein				
Elips Life AG, Triesen	CHF	12	100	f
Elips Versicherungen AG, Triesen	CHF	5	100	f
Luxembourg				
iptiQ Life S.A., Luxembourg	EUR	6	100	f
Swiss Re Europe Holdings S.A., Luxembourg	EUR	105	100	f
Swiss Re Europe S.A., Luxembourg	EUR	350	100	f
Swiss Re Finance (Luxembourg) S.A., Luxembourg	EUR	0	100	f
Swiss Re Funds (Lux) I, Senningerberg[1]	EUR	14 412	100	f
Swiss Re International SE, Luxembourg	EUR	182	100	f
Netherlands				
elipsLife EMEA Holding B.V., Hoofddorp	EUR	0	100	f
Swiss Re Life Capital EMEA Holding B.V., Hoofddorp	EUR	0	100	f
Switzerland				
Swiss Pillar Investments Ltd, Zurich	CHF	0	100	f
Swiss Re Corporate Solutions Ltd, Zurich	CHF	100	100	f
Swiss Re Direct Investments Company Ltd, Zurich	CHF	0	100	f
Swiss Re Investments Company Ltd, Zurich	CHF	0	100	f
Swiss Re Investments Holding Company Ltd, Zurich	CHF	0	100	f
Swiss Re Investments Ltd, Zurich	CHF	1	100	f
Swiss Re Life Capital Ltd, Zurich	CHF	0	100	f
Swiss Re Life Capital Reinsurance Ltd, Zurich	CHF	10	100	f
Swiss Re Management Ltd, Adliswil	CHF	0	100	f
Swiss Re Principal Investments Company Ltd, Zurich	CHF	0	100	f
Swiss Re Reinsurance Holding Company Ltd, Zurich	CHF	0	100	f
Swiss Reinsurance Company Ltd, Zurich	CHF	34	100	f

[1] Net asset value instead of share capital.

		Share capital (millions)	Affiliation in % as of 31.12.2019	Method of consolidation
United Kingdom				
IptiQ Holdings Limited, London	GBP	0	100	f
Old Mutual Wealth Life Assurance Limited, Southampton	GBP	64	75	f
ReAssure FSH UK Limited, Shropshire	GBP	710	75	f
ReAssure Group Plc, Telford	GBP	100	75	f
ReAssure Midco Limited, Shropshire	GBP	73	75	f
ReAssure Limited, Shropshire	GBP	387	75	f
ReAssure UK Services Limited, Shropshire	GBP	105	75	f
Swiss Re Capital Markets Limited, London	USD	60	100	f
Swiss Re Life Capital Regions Holding Ltd, London	GBP	0	100	f
Swiss Re Services Limited, London	GBP	2	100	f

Americas and Caribbean

Brazil				
Swiss Re Brasil Resseguros S.A., Sao Paulo	BRL	295	100	f
Swiss Re Corporate Solutions Brasil Seguros S.A., Sao Paulo	BRL	318	60	f
Cayman Islands				
FWD Group Ltd, Grand Cayman	USD	1	15	e
PEP SR I Umbrella L.P., George Town	USD	443	100	f
Colombia				
Compañía Aseguradora de Fianzas S.A. Confianza, Bogota	COP	224 003	51	f
United States				
Claret LLC, Colchester	USD	0	100	f
Claret Re Inc., Colchester	USD	5	100	f
Facility Holding Corporation, Wilmington	USD	0	100	f
First Specialty Insurance Corporation, Jefferson City	USD	5	100	f
iptiQ Americas Inc., Wilmington	USD	0	100	f
Lumico Life Insurance Company, Jefferson City	USD	0	100	f
North American Capacity Insurance Company, Manchester	USD	4	100	f
North American Elite Insurance Company, Manchester	USD	4	100	f
North American Specialty Insurance Company, Manchester	USD	5	100	f
Pecan Re Inc., Colchester	USD	5	100	f
Pillar RE Holdings LLC, Wilmington	USD	0	100	f
SR Corporate Solutions America Holding Corporation, Wilmington	USD	0	100	f
Sterling Re Inc., Colchester	USD	213	100	f
Swiss Re America Holding Corporation, Wilmington	USD	0	100	f
Swiss Re Capital Markets Corporation, New York	USD	0	100	f
Swiss Re Corporate Solutions Global Markets Inc., New York	USD	0	100	f
Swiss Re Financial Markets Corporation, Wilmington	USD	0	100	f
Swiss Re Financial Products Corporation, Wilmington	USD	0	100	f
Swiss Re Life & Health America Holding Company, Wilmington	USD	0	100	f
Swiss Re Life & Health America Inc., Jefferson City	USD	4	100	f
Swiss Re Life Capital Americas Holding Inc., Wilmington	USD	0	100	f
Swiss Re Management (US) Corporation, Wilmington	USD	0	100	f
Swiss Re Property & Casualty America Inc., Kansas City	USD	1	100	f
Swiss Re Risk Solutions Corporation, Wilmington	USD	0	100	f
Swiss Re Treasury (US) Corporation, Wilmington	USD	0	100	f
Swiss Reinsurance America Corporation, Armonk	USD	10	100	f
Westport Insurance Corporation, Jefferson City	USD	6	100	f
Wing Re II Inc., Jefferson City	USD	0	100	f

		Share capital (millions)	Affiliation in % as of 31.12.2019	Method of consolidation
Africa				
South Africa				
Swiss Re Africa Limited, Cape Town	ZAR	2	100	f
Asia-Pacific				
Australia				
Swiss Re Australia Ltd, Sydney	AUD	845	100	f
Swiss Re Life & Health Australia Limited, Sydney	AUD	980	100	f
China				
Swiss Re Corporate Solutions Insurance China Ltd, Shanghai	CNY	569	100	f
Singapore				
Swiss Re Asia Holding Pte. Ltd., Singapore	USD	0	100	f
Swiss Re Asia Pte. Ltd., Singapore	USD	253	100	f
Vietnam				
Vietnam National Reinsurance Corporation, Hanoi	VND	1 310 759	25	e

Significance is defined by the total assets of the subsidiaries and equity investees in relation to the total assets of the Group. The threshold is set at 0.05%.

Method of consolidation

f full
e equity

22 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 consolidates a real estate investment entity, which holds real estate backing annuities business. The Group is its primary beneficiary, because it has both power over the entity's investment decisions as well as a significant variable interest in the entity.

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, in most cases it does not have power over the fund's investment decisions or unilateral kick-out rights relative to the decision maker.

The Group consolidates an investment vehicle for unit-linked business, where the Group holds over three quarters of the voting power, which given the structure of the fund, gives it the power to make investment decisions related to the entity. The investment vehicle is consolidated at fair value in the Group's balance sheet.

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 a vehicle providing reinsurance to its members, because it serves as a decision maker over the entity's investment and underwriting activities, as well as provides retrocession for the majority of the vehicle's insurance risk and receives performance-based fees. Additionally, the Group is obligated to provide the vehicle with loans in case of a deficit. The vehicle is a VIE, primarily because its 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 2019 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:

USD millions	2018	**2019**
Fixed income securities available-for-sale	3 444	3 423
Investment real estate	166	143
Short-term investments	79	260
Investments for unit-linked and with-profit business		654
Cash and cash equivalents	20	49
Accrued investment income	30	27
Premiums and other receivables	26	31
Funds held by ceding companies		1
Deferred acquisition costs	3	3
Deferred tax assets	212	182
Other assets	16	15
Reclassified to assets held for sale		–812
Total assets	3 996	**3 976**
Unpaid claims and claim adjustment expenses	66	55
Unearned premiums	8	12
Funds held under reinsurance treaties		4
Reinsurance balances payable	15	21
Deferred and other non-current tax liabilities	180	152
Accrued expenses and other liabilities	144	129
Long-term debt	2 112	1 918
Reclassified to liabilities held for sale		–114
Total liabilities	2 525	**2 177**

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:

USD millions	2018	2019
Fixed income securities available-for-sale	935	1 187
Equity securities at fair value through earnings	272	113
Policy loans, mortgages and other loans	1 313	1 735
Other invested assets	1 953	2 160
Investments for unit-linked and with-profit business	5 999	17 131
Reclassified to assets held for sale		–17 590
Total assets	10 472	**4 736**
Accrued expenses and other liabilities	58	43
Total liabilities	58	**43**

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:

			2018			**2019**
USD millions	Total assets	Total liabilities	Maximum exposure to loss[1]	Total assets	Total liabilities	Maximum exposure to loss[1]
Insurance-linked securitisations	447		462	598		627
Life and health funding vehicles	25		2 174	22		2 300
Swaps in trusts	76	58	–[2]	83	43	–[2]
Investment vehicles	2 130		2 130	2 174		2 174
Investment vehicles for unit-linked business	5 999			17 131		
Senior commercial mortgage and infrastructure loans	1 795		1 795	2 318		2 318
Reclassified to held for sale				–17 590		–607
Total	10 472	58	–[2]	**4 736**	**43**	**–[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.

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.

23 Subsequent events

The rapid spread of the coronavirus, which has been declared a pandemic, and the actions being taken to contain it on an increasingly global basis have led to significant volatility in the financial markets and are having an adverse impact on global business and economic activity. There is an increasing likelihood that the coronavirus and containment efforts could have adverse effects on the global economy and could possibly lead to a global recession. The Group is closely monitoring developments and the potential impact of the spread of infection and global responses on, for example, asset prices and insurance exposures, as well as on its operations.

Report of the statutory auditor

to the General Meeting of Swiss Re Ltd

Zurich

Report of the statutory auditor on the consolidated financial statements

As statutory auditor, we have audited the accompanying consolidated financial statements of Swiss Re Ltd and its subsidiaries (the 'Company'), which comprise the income statement and statement of comprehensive income for the year ended 31 December 2019, the balance sheet as at 31 December 2019 and the statement of shareholders' equity and the statement of cash flows for the year then ended, and notes to the Group financial statements (pages 170 to 278).

Board of Directors' responsibility

The Board of Directors is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America (US GAAP) and the requirements of Swiss law. This responsibility includes designing, implementing and maintaining an internal control system relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error. The Board of Directors is further responsible for selecting and applying appropriate accounting policies and making accounting estimates that are reasonable in the circumstances.

Auditor's responsibility

Our responsibility is to express an opinion on these consolidated financial statements based on our audit. We conducted our audit in accordance with Swiss law, Swiss Auditing Standards and auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers the internal control system relevant to the Company's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control system. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made, as well as evaluating the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the accompanying consolidated financial statements for the year ended 31 December 2019 present fairly, in all material respects, the financial position, the results of operations and the cash flows in accordance with accounting principles generally accepted in the United States of America (US GAAP) and comply with Swiss law.

Other Matter

Accounting principles generally accepted in the United States of America (US GAAP) requires that the supplementary information based on the requirements of ASU 2015-09, Disclosures about Short-Duration Contracts, on pages 210 to 218 be presented to supplement the consolidated financial statements. Such information, although not part of the consolidated financial statements, is required by the Financial Accounting Standards Board, which considers it an essential part of financial reporting for placing the consolidated financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of the Company about the methods of preparing the information and comparing the information for consistency with the Company's responses to our inquiries, the consolidated financial statements and other knowledge we obtained during our audit of the consolidated financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

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Report on key audit matters based on the circular 1/2015 of the Federal Audit Oversight Authority

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Unobservable or interpolated inputs used for the valuation of certain level 2 and 3 investments

Key audit matter	How our audit addressed the key audit matter
Investment valuation continues to be an area with inherent risk for certain level 2 and 3 investments that have unobservable or interpolated inputs. The risk is not the same for all investment types and is greatest for those listed below. These investments are more difficult to value because quoted prices are not always available, and valuation requires unobservable or interpolated inputs and complex valuation models: • Fixed income securitised products • Fixed income mortgage and asset-backed securities • Private placements and infrastructure loans • Private equities • Derivatives • Insurance-related financial products	We assessed and tested the design and operating effectiveness of selected key controls around the valuation models for level 2 and 3 investments, including the Company's independent price verification process. We also tested the Company's data integrity and change management controls relating to the valuation models. In relation to the matters set out opposite, our substantive testing procedures included the following: • Challenging the Company's methodology and assumptions, in particular, the yield curves, discounted cash flows, perpetual growth rates and liquidity premiums used in the valuation models. • Comparing the assumptions used against appropriate benchmarks and investigating significant differences. • Engaging our own valuation specialists to perform independent valuations of selected level 2 and 3 investments. Based on the work performed, we consider the methodology and assumptions used by the Company in determining the valuation to be appropriate.

Valuation of actuarially determined Property & Casualty ('P&C') loss reserves

Key audit matter	How our audit addressed the key audit matter
Valuation of actuarially determined P&C loss reserves involves a high degree of subjectivity and complexity. Reserves for losses and loss adjustment expenses represent estimates of future payments of reported and unreported claims for losses and related expenses at a given date. Furthermore, on a regular basis, the Company enters into large and/or structured transactions which often have material or complex financial reporting and reserving consequences. The reserving for such transactions is subject to increased risk of error due to the non-routine nature of transactions and the judgmental nature of reserving. The Company uses a range of actuarial methodologies and methods to estimate these reserves. Actuarially determined P&C loss reserves require significant judgment relating to certain factors and assumptions. Among the most significant reserving assumptions are the A-priori loss ratios, which typically drive the estimates of P&C loss reserves for the most recent contract years. Other key factors and assumptions include, but are not limited to changes in interest rates, exposures and mix as well as inflation trends, claims trends and regulatory decisions. In particular, loss reserves for 'long tail' lines of business (for example, the Liability, US Asbestos and Environmental, Motor Liability and Workers' Compensation portfolios) generally require more judgment to estimate. This is due to the protracted period over which claims may be reported and/or settled as well as the fact that claim settlements are often less frequent but of higher magnitude. Moreover, not all natural catastrophe events and significant man-made losses can be modelled using traditional actuarial methodologies, which increases the degree of judgment needed in establishing reserves for these events.	We assessed and tested the design and operating effectiveness of selected key controls relating to the application of the actuarial methodology, data collection and analysis, as well as the processes for determining the assumptions used by the Company in the valuation of actuarially determined P&C loss reserves. In relation to the matters set out opposite, our substantive testing procedures included the following, which are applicable for both the standard reserving and large and/or structured transactions: • Testing the completeness and accuracy of underlying data utilised by the Company's actuaries in estimating P&C loss reserves. • Applying IT audit techniques to analyse claims through the recalculation of claims triangles. • Involving PwC's internal actuarial specialists to independently test the Company's estimates of P&C loss reserves and evaluate the reasonableness of the methodology and assumptions used by comparing them with recognised actuarial practices and by applying our industry knowledge and experience. • Performing independent projections of selected portfolios. For these portfolios, we compared our calculations of projected reserves with those of the Company taking into account the available corroborating and contrary evidence and challenging the Company's assumptions as appropriate. • Assessing the process and related judgments of the Company in relation to natural catastrophes and other large losses, including using our industry knowledge to assess the reasonableness of market loss estimates and other significant assumptions. • Performing sensitivity tests to determine the impact of selected key assumptions. • Evaluating the appropriateness of any significant adjustments made by the Company to P&C loss reserve estimates. • Evaluating the appropriateness of the recognition, accounting and disclosures for large and/or structured transactions. Based on the work performed, we consider the methodologies and assumptions used by the Company in the valuation of actuarially determined P&C loss reserves to be appropriate.

Valuation of actuarially determined Life & Health ('L&H') reserves

Key audit matter	How our audit addressed the key audit matter
The Company's valuation of liabilities for L&H policy benefits and policyholder account balances involves complex judgments about future events affecting the business. Actuarial assumptions selected by the Company with respect to interest rates, inflation trends, investment returns, mortality, morbidity, lapse in coverage, longevity, persistency, expenses, stock market volatility and future policyholder behaviour may result in material impacts on the valuation of L&H reserves. The methodology and methods used can also have a material impact on the valuation of actuarially determined L&H reserves. Furthermore, on a regular basis, the Company enters into large and/or structured transactions which often have material or complex financial reporting and reserving consequences. The reserving for such transactions is subject to increased risk of error due to the non-routine nature of transactions and the judgmental nature of reserving. The valuation of actuarially determined L&H reserves depends on the use of complex models. The Company continues to migrate actuarial data and models from legacy systems and/or spreadsheets to new actuarial modelling systems. At the same time, the Company is validating models to ensure that new models are fit for use. Moving from one modelling platform to another is a complex and time-consuming process, frequently taking several years. Any resulting adjustments to reserves need to be assessed in terms of appropriateness and classified as a change in estimate or as an out-of-period adjustment.	We assessed and tested the design and operating effectiveness of selected key controls relating to the application of actuarial methodology, data collection and analysis, as well as the processes for determining the assumptions used by the Company in the valuation of actuarially determined L&H reserves. In relation to the matters set out opposite, our substantive testing procedures included the following, which are applicable for both the standard reserving and large and/or structured transactions: • Testing the completeness and accuracy of the underlying data by vouching against the source documentation. • Testing the migration of actuarial data from legacy systems and/or spreadsheets to the new actuarial systems for completeness and accuracy. • Involving our life insurance actuarial specialists to perform independent model validation procedures, including detailed testing of models, independent recalculations and back testing. • Challenging the Company's methodology and methods, focusing on changes to L&H actuarial methodology and methods during the year, by applying our industry knowledge and experience to check whether the methodology and methods are consistent with recognised actuarial practices and reporting requirements. • Evaluating the appropriateness of the recognition, accounting, and disclosures for large and/or structured transactions. Based on the work performed, we consider the methodologies and assumptions used by the Company in the valuation of actuarially determined L&H reserves to be appropriate.

Completeness and valuation of uncertain tax positions

Key audit matter	How our audit addressed the key audit matter
The Company operates in various countries and is subject to income taxes in those jurisdictions. The assessment of the valuation of deferred tax assets, resulting from net operating losses and temporary differences, and provisions for uncertain tax positions is based on complex calculations and depends on sensitive and judgmental assumptions made by the Company. These include, amongst others, future profitability and local fiscal regulations and developments. Changes in those estimates may have a material impact (through income tax expense) on the Company`s results.	We assessed and tested the design and operating effectiveness of selected key controls in place to determine the completeness of the uncertain tax items and the Company's assessment of the items for recognition and valuation. In relation to the matters set out opposite, our substantive testing procedures included the following: • Involving our own tax specialists to critically review the Company's 'more likely than not' tax assessments and to evaluate the Company's judgments and estimates of the probabilities and the amounts. • Assessing how the Company considered new information or changes in tax law or case law and assessing the Company's judgment of how these impact the Company's position or measurement of the required provision. • Examining tax audit documentation to validate the appropriateness of releases of uncertain tax provisions. • Evaluating the appropriateness of the Company's assessment of completeness of uncertain tax positions. • Examining material movements within uncertain tax positions in each jurisdiction. Based on the work performed, we determined the Company's assessment of the completeness and valuation of uncertain tax positions to be appropriate.

Report on other legal requirements

We confirm that we meet the legal requirements on licensing according to the Auditor Oversight Act (AOA) and independence (article 728 CO and article 11 AOA) and that there are no circumstances incompatible with our independence.

In accordance with article 728a paragraph 1 item 3 CO and Swiss Auditing Standard 890, we confirm that an internal control system exists which has been designed for the preparation of consolidated financial statements according to the instructions of the Board of Directors.

We recommend that the consolidated financial statements submitted to you be approved.

PricewaterhouseCoopers AG

Roy Clark	Frank Trauschke
Audit expert Auditor in charge	Audit expert

Zurich, 18 March 2020

Group financial years 2010–2019

USD millions	2010	2011	2012[1]
Income statement			
Revenues			
Premiums earned	19 652	21 300	24 661
Fee income	918	876	785
Net investment income	5 422	5 469	5 302
Net realised investment gains/losses	2 783	388	2 688
Other revenues	60	50	188
Total revenues	28 835	28 083	33 624
Expenses			
Claims and claim adjustment expenses	–7 254	–8 810	–7 763
Life and health benefits	–8 236	–8 414	–8 878
Return credited to policyholders	–3 371	–61	–2 959
Acquisition costs	–3 679	–4 021	–4 548
Other operating costs and expenses	–3 620	–3 902	–3 953
Total expenses	–26 160	–25 208	–28 101
Income before income tax expense	2 675	2 875	5 523
Income tax expense	–541	–77	–1 125
Net income before attribution of non-controlling interests	2 134	2 798	4 398
Income/loss attributable to non-controlling interests	–154	–172	–141
Net income after attribution of non-controlling interests	1 980	2 626	4 257
Interest on contingent capital instruments, net of tax	–1 117		–56
Net income attributable to common shareholders	863	2 626	4 201
Balance sheet			
Assets			
Investments	156 947	162 224	152 812
Other assets	71 456	63 675	68 691
Assets held for sale			
Total assets	228 403	225 899	221 503
Liabilities			
Unpaid claims and claim adjustment expenses	64 690	64 878	63 670
Liabilities for life and health policy benefits	39 551	39 044	36 117
Unearned premiums	6 305	8 299	9 384
Other liabilities	72 524	65 850	62 020
Long-term debt	18 427	16 541	16 286
Liabilities held for sale			
Total liabilities	201 497	194 612	187 477
Shareholders' equity	25 342	29 590	34 002
Non-controlling interests	1 564	1 697	24
Total equity	26 906	31 287	34 026
Earnings per share in USD	2.52	7.68	11.85
Earnings per share in CHF	2.64	6.79	11.13

[1] The Group updated its balance sheet presentation of deferred tax assets and liabilities. Deferred tax assets and liabilities are presented on a gross basis as per the first quarter 2013. The comparative period has been adjusted accordingly and is consistent with the relevant income tax disclosure in the notes to the financial statements in the prior year.

2013	2014	2015	2016	2017	2018	**2019**
28 276	30 756	29 751	32 691	33 119	33 875	**37 974**
542	506	463	540	586	586	**620**
4 735	4 992	4 236	4 740	4 702	5 077	**5 175**
3 325	1 059	1 220	5 787	4 048	–2 530	**5 515**
24	34	44	28	32	39	**30**
36 902	37 347	35 714	43 786	42 487	37 047	**49 314**
–9 655	–10 577	–9 848	–12 564	–16 730	–14 855	**–18 683**
–9 581	–10 611	–9 080	–10 859	–11 083	–11 769	**–13 087**
–3 678	–1 541	–1 166	–5 099	–3 298	1 033	**–4 633**
–4 895	–6 515	–6 419	–6 928	–6 977	–6 919	**–7 834**
–4 268	–3 876	–3 882	–3 964	–3 874	–3 987	**–4 168**
–32 077	–33 120	–30 395	–39 414	–41 962	–36 497	**–48 405**
4 825	4 227	5 319	4 372	525	550	**909**
–312	–658	–651	–749	–132	–69	**–140**
4 513	3 569	4 668	3 623	393	481	**769**
–2		–3	3	5	–19	**–42**
4 511	3 569	4 665	3 626	398	462	**727**
–67	–69	–68	–68	–67	–41	
4 444	3 500	4 597	3 558	331	421	**727**
150 075	143 987	137 810	155 016	161 897	147 302	**103 746**
63 445	60 474	58 325	60 049	60 629	60 268	**60 382**
						74 439
213 520	204 461	196 135	215 065	222 526	207 570	**238 567**
61 484	57 954	55 518	57 355	66 795	67 446	**72 373**
36 033	33 605	30 131	41 176	42 561	39 593	**19 836**
10 334	10 576	10 869	11 629	11 769	11 721	**13 365**
57 970	53 670	55 033	59 402	56 959	51 581	**23 232**
14 722	12 615	10 978	9 787	10 148	8 502	**10 138**
						68 586
180 543	168 420	162 529	179 349	188 232	178 843	**207 530**
32 952	35 930	33 517	35 634	34 124	27 930	**29 251**
25	111	89	82	170	797	**1 786**
32 977	36 041	33 606	35 716	34 294	28 727	**31 037**
12.97	10.23	13.44	10.72	1.03	1.37	**2.46**
12.04	9.33	12.93	10.55	1.02	1.34	**2.46**