Income statement

For the years ended 31 December

USD millions	Note	2017	2018
Revenues			
Gross premiums written	4	34 775	**36 406**
Net premiums written	4	32 316	**34 042**
Change in unearned premiums		803	**–167**
Premiums earned	3	33 119	**33 875**
Fee income from policyholders	3	586	**586**
Net investment income – non-participating business[1]	7	3 708	**4 075**
Net realised investment gains/losses – non-participating business[2]	7	1 727	**65**
Net investment result – unit-linked and with-profit business	7	3 315	**–1 593**
Other revenues		32	**39**
Total revenues		42 487	**37 047**
Expenses			
Claims and claim adjustment expenses	3	–16 730	**–14 855**
Life and health benefits	3	–11 083	**–11 769**
Return credited to policyholders		–3 298	**1 033**
Acquisition costs	3	–6 977	**–6 919**
Operating expenses		–3 308	**–3 432**
Total expenses before interest expenses		–41 396	**–35 942**
Income before interest and income tax expense		1 091	**1 105**
Interest expenses		–566	**–555**
Income before income tax expense		525	**550**
Income tax expense	13	–132	**–69**
Net income before attribution of non-controlling interests		393	**481**
Income/loss attributable to non-controlling interests		5	**–19**
Net income after attribution of non-controlling interests		398	**462**
Interest on contingent capital instruments, net of tax		–67	**–41**
Net income attributable to common shareholders		331	**421**
Earnings per share in USD			
Basic	12	1.03	**1.37**
Diluted	12	1.03	**1.37**
Earnings per share in CHF[3]			
Basic	12	1.02	**1.34**
Diluted	12	1.01	**1.34**

[1] Total impairments for the years ended 31 December of USD 46 million in 2017 and nil in 2018, respectively, were fully recognised in earnings.
[2] Total impairments for the years ended 31 December of USD 57 million in 2017 and USD 16 million 2018, 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	2017	2018
Net income before attribution of non-controlling interests	393	**481**
Other comprehensive income, net of tax:		
Change in net unrealised investment gains/losses	287	**–2 389**
Change in other-than-temporary impairment	3	**–1**
Change in cash flow hedges	–3	**15**
Change in foreign currency translation	526	**–408**
Change in adjustment for pension benefits	315	**–4**
Impact of sale to non-controlling shareholder		**–259**
Other comprehensive income attributable to non-controlling interests		**72**
Total comprehensive income before attribution of non-controlling interests	1 521	**–2 493**
Interest on contingent capital instruments, net of tax	–67	**–41**
Comprehensive income attributable to non-controlling interests	5	**–91**
Total comprehensive income attributable to common shareholders	1 459	**–2 625**

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

2017 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	4 459	–5	–7	–6 074	–1 135	0	–2 762
Change during the period	2 755	4	30	347	348		3 484
Amounts reclassified out of accumulated other comprehensive income	–2 372	1	–33	–17	43		–2 378
Tax	–96	–2		196	–76		22
Balance as of period end	4 746	–2	–10	–5 548	–820	0	–1 634

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**
Impact of sale to non-controlling shareholder	–325		1	52	13		**–259**
Impact of Accounting Standards Updates[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**

[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, ASU 2016-16 and ASU 2016-01. Please refer to Note 1 for more details.

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

This page is intentionally left blank.

Balance sheet

ASSETS

As of 31 December

USD millions	Note	2017	2018
Investments	7, 8, 9		
Fixed income securities:			
Available-for-sale (including 12 969 in 2017 and 11 502 in 2018 subject to securities lending and repurchase agreements) (amortised cost: 2017: 93 278; 2018: 89 673)		99 248	**92 538**
Trading (including 1 761 in 2017 and 2 599 in 2018 subject to securities lending and repurchase agreements)		2 538	**3 414**
Equity securities:			
Available-for-sale (including 277 in 2017 subject to securities lending and repurchase agreements) (cost: 2017: 3 544)[1]		3 862	
Trading[1]		3	
At fair value through earnings (including 480 in 2018 subject to securities lending and repurchase agreements)[1]			**3 036**
Policy loans, mortgages and other loans		4 110	**4 542**
Investment real estate		2 220	**2 411**
Short-term investments (including 411 in 2017 and 552 in 2018 subject to securities lending and repurchase agreements)		4 846	**5 417**
Other invested assets		9 904	**6 398**
Investments for unit-linked and with-profit business (including fixed income securities trading: 5 209 in 2017 and 4 938 in 2018, equity securities trading: 28 783 in 2017, equity securities at fair value through earnings: 23 123 in 2018)		35 166	**29 546**
Total investments		161 897	**147 302**
Cash and cash equivalents (including 322 in 2017 and 717 in 2018 subject to securities lending, and 1 878 in 2017 and 1 175 in 2018 backing unit-linked and with-profit contracts)		6 806	**5 985**
Accrued investment income		1 095	**1 052**
Premiums and other receivables		13 834	**13 789**
Reinsurance recoverable on unpaid claims and policy benefits		7 942	**7 058**
Funds held by ceding companies		9 155	**9 009**
Deferred acquisition costs	6	6 871	**8 217**
Acquired present value of future profits	6	1 989	**1 818**
Goodwill		4 172	**4 071**
Income taxes recoverable		378	**526**
Deferred tax assets	13	4 817	**5 411**
Other assets		3 570	**3 332**
Total assets		222 526	**207 570**

[1] Change due to ASU 2016-01. Please refer to Note 1 for more details.

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

LIABILITIES AND EQUITY

USD millions	Note	2017	2018
Liabilities			
Unpaid claims and claim adjustment expenses	5	66 795	**67 446**
Liabilities for life and health policy benefits	8	42 561	**39 593**
Policyholder account balances		37 537	**31 938**
Unearned premiums		11 769	**11 721**
Funds held under reinsurance treaties		3 109	**3 224**
Reinsurance balances payable		1 036	**920**
Income taxes payable		679	**597**
Deferred and other non-current tax liabilities	13	6 975	**6 471**
Short-term debt	11	433	**1 633**
Accrued expenses and other liabilities	7	7 190	**6 798**
Long-term debt	11	10 148	**8 502**
Total liabilities		188 232	**178 843**
Equity			
Contingent capital instruments		750	
Common shares, CHF 0.10 par value			
2017: 349 452 281; 2018: 338 619 465 shares authorised and issued		33	**32**
Additional paid-in capital		368	**496**
Treasury shares, net of tax		–1 842	**–2 291**
Accumulated other comprehensive income:			
Net unrealised investment gains/losses, net of tax		4 746	**1 905**
Other-than-temporary impairment, net of tax		–2	**–3**
Cash flow hedges, net of tax		–10	**6**
Foreign currency translation, net of tax		–5 548	**–5 904**
Adjustment for pension and other post-retirement benefits, net of tax		–820	**–828**
Credit risk of financial liabilities at fair value option, net of tax			**5**
Total accumulated other comprehensive income		–1 634	**–4 819**
Retained earnings		36 449	**34 512**
Shareholders' equity		34 124	**27 930**
Non-controlling interests		170	**797**
Total equity		34 294	**28 727**
Total liabilities and equity		222 526	**207 570**

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

Statement of shareholders' equity

For the years ended 31 December

USD millions	2017	2018
Contingent capital instruments		
Balance as of 1 January	1 102	**750**
Changes during the period	–352	**–750**
Balance as of period end	750	**0**
Common shares		
Balance as of 1 January	34	**33**
Cancellation of shares bought back	–1	**–1**
Balance as of period end	33	**32**
Additional paid-in capital		
Balance as of 1 January	341	**368**
Impact of sale to non-controlling shareholder[1]	34	**123**
Contingent capital instrument issuance costs	8	**11**
Cancellation of shares bought back		**–85**
Share-based compensation	–14	**–6**
Realised gains/losses on treasury shares[2]	–1	**85**
Balance as of period end	368	**496**
Treasury shares, net of tax		
Balance as of 1 January	–1 763	**–1 842**
Purchase of treasury shares	–1 161	**–1 454**
Cancellation of shares bought back	1 006	**1 032**
Issuance of treasury shares, including share-based compensation to employees[2]	76	**–27**
Balance as of period end	–1 842	**–2 291**
Net unrealised investment gains/losses, net of tax		
Balance as of 1 January	4 459	**4 746**
Impact of sale to non-controlling shareholder[1]		**–325**
Impact of ASU 2018-02[3]		**176**
Impact of ASU 2016-16[3]		**44**
Impact of ASU 2016-01[3]		**–347**
Changes during the period	287	**–2 389**
Balance as of period end	4 746	**1 905**
Other-than-temporary impairment, net of tax		
Balance as of 1 January	–5	**–2**
Changes during the period	3	**–1**
Balance as of period end	–2	**–3**
Cash flow hedges, net of tax		
Balance as of 1 January	–7	**–10**
Impact of sale to non-controlling shareholder[1]		**1**
Changes during the period	–3	**15**
Balance as of period end	–10	**6**

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

USD millions	2017	2018
Foreign currency translation, net of tax		
Balance as of 1 January	–6 074	**–5 548**
Impact of sale to non-controlling shareholder[1]		**52**
Changes during the period	526	**–408**
Balance as of period end	–5 548	**–5 904**
Adjustment for pension and other post-retirement benefits, net of tax		
Balance as of 1 January	–1 135	**–820**
Impact of sale to non-controlling shareholder[1]		**13**
Impact of ASU 2018-02[3]		**–17**
Changes during the period	315	**–4**
Balance as of period end	–820	**–828**
Credit risk of financial liabilities at fair value option, net of tax		
Balance as of 1 January	0	**0**
Impact of ASU 2016-01[3]		**5**
Balance as of period end	0	**5**
Retained earnings		
Balance as of 1 January	38 682	**36 449**
Net income after attribution of non-controlling interests	398	**462**
Interest on contingent capital instruments, net of tax	–67	**–41**
Dividends on common shares	–1 559	**–1 592**
Cancellation of shares bought back	–1 005	**–946**
Impact of ASU 2018-02[3]		**–159**
Impact of ASU 2016-16[3]		**–3**
Impact of ASU 2016-01[3]		**342**
Balance as of period end	36 449	**34 512**
Shareholders' equity	34 124	**27 930**
Non-controlling interests		
Balance as of 1 January	82	**170**
Transactions with non-controlling interests	93	**688**
Income/loss attributable to non-controlling interests	–5	**19**
Other comprehensive income attributable to non-controlling interests		
Change in net unrealised investment gains/losses		**191**
Change in foreign currency translation		**–109**
Other		**–10**
Dividends to non-controlling interests		**–152**
Balance as of period end	170	**797**
Total equity	34 294	**28 727**

[1] In 2018, MS&AD Insurance Group Holdings Inc (MS&AD) acquired a 15% non-controlling interest in ReAssure, a subsidiary of the Group.
[2] In 2018, the Group performed a review of the carrying values of treasury shares, resulting in an increase of USD 65 million in treasury shares and a corresponding increase of the same amount in additional paid-in capital. The reclassification has no impact on net income or net equity of the Group.
[3] Impact of Accounting Standards Update. Please refer to Note 1 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	2017	2018
Cash flows from operating activities		
Net income attributable to common shareholders	331	**421**
Add net income/loss attributable to non-controlling interests	–5	**19**
Adjustments to reconcile net income to net cash provided/used by operating activities:		
Depreciation, amortisation and other non-cash items	542	**331**
Net realised investment gains/losses	–4 048	**2 530**
Income from equity-accounted investees, net of dividends received	70	**4**
Change in:		
Technical provisions and other reinsurance assets and liabilities, net	5 739	**–1 796**
Funds held by ceding companies and under reinsurance treaties	–276	**212**
Reinsurance recoverable on unpaid claims and policy benefits	61	**656**
Other assets and liabilities, net	–386	**–421**
Income taxes payable/recoverable	–606	**–682**
Trading positions, net	–119	**298**
Net cash provided/used by operating activities	1 303	**1 572**
Cash flows from investing activities		
Fixed income securities:		
Sales	43 904	**44 679**
Maturities	5 537	**5 159**
Purchases	–52 696	**–49 816**
Net purchases/sales/maturities of short-term investments	6 459	**–761**
Equity securities:		
Sales	7 421	**1 908**
Purchases	–7 113	**–1 578**
Securities purchased/sold under agreement to resell/repurchase, net	–1 042	**3 464**
Cash paid/received for acquisitions/disposals and reinsurance transactions, net	36	**–11**
Net purchases/sales/maturities of other investments	–2 103	**–869**
Net purchases/sales/maturities of investments held for unit-linked and with-profit business	2 356	**1 288**
Net cash provided/used by investing activities	2 759	**3 463**
Cash flows from financing activities		
Policyholder account balances, unit-linked and with-profit business:		
Deposits	565	**557**
Withdrawals	–2 821	**–2 939**
Issuance/repayment of long-term debt	–270	**346**
Issuance/repayment of short-term debt	–1 221	**–428**
Issuance/repayment of contingent capital instrument	–352	**–750**
Purchase/sale of treasury shares	–1 142	**–1 446**
Dividends paid to shareholders	–1 559	**–1 592**
Dividends paid to non-controlling interests		**–152**
Transactions with non-controlling interests		**811**
Net cash provided/used by financing activities	–6 800	**–5 593**

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

USD millions	2017	2018
Total net cash provided/used	–2 738	**–558**
Effect of foreign currency translation	533	**–263**
Change in cash and cash equivalents	–2 205	**–821**
Cash and cash equivalents as of 1 January	9 011	**6 806**
Cash and cash equivalents as of 31 December	6 806	**5 985**

Interest paid was USD 655 million and USD 631 million (thereof USD 49 million and USD 43 million for letter of credit fees) for 2017 and 2018, respectively. Tax paid was USD 720 million and USD 740 million for 2017 and 2018, respectively.

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

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

Notes to the Group financial statements

1 Organisation and summary of significant accounting policies

Nature of operations
The Swiss 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.

In the half-year 2018 report, the impact of the Accounting Standard Updates (ASUs) 2016-01, 2016-16 and 2018-02 was reflected in the Group's statement of comprehensive income. In the year-end 2018 report, the Group revised the presentation and presented the statement of comprehensive income without the impact of these ASUs totalling USD –139 million. The revision had no impact on the Group's financial position, net income and cash flow. Please refer to the subsection "Adoption of new accounting standards" for more details about the ASUs.

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 with incorporation of the observable credit spreads, where available, or credit spread estimates derived based on the benchmarking techniques where market data is not available. The impact of the Group's own risk of non-performance is analysed in the manner consistent with the aforementioned approach, with consideration of the Group's observable credit spreads. The value representing such risk is incorporated into the fair value of the financial instruments (primarily derivatives), in a liability position as of the measurement date. The change in this adjustment from period to period is reflected in realised gains and losses in the income statement.

For assets or derivative structures at fair value, the Group uses market prices or inputs derived from market prices. A separate internal price verification process, independent of the trading function, provides an additional control over the market prices or market input used to determine the fair values of such assets. Although management considers that appropriate values have been ascribed to such assets, there is always a level of uncertainty and judgement over these valuations. Subsequent valuations could differ significantly from the results of the process described above. The Group may become aware of counterparty valuations, either directly through the exchange of information or indirectly, for example through collateral demands. Any implied differences are considered in the independent price verification process and may result in adjustments to initially indicated valuations. As of 31 December 2018, 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.

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 2018, the Group has a Leadership Performance Plan, restricted shares and a Global Share Participation Plan. These plans are described in more detail in Note 15. 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 13 March 2019. This is the date on which the financial statements are available to be issued.

Adoption of new accounting standards
In May 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2014-09, "Revenue from Contracts with Customers", which creates topic 606, "Revenue from Contracts with Customers". ASU 2014-09 outlines the principles that an entity should follow to provide useful information about the amount, timing and uncertainty of revenue and cash flows arising from contracts with its customers. The standard requires an entity to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. Insurance contracts and financial instruments are not in the scope of the new standard. The Group adopted ASU 2014-09 on 1 January 2018 together with the following ASUs related to topic 606: ASU 2016-08 "Principal versus Agent Considerations (Reporting Revenue Gross versus Net)", ASU 2016-10 "Identifying Performance Obligations and Licensing", ASU 2016-12 "Narrow-Scope Improvements and Practical Expedients" and ASU 2016-20 "Technical Corrections and Improvements to Topic 606". The retrospective adoption of ASU 2014-09 and related ASUs did not have a material impact on the Group's financial statements.

In January 2016, the FASB issued ASU 2016-01, "Recognition and Measurement of Financial Assets and Financial Liabilities", an update to subtopic 825-10, "Financial Instruments – Overall". The ASU requires the Group to carry investments in equity securities, including partnerships, unincorporated joint ventures and limited liability companies at fair value through earnings, with the exception of equity method investments, investments that result in consolidation or investments for which the measurement alternative has been elected. The Group did not elect the measurement alternative for any of its investments. For financial liabilities to which the fair value option has been applied, the ASU requires an entity to separately present the change in fair value attributable to instrument-specific credit risk in other comprehensive income (OCI) rather than in net income. In addition, the ASU requires an entity to assess whether a valuation allowance is needed on a deferred tax asset (DTA) related to fixed income securities available-for-sale in combination with the entity's other DTAs rather than separately from other DTAs. The Group adopted ASU 2016-01 on 1 January 2018 together with ASU 2018-03, "Technical Corrections and Improvements to Financial Instruments – Overall (Subtopic 825-10)". The opening balance sheet impact from the adoption was a reclassification within shareholders' equity from net unrealised investment gains, net of tax, to retained earnings of USD 347 million. In addition, USD 5 million were reclassified from retained earnings to credit risk of financial liabilities at fair value option, net of tax. These reclassifications can be found in the statement of shareholders' equity. The impact on pre-tax earnings in 2018 due to the adoption of ASU 2016-01 was an estimated net realised investment loss of USD 599 million.

In August 2016, the FASB issued ASU 2016-15, "Classification of Certain Cash Receipts and Cash Payments", a consensus of the FASB Emerging Issues Task Force (EITF) to topic 230, "Statement of Cash Flows". ASU 2016-15 provides guidance on eight issues related to the presentation and classification of cash receipts and cash payments in the statement of cash flows with the objective of reducing existing diversity in practice. The Group adopted ASU 2016-15 retrospectively on 1 January 2018. The adoption did not have a material impact on the Group's statement of cash flows.

In October 2016, the FASB issued ASU 2016-16, "Intra-Entity Transfers of Assets Other Than Inventory", an update to topic 740, "Income Taxes". This ASU amends the former guidance which prohibited the recognition of current and deferred income taxes for an intra-entity asset transfer until the asset had been sold to an outside party. This new standard requires that an entity recognises the income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs. The Group adopted ASU 2016-16 on 1 January 2018 on a modified retrospective basis through a cumulative-effect adjustment directly to retained earnings as of the adoption date. The adoption resulted in an increase of net unrealised investment gains/losses, net of tax, of USD 44 million against a reduction of deferred tax of USD 41 million and retained earnings of USD 3 million. The movements in equity related to the adoption of ASU 2016-16 can be found in the statement of shareholders' equity. The impact on earnings in 2018 due to the adoption of ASU 2016-16 was a tax benefit of USD 68 million.

In November 2016, the FASB issued ASU 2016-18, "Restricted Cash", a consensus of the FASB EITF to topic 230, "Statement of Cash Flows". The update requires that the statement of cash flows explains the change during the period in the total of cash, cash equivalents and restricted cash and restricted cash equivalents. Restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The Group adopted ASU 2016-18 retrospectively on 1 January 2018. The adoption did not have a material impact on the Group's financial statements.

In February 2017, the FASB issued ASU 2017-05, "Clarifying the Scope of Asset Derecognition Guidance and Accounting for Partial Sales of Nonfinancial Assets", an update to subtopic 610-20, "Other Income – Gains and Losses from the Derecognition of Nonfinancial Assets". This update clarifies and provides guidance on the scope of subtopic 610-20 including financial assets meeting the definition of an in-substance non-financial asset. The Group adopted ASU 2017-05 retrospectively on 1 January 2018. The adoption did not have an impact on the Group's financial statements.

In March 2017, the FASB issued ASU 2017-07, "Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost", an update to topic 715, "Compensation – Retirement Benefits". The amendments in this update require that an employer separates other components of net benefit cost from the service cost component and presents these components outside a subtotal of income from operations, if one is presented. Further, the ASU only allows the service cost component of net benefit cost to be capitalised. The Group adopted ASU 2017-07 retrospectively on 1 January 2018. The adoption did not have a material impact on the Group's financial statements.

In May 2017, the FASB issued ASU 2017-09, "Scope of Modification Accounting", an update to topic 718, "Compensation – Stock Compensation". The amendments in this update provide guidance about which changes to the terms or conditions of a share-based payment award require to apply modification accounting under topic 718. The Group adopted ASU 2017-09 on 1 January 2018. The adoption did not have an impact on the Group's financial statements.

In February 2018, the FASB issued ASU 2018-02, "Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income", an update to topic 220, "Income Statement – Reporting Comprehensive Income". The ASU allows a reclassification from accumulated other comprehensive income to retained earnings of stranded tax effects resulting from the Tax Cuts and Jobs Act. The Group early adopted ASU 2018-02 on 1 January 2018. The adoption resulted in a reclassification within shareholders' equity of USD 159 million of stranded tax charges from accumulated other comprehensive income to retained earnings. The reclassification can be found in the statement of shareholders' equity.

Future 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 current guidance. The Group will adopt this ASU on 1 January 2019. The expected impact from the adoption is a net balance sheet gross-up of approximately USD 0.5 billion. Further, deferred gains carried on the balance sheet and amortised over time under the existing sale-leaseback guidance (estimated to be approximately USD 97 million as of 1 January 2019) will be released as a cumulative-effect adjustment to opening retained earnings as of 1 January 2019.

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. For financial instruments that are measured at amortised cost and available-for-sale debt securities, the standard requires that an entity recognises its estimate of expected credit losses as an allowance. The ASU is effective for annual and interim periods beginning after 15 December 2020. Early adoption is permitted. 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 at the impairment testing date of its assets and liabilities (including unrecognised assets and liabilities) 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. The new requirements are effective for goodwill impairment tests in annual and interim periods beginning after 15 December 2020. Early adoption 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 non-participating traditional and limited-payment insurance and reinsurance contracts. The effect of updating cash flow assumptions will be measured on a retrospective catch-up basis and presented separately from the ongoing policyholder benefit expense in the statement of operations in the period the update is made. 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. An upper-medium-grade fixed-income instrument yield will be required, which differs from the current requirement to use a discount rate reflecting expected investment yields. Further, a locked-in rate will be used in the periodic calculation of the net premium ratio and accretion of interest on the liability for income statement purposes. For balance sheet remeasurement purposes, the discount rate will be updated at each reporting date, with the effect of discount rate changes on the liability recorded immediately in OCI. 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, and the resulting amortisation amount should not be a function of revenue or profit. The new standard also introduces a new category called market risk benefits, which are features that protect the contract holder from capital market risk and expose the insurer to that risk. These features have to be measured at fair value, with changes in own credit risk recognised in OCI, and presented separately in the primary financial statements. The ASU also requires significant additional disclosures, including disaggregated roll forwards of the liability for future policy benefits, policyholder account balances, market risk benefits and DAC. The ASU is effective for annual and interim periods beginning after 15 December 2020. Early adoption of the amendments is permitted. The new guidance relating to measurement of the traditional and limited-payment contract liabilities and DAC amortisation has to be adopted under a modified retrospective transition approach, with an option to elect a full retrospective transition if certain criteria are met. Under the modified retrospective approach, for contracts in force at the transition date, an entity would continue to use the existing locked-in investment yield interest rate assumptions to calculate the net premium ratio. However, for balance sheet measurement purposes, policyholder liabilities are discounted at the upper-medium-grade fixed-income instrument yield at the transition date, with the impact of the change recognised against accumulated OCI. The Group is currently assessing the impact of the new requirements.

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.

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

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Group items	Consolidation	Total
Revenues							
Gross premiums written	16 544	13 313	4 193	1 761		–1 036	34 775
Net premiums written	16 031	11 826	3 600	859			32 316
Change in unearned premiums	636	25	51	91			803
Premiums earned	16 667	11 851	3 651	950			33 119
Fee income from policyholders		129		457			586
Net investment income – non-participating business	1 017	1 308	161	1 193	184	–155	3 708
Net realised investment gains/losses – non-participating business	613	591	128	133	262		1 727
Net investment result – unit-linked and with-profit business		81		3 234			3 315
Other revenues	48	3	5	2	359	–385	32
Total revenues	18 345	13 963	3 945	5 969	805	–540	42 487
Expenses							
Claims and claim adjustment expenses	–13 172		–3 558				–16 730
Life and health benefits		–9 211		–1 872			–11 083
Return credited to policyholders		–119		–3 179			–3 298
Acquisition costs	–4 253	–2 064	–554	–106			–6 977
Operating expenses	–1 159	–754	–759	–514	–474	352	–3 308
Total expenses before interest expenses	–18 584	–12 148	–4 871	–5 671	–474	352	–41 396
Income/loss before interest and income tax expense/benefit	–239	1 815	–926	298	331	–188	1 091
Interest expenses	–280	–315	–23	–35	–101	188	–566
Income/loss before income tax expense/benefit	–519	1 500	–949	263	230	0	525
Income tax expense/benefit	125	–360	203	–102	2		–132
Net income/loss before attribution of non-controlling interests	–394	1 140	–746	161	232	0	393
Income/loss attributable to non-controlling interests			5				5
Net income/loss after attribution of non-controlling interests	–394	1 140	–741	161	232	0	398
Interest on contingent capital instruments, net of tax	–19	–48					–67
Net income/loss attributable to common shareholders	–413	1 092	–741	161	232	0	331
Claims ratio in %	79.0		97.4				82.3
Expense ratio in %	32.5		36.0				33.1
Combined ratio in %	111.5		133.4				115.4
Management expense ratio in %		5.7					
Net operating margin in %	–1.3	13.1	–23.5	10.9			2.8

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 – 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 in %		5.4					
Net operating margin in %	4.3	9.4	–11.1	3.9			2.9

Business segments – balance sheet
As of 31 December

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Group items	Consolidation	Total
Assets							
Fixed income securities	34 189	32 642	8 356	26 528	71		101 786
Equity securities	1 893	945	455	32	540		3 865
Other investments	14 460	3 212	191	2 697	5 530	–9 856	16 234
Short-term investments	1 608	996	482	1 711	49		4 846
Investments for unit-linked and with-profit business		585		34 581			35 166
Cash and cash equivalents	1 334	1 595	654	2 959	264		6 806
Deferred acquisition costs	2 146	4 234	454	37			6 871
Acquired present value of future profits		921		1 068			1 989
Reinsurance recoverable	2 541	4 638	5 737	5 200		–10 174	7 942
Other reinsurance assets	10 293	10 669	2 477	7 666	2	–8 118	22 989
Goodwill	1 944	1 873	213	142			4 172
Other	10 067	2 249	1 717	2 100	1 819	–8 092	9 860
Total assets	80 475	64 559	20 736	84 721	8 275	–36 240	222 526
Liabilities							
Unpaid claims and claim adjustment expenses	45 276	12 129	11 818	2 308		–4 736	66 795
Liabilities for life and health policy benefits		18 230	279	29 491		–5 439	42 561
Policyholder account balances		1 574		35 963			37 537
Other reinsurance liabilities	10 245	5 528	4 177	4 410	2	–8 448	15 914
Short-term debt	807	4 766		904	60	–6 104	433
Long-term debt	3 500	6 914	497	1 603		–2 366	10 148
Other	9 891	7 197	1 411	2 954	2 538	–9 147	14 844
Total liabilities	69 719	56 338	18 182	77 633	2 600	–36 240	188 232
Shareholders' equity	10 755	8 221	2 385	7 088	5 675	0	34 124
Non-controlling interests	1		169				170
Total equity	10 756	8 221	2 554	7 088	5 675	0	34 294
Total liabilities and equity	80 475	64 559	20 736	84 721	8 275	–36 240	222 526

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**

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

For the year ended 31 December

2017 USD millions	Property	Casualty	Specialty	Unallocated	Total
Revenues					
Gross premiums written	6 505	7 715	2 324		16 544
Net premiums written	6 115	7 665	2 251		16 031
Change in unearned premiums	140	435	61		636
Premiums earned	6 255	8 100	2 312		16 667
Net investment income				1 017	1 017
Net realised investment gains/losses				613	613
Other revenues				48	48
Total revenues	6 255	8 100	2 312	1 678	18 345
Expenses					
Claims and claim adjustment expenses	–5 635	–6 041	–1 496		–13 172
Acquisition costs	–1 228	–2 414	–611		–4 253
Operating expenses	–636	–356	–167		–1 159
Total expenses before interest expenses	–7 499	–8 811	–2 274	0	–18 584
Income/loss before interest and income tax expense	–1 244	–711	38	1 678	–239
Interest expenses				–280	–280
Income/loss before income tax expense	–1 244	–711	38	1 398	–519
Claims ratio in %	90.1	74.6	64.7		79.0
Expense ratio in %	29.8	34.2	33.7		32.5
Combined ratio in %	119.9	108.8	98.4		111.5

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

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

For the year ended 31 December

2017 USD millions	Life	Health	Unallocated	Total
Revenues				
Gross premiums written	9 525	3 788		13 313
Net premiums written	8 138	3 688		11 826
Change in unearned premiums	79	–54		25
Premiums earned	8 217	3 634		11 851
Fee income from policyholders	129			129
Net investment income – non-participating business	1 023	285		1 308
Net realised investment gains/losses – non-participating business	57	–1	535	591
Net investment result – unit-linked and with-profit business	81			81
Other revenues	3			3
Total revenues	9 510	3 918	535	13 963
Expenses				
Life and health benefits	–6 491	–2 720		–9 211
Return credited to policyholders	–119			–119
Acquisition costs	–1 432	–632		–2 064
Operating expenses	–533	–221		–754
Total expenses before interest expenses	–8 575	–3 573	0	–12 148
Income before interest and income tax expense	935	345	535	1 815
Interest expenses			–315	–315
Income before income tax expense	935	345	220	1 500
Management expense ratio in %	5.7	5.6		5.7
Net operating margin[1] in %	9.9	8.8		13.1

[1] 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

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 in %	5.2	5.6		5.4
Net operating margin[1] in %	7.3	8.2		9.4

[1] 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	2017	2018
Americas	16 101	16 075
Europe (including Middle East and Africa)	10 546	11 044
Asia-Pacific	7 058	7 342
Total	33 705	**34 461**

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

USD millions	2017	2018
United States	13 509	13 519
United Kingdom	3 382	3 487
Australia	2 095	2 061
China	1 933	1 644
Japan	1 168	1 426
Germany	1 258	1 226
Canada	1 137	1 209
Switzerland	886	952
Netherlands	502	837
France	730	789
Ireland	673	685
Other	6 432	6 626
Total	33 705	**34 461**

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

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Premiums earned, thereof:					
Direct		55	3 229	1 465	4 749
Reinsurance	16 901	12 829	862	128	30 720
Intra-group transactions (assumed and ceded)	137	315	–137	–315	0
Premiums earned before retrocession to external parties	17 038	13 199	3 954	1 278	35 469
Retrocession to external parties	–371	–1 348	–303	–328	–2 350
Net premiums earned	16 667	11 851	3 651	950	33 119
Fee income from policyholders, thereof:					
Direct				362	362
Reinsurance		130		95	225
Gross fee income before retrocession to external parties		130		457	587
Retrocession to external parties		–1			–1
Net fee income	0	129	0	457	586

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**

Claims and claim adjustment expenses

For the year ended 31 December

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Claims paid, thereof:					
Gross claims paid to external parties	–9 866	–9 505	–2 571	–3 170	–25 112
Intra-group transactions (assumed and ceded)	–177	–226	177	226	0
Claims before receivables from retrocession to external parties	–10 043	–9 731	–2 394	–2 944	–25 112
Retrocession to external parties	279	1 162	192	357	1 990
Net claims paid	–9 764	–8 569	–2 202	–2 587	–23 122
Change in unpaid claims and claim adjustment expenses; life and health benefits, thereof:					
Gross – with external parties	–3 791	–533	–1 016	727	–4 613
Intra-group transactions (assumed and ceded)	365	–53	–365	53	0
Unpaid claims and claim adjustment expenses; life and health benefits before impact of retrocession to external parties	–3 426	–586	–1 381	780	–4 613
Retrocession to external parties	18	–56	25	–65	–78
Net unpaid claims and claim adjustment expenses; life and health benefits	–3 408	–642	–1 356	715	–4 691
Claims and claim adjustment expenses; life and health benefits	–13 172	–9 211	–3 558	–1 872	–27 813

Acquisition costs

For the year ended 31 December

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Acquisition costs, thereof:					
Gross acquisition costs with external parties	–4 297	–2 277	–621	–155	–7 350
Intra-group transactions (assumed and ceded)	–19	–12	19	12	0
Acquisition costs before impact of retrocession to external parties	–4 316	–2 289	–602	–143	–7 350
Retrocession to external parties	63	225	48	37	373
Net acquisition costs	–4 253	–2 064	–554	–106	–6 977

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**

Reinsurance recoverable on unpaid claims and policy benefits

As of 31 December 2017 and 2018, the Group had a reinsurance recoverable of USD 7 942 million and USD 7 058 million, respectively. The concentration of credit risk is regularly monitored and evaluated. The reinsurance programme with Berkshire Hathaway and subsidiaries accounted for 34% and 29% of the Group's reinsurance recoverable as of year-end 2017 and 2018, respectively.

Reinsurance receivables

Reinsurance receivables as of 31 December were as follows:

USD millions	2017	**2018**
Premium receivables invoiced	3 135	3 041
Receivables invoiced from ceded re/insurance business	427	445
Assets arising from the application of the deposit method of accounting and meeting the definition of financing receivables	147	124
Recognised allowance	–71	–58

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 2017 and 2018 was 10% and 9%, respectively. The amount of policyholder dividend expense in 2017 and 2018 was USD 194 million and USD 245 million, respectively. The Group revised the presentation of policyholder dividend expense. Comparative information for 2017 has been adjusted accordingly.

This page is intentionally left blank.

4 Premiums written

For the years ended 31 December

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Consolidation	Total
Gross premiums written, thereof:						
Direct		55	3 279	1 489		4 823
Reinsurance	16 290	12 732	802	128		29 952
Intra-group transactions (assumed)	254	526	112	144	–1 036	0
Gross premiums written	16 544	13 313	4 193	1 761	–1 036	34 775
Intra-group transactions (ceded)	–112	–144	–254	–526	1 036	0
Gross premiums written before retrocession to external parties	16 432	13 169	3 939	1 235		34 775
Retrocession to external parties	–401	–1 343	–339	–376		–2 459
Net premiums written	16 031	11 826	3 600	859	0	32 316

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**

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	2017	**2018**
Balance as of 1 January	57 355	66 795
Reinsurance recoverable	–4 044	–4 458
Deferred expense on retroactive reinsurance	–211	–240
Net balance as of 1 January	53 100	**62 097**
Incurred related to:		
Current year[1]	28 827	27 457
Prior year[1]	–534	42
Amortisation of deferred expense on retroactive reinsurance and impact of commutations	–5	–41
Total incurred	28 288	**27 458**
Paid related to:		
Current year	–8 859	–9 344
Prior year	–14 263	–15 501
Total paid	–23 122	**–24 845**
Foreign exchange	2 653	–1 748
Effect of acquisitions, disposals, new retroactive reinsurance and other items	1 178	709
Net balance as of period end	62 097	**63 671**
Reinsurance recoverable	4 458	3 606
Deferred expense on retroactive reinsurance	240	169
Balance as of period end	66 795	**67 446**

[1] The Group revised its methodology for determining the prior-year net claims and claim adjustment expenses development on a certain health business. Comparative information for 2017 has been amended accordingly.

Prior-year development

Non-life claims development during 2018 on prior years includes favourable development on property and specialty, partially offset by adverse development on casualty. The favourable development on property and specialty is mainly related to the natural catastrophe events in North America and wildfires in California that occurred in 2017. Casualty includes adverse development for motor and liability lines of business.

For the life and health business, the adverse claims development on prior-year business was across a number of lines of business, in particular the individual life and disability portfolios in the US and the group disability portfolio in Australia. This was partially offset by positive experience in other regions, including Continental Europe and Asia. Claims development related to prior years also includes an element of interest accretion for unpaid claims reported at the estimated present value.

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:

USD millions	2017	**2018**
Line of business:		
Property	–555	–340
Casualty	–67	428
Specialty	–178	–295
Life and health[1]	266	249
Total	–534	**42**

[1] The Group revised its methodology for determining the prior-year net claims and claim adjustment expenses development on a certain health business. Comparative information for 2017 has been amended accordingly.

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 2018, the Group carried net reserves for US asbestos and environmental liabilities equal to USD 1 860 million. During 2018, the Group incurred net losses of USD 141 million and paid net against these liabilities of USD 111 million. Incurred claims include a settlement with one cedent on reported asbestos and environmental claims.

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. For the year-end 2018, 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 229).

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	Reporting year										
Accident year	2009	2010	2011	2012	2013	2014	2015	2016	2017	**2018**	**thereof IBNR**
2009	*2 341*	*2 356*	*2 237*	*2 194*	*2 172*	*2 170*	*2 168*	*2 170*	*2 141*	2 148	12
2010		*2 521*	*2 469*	*2 338*	*2 357*	*2 441*	*2 483*	*2 590*	*2 563*	2 523	29
2011			*4 303*	*4 354*	*4 168*	*4 222*	*4 174*	*4 169*	*4 187*	4 224	13
2012				*2 696*	*2 524*	*2 324*	*2 281*	*2 252*	*2 236*	2 237	8
2013					*3 130*	*3 146*	*2 972*	*2 887*	*2 865*	2 849	1
2014						*2 732*	*2 572*	*2 393*	*2 361*	2 358	4
2015							*2 830*	*2 764*	*2 594*	2 562	67
2016								*3 902*	*3 627*	3 333	40
2017	*RSI*								*6 032*	5 937	598
2018										4 656	2 604
Total										**32 827**	**3 376**

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

USD millions	Reporting year									
Accident year	2009	2010	2011	2012	2013	2014	2015	2016	2017	**2018**
2009	*559*	*1 608*	*1 924*	*2 026*	*2 076*	*2 097*	*2 107*	*2 118*	*2 103*	2 110
2010		*389*	*1 511*	*1 805*	*1 914*	*2 110*	*2 263*	*2 405*	*2 448*	2 461
2011			*671*	*2 394*	*3 197*	*3 635*	*3 917*	*4 018*	*4 138*	4 159
2012				*239*	*1 591*	*1 981*	*2 101*	*2 144*	*2 164*	2 175
2013					*541*	*1 999*	*2 504*	*2 698*	*2 758*	2 780
2014						*464*	*1 708*	*2 089*	*2 218*	2 262
2015							*467*	*1 654*	*2 172*	2 338
2016								*636*	*2 210*	2 842
2017	*RSI*								*980*	3 672
2018										634
Total										**25 433**
All liabilities before 2009										139
Liabilities for claims and claim adjustment expenses, net of reinsurance										**7 533**

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)	*17.4%*	*48.6%*	*17.0%*	*6.2%*	*3.8%*	*2.2%*	*2.4%*	*0.9%*	*-0.1%*	*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 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	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	thereof IBNR
2009	726	861	980	937	932	910	921	930	926	880	38
2010		835	982	921	901	897	901	889	854	829	82
2011			639	696	720	668	625	621	598	584	77
2012				519	603	559	530	503	505	487	71
2013					727	750	757	752	757	747	135
2014						994	984	996	980	969	277
2015							1 264	1 312	1 397	1 467	606
2016								1 709	1 737	1 759	899
2017	RSI								1 964	2 072	1 483
2018										1 898	1 714
Total										**11 692**	**5 382**

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

USD millions	Reporting year									
Accident year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
2009	-60	88	241	365	478	586	635	682	717	720
2010		28	159	317	408	516	612	661	681	707
2011			2	107	180	249	335	381	399	428
2012				13	115	182	240	294	328	364
2013					14	126	232	347	418	493
2014						23	157	291	400	546
2015							34	209	400	627
2016								46	223	497
2017	RSI								50	252
2018										52
Total										**4 686**
All liabilities before 2009										908
Liabilities for claims and claim adjustment expenses, net of reinsurance										**7 914**

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)	1.4%	14.7%	14.9%	13.0%	12.7%	9.8%	5.5%	4.2%	3.6%	0.3%

The increase in the incurred losses for accident years 2013 to 2018 is driven by volume increases of business being written. The increases in the incurred losses in reporting year 2018 for accident years 2015 to 2017 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	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	thereof IBNR
2009	509	520	426	425	385	351	327	313	311	304	27
2010		521	436	400	375	354	333	324	311	315	39
2011			401	430	467	426	382	349	336	332	56
2012				329	347	308	280	259	251	241	59
2013					406	388	353	298	270	252	89
2014						432	437	405	362	342	146
2015							1 754	1 793	1 762	1 787	199
2016								585	540	524	250
2017	RSI								494	508	326
2018										450	428
Total										**5 055**	**1 619**

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

USD millions	Reporting year									
Accident year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
2009	–14	12	32	55	93	155	178	186	195	202
2010		1	11	35	52	87	104	123	158	160
2011			1	9	65	111	138	145	168	181
2012				–4	11	35	53	84	106	136
2013					–2	11	36	59	82	118
2014						–2	8	40	73	118
2015							0	89	193	345
2016								13	145	106
2017	RSI								–2	18
2018										–1
Total										**1 383**
All liabilities before 2009										5 179
Liabilities for claims and claim adjustment expenses, net of reinsurance										**8 851**

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)	-0.5%	7.0%	7.3%	8.8%	11.1%	10.3%	8.2%	5.9%	1.8%	2.3%

The increase in incurred losses for accident year 2015 compared to other years is due to an increase in volume of business written. Liabilities before 2009 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	2009	2010	2011	2012	2013	2014	2015	2016	2017	**2018**	**thereof IBNR**
2009	*347*	*370*	*347*	*342*	*338*	*329*	*324*	*317*	*311*	310	24
2010		*274*	*226*	*231*	*220*	*217*	*219*	*211*	*206*	202	24
2011			*228*	*248*	*245*	*236*	*239*	*234*	*234*	230	28
2012				*324*	*334*	*319*	*310*	*306*	*300*	298	33
2013					*344*	*351*	*338*	*328*	*321*	318	48
2014						*302*	*335*	*327*	*316*	305	61
2015							*434*	*432*	*410*	400	75
2016								*592*	*626*	621	202
2017	*RSI*								*733*	767	354
2018										723	376
Total										**4 174**	**1 225**

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

USD millions	Reporting year									
Accident year	2009	2010	2011	2012	2013	2014	2015	2016	2017	**2018**
2009	*31*	*136*	*192*	*216*	*234*	*247*	*253*	*258*	*262*	265
2010		*25*	*84*	*115*	*130*	*138*	*145*	*149*	*156*	158
2011			*48*	*120*	*142*	*152*	*161*	*165*	*175*	177
2012				*77*	*177*	*203*	*219*	*229*	*238*	242
2013					*54*	*139*	*180*	*203*	*216*	224
2014						*30*	*103*	*145*	*173*	190
2015							*62*	*138*	*190*	223
2016								*74*	*178*	271
2017	*RSI*								*96*	232
2018										98
Total										**2 080**
All liabilities before 2009										2 865
Liabilities for claims and claim adjustment expenses, net of reinsurance										**4 959**

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)	*14.9%*	*25.8%*	*13.3%*	*7.1%*	*4.4%*	*3.0%*	*2.4%*	*2.0%*	*1.1%*	*1.0%*

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 2009 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	2009	2010	2011	2012	2013	2014	2015	2016	2017	**2018**	**thereof IBNR**
2009	650	646	711	736	723	719	721	719	718	716	–5
2010		591	652	691	697	695	697	697	695	695	–1
2011			998	994	965	922	925	924	922	914	–23
2012				1 487	1 477	1 461	1 449	1 440	1 438	1 435	28
2013					1 554	1 528	1 535	1 509	1 502	1 497	14
2014						1 996	1 959	1 958	1 941	1 931	–2
2015							1 916	1 916	1 920	1 924	25
2016								2 478	2 594	2 644	147
2017	RSI								2 373	2 391	476
2018										2 032	1 149
Total										**16 179**	**1 808**

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

USD millions	Reporting year									
Accident year	2009	2010	2011	2012	2013	2014	2015	2016	2017	**2018**
2009	141	385	585	619	631	682	691	693	696	699
2010		198	453	537	573	651	660	669	673	676
2011			266	670	852	885	904	913	921	924
2012				474	1 104	1 265	1 314	1 345	1 366	1 378
2013					573	1 170	1 352	1 397	1 428	1 444
2014						738	1 468	1 714	1 790	1 826
2015							795	1 440	1 682	1 783
2016								821	1 816	2 163
2017	RSI								759	1 526
2018										624
Total										**13 043**
All liabilities before 2009										322
Liabilities for claims and claim adjustment expenses, net of reinsurance										**3 458**

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)	32.2%	37.8%	15.2%	4.2%	3.5%	2.4%	1.1%	0.4%	0.4%	0.4%

The increase in the incurred losses from accident year 2010 onwards 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 in 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	2009	2010	2011	2012	2013	2014	2015	2016	2017	**2018**	**thereof IBNR**
2009	*375*	*390*	*283*	*284*	*270*	*275*	*269*	*267*	*259*	261	66
2010		*325*	*288*	*283*	*269*	*262*	*255*	*246*	*243*	245	33
2011			*407*	*445*	*424*	*422*	*407*	*401*	*390*	416	107
2012				*332*	*349*	*329*	*313*	*315*	*298*	307	65
2013					*432*	*454*	*457*	*440*	*427*	432	70
2014						*408*	*441*	*436*	*435*	428	88
2015							*388*	*409*	*445*	441	118
2016								*470*	*585*	549	199
2017	*RSI*								*579*	611	276
2018										489	392
Total										**4 179**	**1 414**

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

USD millions	Reporting year									
Accident year	2009	2010	2011	2012	2013	2014	2015	2016	2017	**2018**
2009	*1*	*39*	*58*	*70*	*83*	*96*	*107*	*117*	*121*	125
2010		*5*	*22*	*48*	*67*	*83*	*100*	*113*	*120*	130
2011			*-10*	*20*	*56*	*79*	*103*	*117*	*133*	144
2012				*2*	*25*	*50*	*85*	*111*	*136*	157
2013					*7*	*85*	*149*	*194*	*220*	248
2014						*4*	*60*	*104*	*144*	187
2015							*–1*	*34*	*92*	157
2016								*8*	*65*	127
2017	*RSI*								*9*	59
2018										4
Total										**1 338**
All liabilities before 2009										2 877
Liabilities for claims and claim adjustment expenses, net of reinsurance										**5 718**

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)	*0.7%*	*10.4%*	*10.5%*	*9.1%*	*7.0%*	*6.0%*	*5.1%*	*3.1%*	*2.8%*	*1.5%*

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.

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	2009	2010	2011	2012	2013	2014	2015	2016	2017	**2018**	**thereof IBNR**
2009	*1 542*	*1 673*	*1 485*	*1 416*	*1 384*	*1 361*	*1 346*	*1 330*	*1 303*	1 293	2
2010		*1 229*	*1 241*	*1 186*	*1 160*	*1 141*	*1 110*	*1 088*	*1 090*	1 081	21
2011			*1 292*	*1 270*	*1 185*	*1 102*	*1 148*	*1 144*	*1 159*	1 152	8
2012				*959*	*1 019*	*1 040*	*1 021*	*1 021*	*1 008*	994	15
2013					*1 095*	*1 021*	*981*	*945*	*935*	912	34
2014						*1 108*	*1 100*	*999*	*972*	956	60
2015							*1 237*	*1 219*	*1 205*	1 196	116
2016								*1 286*	*1 274*	1 228	221
2017	*RSI*								*1 613*	1 535	501
2018										1 646	1 194
Total										**11 993**	**2 172**

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

USD millions	Reporting year									
Accident year	2009	2010	2011	2012	2013	2014	2015	2016	2017	**2018**
2009	*209*	*659*	*910*	*1 011*	*1 085*	*1 143*	*1 181*	*1 205*	*1 218*	1 230
2010		*197*	*467*	*659*	*759*	*837*	*952*	*973*	*992*	1 004
2011			*165*	*561*	*778*	*881*	*931*	*967*	*1 031*	1 054
2012				*127*	*444*	*679*	*770*	*827*	*869*	903
2013					*148*	*417*	*600*	*710*	*765*	801
2014						*173*	*409*	*590*	*688*	744
2015							*135*	*387*	*692*	853
2016								*143*	*477*	722
2017	*RSI*								*181*	580
2018										185
Total										**8 076**
All liabilities before 2009										658
Liabilities for claims and claim adjustment expenses, net of reinsurance										**4 575**

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%*	*28.3%*	*20.5%*	*10.1%*	*5.8%*	*5.3%*	*3.5%*	*1.9%*	*1.1%*	*0.9%*

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 2018. The 2018 accident year claims incurred include natural catastrophes and man-made losses.

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**	**thereof IBNR**	**Cumulative number of reported claims (in nominals)**
2012	*1 294*	*1 223*	*1 148*	*1 116*	*1 112*	*1 157*	1 151	55	12 805
2013		*1 593*	*1 574*	*1 504*	*1 421*	*1 407*	1 408	106	25 901
2014			*1 826*	*1 769*	*1 700*	*1 675*	1 675	215	21 085
2015				*1 885*	*2 052*	*2 091*	2 091	297	17 060
2016					*2 011*	*2 217*	2 165	460	15 959
2017	*RSI*					*3 005*	3 232	864	18 121
2018							2 697	1 276	11 667
Total							**14 419**	**3 273**	**122 598**

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

USD millions	Reporting year						
Accident year	2012	2013	2014	2015	2016	2017	**2018**
2012	*182*	*554*	*714*	*808*	*896*	*967*	1 000
2013		*272*	*666*	*935*	*1 091*	*1 158*	1 236
2014			*271*	*826*	*1 117*	*1 251*	1 349
2015				*350*	*907*	*1 293*	1 501
2016					*372*	*1 194*	1 421
2017	*RSI*					*382*	1 504
2018							416
Total							**8 427**
All liabilities before 2012							482
Liabilities for claims and claim adjustment expenses, net of reinsurance							**6 474**

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

Years	1	2	3	4	5	6	7
Corporate Solutions (RSI)	*16.1%*	*32.1%*	*15.9%*	*9.3%*	*6.1%*	*5.9%*	*2.9%*

The claims incurred increased due to general volume growth for all accident years. Incurred claims on accident years 2016 and 2017 increased due to large man-made losses as well as adverse prior year development, in particularly in casualty North America. Accident years 2017 and 2018 were significantly impacted by multiple severe large man-made losses, hurricanes in North America and the California wildfires.

Change in claim counts in 2013 and 2014 relate mostly to agriculture business written in 2013, leading to high claim counts in those years. For accident year 2017, a portion of the Accident & Health business from the IHC acquisition moved from assumed reinsurance to direct business which is driving the increase in direct claim counts in that year relative to accident year 2016.

Life & Health Reinsurance, long tail

Incurred claims and allocated claim adjustment expenses, net of reinsurance

USD millions	Reporting year											
Accident year	2009	2010	2011	2012	2013	2014	2015	2016	2017	**2018**	**thereof IBNR**	**Cumulative number of reported claims (in nominals)**
2009	*148*	*154*	*146*	*147*	*147*	*169*	*168*	*169*	*163*	164	16	4 305
2010		*184*	*185*	*181*	*204*	*204*	*216*	*191*	*187*	190	20	4 722
2011			*210*	*219*	*277*	*289*	*302*	*281*	*275*	276	29	6 621
2012				*260*	*347*	*350*	*374*	*339*	*341*	338	29	9 069
2013					*468*	*460*	*458*	*423*	*422*	424	33	11 528
2014						*458*	*418*	*398*	*399*	422	51	13 134
2015							*391*	*424*	*409*	410	64	15 528
2016								*411*	*426*	413	126	12 106
2017	*RSI*								*419*	424	208	11 126
2018										389	297	3 677
Total										**3 450**	**873**	**91 816**

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

USD millions	Reporting year									
Accident year	2009	2010	2011	2012	2013	2014	2015	2016	2017	**2018**
2009	*7*	*36*	*54*	*67*	*75*	*83*	*88*	*96*	*102*	108
2010		*8*	*39*	*61*	*78*	*91*	*102*	*111*	*119*	125
2011			*18*	*59*	*96*	*120*	*140*	*160*	*175*	188
2012				*26*	*84*	*134*	*171*	*203*	*225*	243
2013					*36*	*117*	*178*	*237*	*276*	302
2014						*31*	*104*	*190*	*250*	285
2015							*34*	*102*	*181*	229
2016								*13*	*83*	152
2017	*RSI*								*11*	72
2018										11
Total										**1 715**
All liabilities before 2009										230
Liabilities for claims and claim adjustment expenses, net of reinsurance										**1 965**

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)	*5.5%*	*16.7%*	*15.2%*	*10.9%*	*7.7%*	*6.1%*	*4.6%*	*4.6%*	*3.4%*	*3.7%*

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. In 2018 the first year incurred claims are below 2017 due to lower volume 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	2018
Net outstanding liabilities	
Property & Casualty Reinsurance	
Property	7 533
Liability, proportional	7 914
Liability, non-proportional	8 851
Accident & Health	4 959
Motor, proportional	3 458
Motor, non-proportional	5 718
Specialty	4 575
Corporate Solutions	6 474
Life & Health Reinsurance, long tail	1 965
Total net undiscounted outstanding liabilities excluding other short duration contract lines and before unallocated reinsurance recoverable	51 447
Discounting impact on (Life & Health Reinsurance) short duration contracts	–291
Impact of acquisition accounting	–554
Total net discounted outstanding liabilities excluding other short duration contract lines and before unallocated reinsurance recoverable	50 602
Other short duration contract lines	2 802
Total net discounted outstanding short duration liabilities	**53 404**
Allocated reinsurance recoverables on unpaid claims:	
Property & Casualty Reinsurance	
Property	571
Liability, proportional	324
Liability, non-proportional	266
Accident & Health	215
Motor, proportional	76
Motor, non-proportional	237
Specialty	594
Corporate Solutions	4 160
Consolidation	–4 113
Impact of acquisition accounting	–111
Other short duration contract lines	649
Total short duration reinsurance recoverable on outstanding liabilities	**2 868**
Exclusions:	
Unallocated claim adjustment expenses	994
Long duration contracts	10 180
Total other reconciling items	**11 174**
Total unpaid claims and claim adjustment expenses	**67 446**

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	2017	2018
Carrying amount of discounted claims	1 262	1 223
Aggregate amount of the discount	–291	–291
Interest accretion[1]	28	35
Range of interest rates	2.9% –3.6%	3.0% –3.6%

[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:

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Opening balance as of 1 January	2 280	3 465	444	11	6 200
Deferred	4 068	1 294	553	71	5 986
Effect of acquisitions/disposals and retrocessions		–5	2	5	2
Amortisation	–4 255	–508	–549	–67	–5 379
Effect of foreign currency translation and other changes	53	–12	4	17	62
Closing balance	2 146	4 234	454	37	6 871

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**

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:

2017 USD millions	Life & Health Reinsurance	Life Capital Positive PVFP	Life Capital Negative PVFP	Life Capital Total	Total
Opening balance as of 1 January	966	1 558	–521	1 037	2 003
Amortisation	–135	–143	45	–98	–233
Interest accrued on unamortised PVFP	52	102	–17	85	137
Effect of change in unrealised gains/losses		–1		–1	–1
Effect of foreign currency translation	38	96	–51	45	83
Closing balance	921	1 612	–544	1 068	1 989

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**

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 14%, 13%, 12%, 11% and 10%.

7 Investments

Investment income

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

USD millions	2017	2018
Fixed income securities	2 778	2 905
Equity securities	79	71
Policy loans, mortgages and other loans	148	213
Investment real estate	200	220
Short-term investments	65	62
Other current investments	118	128
Share in earnings of equity-accounted investees	100	166
Cash and cash equivalents	25	47
Net result from deposit-accounted contracts	127	250
Deposits with ceding companies	457	447
Gross investment income	4 097	**4 509**
Investment expenses	–380	–419
Interest charged for funds held	–9	–15
Net investment income – non-participating business	3 708	**4 075**

Dividends received from investments accounted for using the equity method were USD 170 million and USD 170 million for 2017 and 2018, respectively.

Share in earnings of equity-accounted investees included impairments of the carrying amount of equity-accounted investees of USD 46 million for 2017.

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	2017	2018
Fixed income securities available-for-sale:		
Gross realised gains	748	526
Gross realised losses	–148	–225
Equity securities available-for-sale:		
Gross realised gains[1]	959	
Gross realised losses[1]	–28	
Other-than-temporary impairments	–46	–9
Net realised investment gains/losses on equity securities[1]		21
Change in net unrealised investment gains/losses on equity securities[1]		–483
Net realised investment gains/losses on trading securities	27	–69
Change in net unrealised investment gains/losses on trading securities	3	39
Net realised/unrealised gains/losses on other investments	–8	117
Net realised/unrealised gains/losses on insurance-related activities	99	97
Foreign exchange gains/losses	121	51
Net realised investment gains/losses – non-participating business	1 727	**65**

[1] Change due to ASU 2016-01. Please refer to Note 1 for more details.

Net realised/unrealised gains/losses on insurance-related activities included impairments of USD 11 million and USD 7 million for 2017 and 2018, 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	Unit-linked	2017 With-profit	Unit-linked	2018 With-profit
Investment income – fixed income securities	69	120	68	120
Investment income – equity securities	705	69	715	72
Investment income – other	20	11	17	10
Total investment income – unit-linked and with-profit business	794	200	**800**	**202**
Realised gains/losses – fixed income securities	–12	12	–61	–140
Realised gains/losses – equity securities	2 094	191	–2 124	–257
Realised gains/losses – other	28	8	–14	1
Total realised gains/losses – unit-linked and with-profit business	2 110	211	**–2 199**	**–396**
Total net investment result – unit-linked and with-profit business	2 904	411	**–1 399**	**–194**

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	2017	2018
Balance as of 1 January	97	91
Credit losses for which an other-than-temporary impairment was not previously recognised	14	5
Reductions for securities sold during the period	–24	–12
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	4	2
Impact of increase in cash flows expected to be collected	–4	–4
Impact of foreign exchange movements	4	–2
Balance as of 31 December	91	**80**

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:

2017 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	14 397	273	–152		14 518
US Agency securitised products	5 884	18	–66		5 836
States of the United States and political subdivisions of the states	1 620	108	–7		1 721
United Kingdom	8 699	1 378	–31		10 046
Germany	3 193	239	–22		3 410
Canada	3 969	543	–30		4 482
France	2 015	252	–10		2 257
Australia	2 065	16	–4		2 077
Other	7 655	318	–76		7 897
Total	49 497	3 145	–398		52 244
Corporate debt securities	39 510	3 218	–136		42 592
Mortgage- and asset-backed securities	4 271	162	–19	–2	4 412
Fixed income securities available-for-sale	93 278	6 525	–553	–2	99 248
Equity securities available-for-sale	3 544	365	–47		3 862

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
Australia	1 658	14	–3		1 669
Other	9 026	273	–135		9 164
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**

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 2017 and 2018.

2017 USD millions	Less than 12 months Fair value	 Unrealised losses	12 months or more Fair value	 Unrealised losses	Total Fair value	 Unrealised losses
Debt securities issued by governments and government agencies:						
US Treasury and other US government corporations and agencies	9 742	113	1 825	39	11 567	152
US Agency securitised products	3 773	37	1 029	29	4 802	66
States of the United States and political subdivisions of the states	304	4	120	3	424	7
United Kingdom	1 161	18	301	13	1 462	31
Germany	722	19	44	3	766	22
Canada	1 766	29	276	1	2 042	30
France	214	8	7	2	221	10
Australia	1 118	3	74	1	1 192	4
Other	2 813	54	451	22	3 264	76
Total	21 613	285	4 127	113	25 740	398
Corporate debt securities	6 299	102	1 040	34	7 339	136
Mortgage- and asset-backed securities	1 617	14	421	7	2 038	21
Total	29 529	401	5 588	154	35 117	555

2018 USD millions	Less than 12 months Fair value	 Unrealised losses	12 months or more Fair value	 Unrealised losses	Total Fair value	 Unrealised losses
Debt securities issued by governments and government agencies:						
US Treasury and other US government corporations and agencies	1 157	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
Australia	509	2	21	1	530	3
Other	2 280	68	1 149	67	3 429	135
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**

As of 31 December 2017, USD 40 million of the gross unrealised loss on equity securities available-for-sale relates to declines in value for less than 12 months and USD 7 million to declines in value for more than 12 months.

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 2017 and 2018, USD 17 742 million and USD 18 601 million, respectively, of fixed income securities available-for-sale were callable.

USD millions	2017 Amortised cost or cost	2017 Estimated fair value	2018 Amortised cost or cost	2018 Estimated fair value
Due in one year or less	7 399	7 410	10 449	10 379
Due after one year through five years	29 459	29 724	24 547	24 614
Due after five years through ten years	15 921	16 652	16 183	16 471
Due after ten years	36 550	41 370	34 749	37 262
Mortgage- and asset-backed securities with no fixed maturity	3 949	4 092	3 745	3 812
Total fixed income securities available-for-sale	93 278	99 248	**89 673**	**92 538**

Investments trading and at fair value through earnings

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

USD millions	2017	2018
Debt securities issued by governments and government agencies	2 414	3 314
Corporate debt securities	38	37
Mortgage- and asset-backed securities	86	63
Fixed income securities trading – non-participating business	2 538	**3 414**
Equity securities trading – non-participating business[1]	3	
Equity securities at fair value through earnings – non-participating business[1]		**3 036**

[1] Change due to ASU 2016-01. Please refer to Note 1 for more details.

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:

USD millions	2017 Unit-linked	2017 With-profit	2018 Unit-linked	2018 With-profit
Fixed income securities trading	2 105	3 104	2 253	2 685
Equity securities trading[1]	26 582	2 201		
Equity securities at fair value through earnings[1]			21 326	1 797
Investment real estate	543	281	537	230
Other	286	64	702	16
Total investments for unit-linked and with-profit business	29 516	5 650	**24 818**	**4 728**

[1] Change due to ASU 2016-01. Please refer to Note 1 for more details.

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:

USD millions	2017 Carrying value	2017 Fair value	2018 Carrying value	2018 Fair value
Policy loans	94	94	84	84
Mortgage loans	2 665	2 674	2 890	2 882
Other loans	1 351	1 367	1 568	1 587
Investment real estate	2 220	4 099	2 411	4 307

Depreciation expense related to investment real estate was USD 49 million and USD 57 million for 2017 and 2018, respectively. Accumulated depreciation on investment real estate totalled USD 585 million and USD 609 million as of 31 December 2017 and 2018, respectively.

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

Other financial assets and liabilities by measurement category

As of 31 December 2017 and 2018, "Other invested assets" and "Accrued expenses and other liabilities" by measurement category were as follows:

2017 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	527					527
Reverse repurchase agreements			3 058			3 058
Securities lending/borrowing	776		1 065			1 841
Equity-accounted investments	446			2 446		2 892
Other	63	828	695			1 586
Other invested assets	1 812	828	4 818	2 446	0	9 904
Accrued expenses and other liabilities						
Derivative financial instruments	582					582
Repurchase agreements			160			160
Securities lending	778		51			829
Securities sold short	1 947					1 947
Other			835		2 837	3 672
Accrued expenses and other liabilities	3 307	0	1 046	0	2 837	7 190

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**

[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:

2017 USD millions	Gross amounts of recognised financial assets	Collateral 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	1 710	–1 176	534		534
Reverse repurchase agreements	6 053	–2 995	3 058	–3 058	0
Securities borrowing	1 589	–524	1 065	–1 065	0
Total	9 352	–4 695	4 657	–4 123	534

2017 USD millions	Gross amounts of recognised financial liabilities	Collateral 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	–1 924	1 342	–582	49	–533
Repurchase agreements	–2 631	2 471	–160	160	0
Securities lending	–1 878	1 049	–829	765	–64
Total	–6 433	4 862	–1 571	974	–597

2018 USD millions	Gross amounts of recognised financial assets	Collateral 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	Collateral 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**

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 2017 and 2018, investments with a carrying value of USD 7 384 million and USD 5 776 million, respectively, were on deposit with regulatory agencies in accordance with local requirements, of which USD 147 million and USD 277 million, respectively, were cash and cash equivalents. As of 31 December 2017 and 2018, investments with a carrying value of USD 12 209 million and USD 12 959 million, respectively, were placed on deposit or pledged to secure certain reinsurance liabilities, including pledged investments in subsidiaries, of which USD 247 million and USD 404 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 2017 and 2018, securities of USD 15 740 million and USD 15 850 million, respectively, were transferred to third parties under securities lending transactions and repurchase agreements on a fully collateralised basis. Corresponding liabilities of USD 989 million and USD 941 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 repledge.

As of 31 December 2017 and 2018, a real estate portfolio with a carrying value of USD 192 million and USD 191 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 2017 and 2018, the fair value of the equity securities, government and corporate debt securities received as collateral was USD 7 476 million and USD 4 239 million, respectively. Of this, the amount that was sold or repledged as of 31 December 2017 and 2018 was USD 1 981 million and USD 1 721 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 that the Group has the right to sell or repledge

As of 31 December 2017 and 2018, 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. The liabilities are recognised for the obligation to return collateral that the Group has the right to sell or repledge.

2017 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	31	2 091	354	139	2 615
Corporate debt securities		16			16
Total repurchase agreements	31	2 107	354	139	2 631
Securities lending					
Debt securities issued by governments and government agencies	244	567	614	442	1 867
Corporate debt securities	6				6
Equity securities	5				5
Total securities lending	**255**	**567**	**614**	**442**	**1 878**
Gross amount of recognised liabilities for repurchase agreements and securities lending					4 509

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
Equity securities					0
Total securities lending	**117**	**150**	**242**	**431**	**940**
Gross amount of recognised liabilities for repurchase agreements and securities lending					**4 274**

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

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 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.

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); and (iv) inputs derived from, or corroborated by, observable market data.

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.

The types of instruments valued, based on unadjusted quoted market prices in active markets, include most US government and sovereign obligations, active listed equities and most money market securities. Such instruments are generally classified within level 1 of the fair value hierarchy.

The types of instruments that trade in markets that are not considered to be active, but are valued based on quoted market prices, broker or dealer quotations or alternative pricing sources with reasonable levels of price transparency, include most government agency securities, investment-grade corporate bonds, certain mortgage- and asset-backed products, less liquid listed equities and state, municipal and provincial obligations. Such instruments are generally classified within level 2 of the fair value hierarchy.

Exchange-traded derivative instruments typically fall within level 1 or level 2 of the fair value hierarchy, depending on whether they are considered to be actively traded or not.

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. Such instruments are classified within level 3 of the fair value hierarchy. 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 2018, 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 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.

This page is intentionally left blank.

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:

2017 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	14 013	86 420	1 353			101 786
Debt securities issued by US government and government agencies	14 013	2 392				16 405
US Agency securitised products		5 965				5 965
Debt securities issued by non-US governments and government agencies		32 285	3			32 288
Corporate debt securities		41 287	1 343			42 630
Mortgage- and asset-backed securities		4 491	7			4 498
Fixed income securities backing unit-linked and with-profit business		5 209				5 209
Equity securities held for proprietary investment purposes	3 856	5	4			3 865
Equity securities backing unit-linked and with-profit business	28 770	13				28 783
Short-term investments held for proprietary investment purposes	1 021	3 825				4 846
Short-term investments backing unit-linked and with-profit business		59				59
Derivative financial instruments	50	1 274	386	–1 176		534
Interest rate contracts	4	511	5			520
Foreign exchange contracts		307				307
Equity contracts	43	451	283			777
Credit contracts		1				1
Other contracts			98			98
Contracts backing unit-linked and with-profit business	3	4				7
Investment real estate			198			198
Other invested assets	765	12	509		828	2 114
Funds held by ceding companies		206				206
Total assets at fair value	48 475	97 023	2 450	–1 176	828	147 600
Liabilities						
Derivative financial instruments	–22	–1 423	–479	1 342		–582
Interest rate contracts	–2	–395	–1			–398
Foreign exchange contracts		–321				–321
Equity contracts	–19	–622	–31			–672
Credit contracts		–79				–79
Other contracts			–447			–447
Contracts backing unit-linked and with-profit business	–1	–6				–7
Liabilities for life and health policy benefits			–126			–126
Accrued expenses and other liabilities	–939	–1 785				–2 724
Total liabilities at fair value	–961	–3 208	–605	1 342		–3 432

[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.

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**		**–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.

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:

2017 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	1 182	4	461	209	496	2 352	–664	–144	–808
Realised/unrealised gains/losses:									
Included in net income	–8	–2	23	19	34	66	202	19	221
Included in other comprehensive income	13	4			16	33			0
Purchases	264		26			290			0
Issuances						0	–84		–84
Sales	–59		–45	–49	–44	–197	83		83
Settlements	–84		–79		–6	–169	–1		–1
Transfers into level 3[1]	45					45			0
Transfers out of level 3[1]	–89	–2				–91			0
Impact of foreign exchange movements	89			19	13	121	–15	–1	–16
Closing balance as of 31 December	1 353	4	386	198	509	2 450	–479	–126	–605

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

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.

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	2017	**2018**
Gains/losses included in net income for the period	287	112
Whereof change in unrealised gains/losses relating to assets and liabilities still held at the reporting date	226	33

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	2017 Fair value	2018 Fair value	Valuation technique	Unobservable input	Range (weighted average)
Assets					
Corporate debt securities	1 343	**1 370**			
Infrastructure loans	778	920	Discounted cash flow model	Valuation spread	118–250 bps (192 bps)
Private placement corporate debt	428	341	Corporate spread matrix	Credit spread	131–402 bps (247 bps)
Private placement credit tenant leases	46	42	Discounted cash flow model	Illiquidity premium	125–150 bps (146 bps)
Derivative equity contracts	283	**339**			
OTC equity option referencing correlated equity indices	283	339	Proprietary option model	Correlation	–35–40% (2.5%)[1]
Investment real estate	198	**166**	Discounted cash flow model	Discount rate	5% per annum
Liabilities					
Derivative equity contracts	–31	**–43**			
OTC equity option referencing correlated equity indices	–31	–43	Proprietary option model	Correlation	–20–40% (10%)[1]
Other derivative contracts and liabilities for life and health policy benefits	–573	**–590**			
Variable annuity and fair valued GMDB contracts	–325	–327	Discounted cash flow model	Risk margin	4% (n/a)
				Volatility	4–42%
				Lapse	0.5–33%
				Mortality adjustment	–10–0%
				Withdrawal rate	0–90%
Swap liability referencing real estate investments	–150	–127	Discounted cash flow model	Discount rate	5% per annum
Weather contracts	–35	–77	Proprietary option model	Risk margin	5–11% (9.3%)
				Correlation	–71–56% (–0.5%)
				Volatility (power/gas)	28–117% (57.3%)
				Volatility (temperature)	96–775 (268) HDD/CAT[2]
				Index value (temperature)	800–4366 (2451) 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 adjustment 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 higher (lower) fair value of the Group's obligation. A significant increase (decrease) in isolation in a lapse rate for in-the-money contracts would result in a significantly lower (higher) fair value of the Group's obligation, whereas for out-of-the-money contracts, an isolated increase (decrease) in a lapse assumption would increase (decrease) fair value of the Group's obligation. Changes in the mortality adjustment 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 adjustment rate (ie increase (decrease) in mortality, respectively) 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 adjustment 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	2017 Fair value	**2018** Fair value	Unfunded commitments	Redemption frequency (if currently eligible)	Redemption notice period
Private equity funds	511	504	362	non-redeemable	n/a
Hedge funds	128	196		redeemable[1]	45–95 days[2]
Private equity direct	92	69		non-redeemable	n/a
Real estate funds	97	43	30	non-redeemable	n/a
Total	828	**812**	**392**		

[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 on 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 is included under “Accrued expenses and other liabilities”.

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	2017	2018
Assets		
Other invested assets	9 904	6 398
of which at fair value pursuant to the fair value option	446	312
Funds held by ceding companies	9 155	9 009
of which at fair value pursuant to the fair value option	206	206
Liabilities		
Liabilities for life and health policy benefits	−42 561	−39 593
of which at fair value pursuant to the fair value option	−126	−119
Accrued expenses and other liabilities	−7 190	−6 798
of which at fair value pursuant to the fair value option	−150	−127

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	2017	2018
Other invested assets	36	6
Liabilities for life and health policy benefits	19	6
Accrued expenses and other liabilities	20	−11
Total	75	**1**

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:

2017 USD millions	Significant other observable inputs (level 2)	Significant unobservable inputs (level 3)	Total
Assets			
Policy loans		94	94
Mortgage loans		2 674	2 674
Other loans		1 367	1 367
Investment real estate		3 901	3 901
Total assets	0	8 036	8 036
Liabilities			
Debt	–7 607	–5 074	–12 681
Total liabilities	–7 607	–5 074	–12 681

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**

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:

2017 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[1]	48 904	524	–404	120
Foreign exchange contracts[1]	16 874	206	–137	69
Equity contracts[1]	17 135	780	–673	107
Credit contracts	4 194	1	–79	–78
Other contracts	12 432	98	–447	–349
Total	99 539	1 609	–1 740	–131
Derivatives designated as hedging instruments				
Foreign exchange contracts	12 362	101	–184	–83
Total	12 362	101	–184	–83
Total derivative financial instruments	111 901	1 710	–1 924	–214
Amount offset				
Where a right of set-off exists		–801	801	
Due to cash collateral		–375	541	
Total net amount of derivative financial instruments		534	–582	–48

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[1]	52 719	441	–326	115
Foreign exchange contracts[1]	19 415	186	–148	38
Equity contracts[1]	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**

[1] During 2018, the Group revised its methodology on the calculation of notional amounts for interest rate derivatives. The revision has no impact on the income statement or balance sheet of the Group. Comparative information for 2017 has been adjusted accordingly.

The notional amounts of derivative financial instruments give an indication of the Group's volume of derivative activity. The fair value assets are included in "Other invested assets" and "Investments for unit-linked and with-profit business", and the fair value liabilities are included in "Accrued expenses and other liabilities". The fair value amounts that were not offset were nil as of 31 December 2017 and 2018.

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	2017	**2018**
Derivatives not designated as hedging instruments		
Interest rate contracts	43	–178
Foreign exchange contracts	301	–60
Equity contracts	–254	30
Credit contracts	–25	–7
Other contracts	287	73
Total gains/losses recognised in income	352	**–142**

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 2017 and 2018, the following hedging relationships were outstanding:

Fair value hedges

The Group enters into foreign exchange swaps to reduce the exposure to foreign exchange volatility for certain fixed income securities. These derivative instruments are designated as hedging instruments in qualifying fair value hedges. Gains and losses on derivative financial instruments designated as fair value hedging instruments are recorded in "Net realised investment gains/losses — non-participating business" in the income statement. For the years ended 31 December, the gains and losses attributable to the hedged risks were as follows:

	2017		**2018**	
USD millions	Gains/losses on derivatives	Gains/losses on hedged items	Gains/losses on derivatives	Gains/losses on hedged items
Fair value hedging relationships				
Foreign exchange contracts	–577	577	430	–430
Total gains/losses recognised in income	–577	577	**430**	**–430**

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 and a portfolio of foreign currency denominated corporate bonds. These derivative instruments are designated as cash flow hedging instruments.

For the year ended 31 December 2018, the Group recorded a gain of USD 25 million on derivatives in accumulated other comprehensive income. For the year ended 31 December 2018, the Group reclassified a gain of USD 10 million from accumulated other comprehensive income into income.

As of 31 December 2018, 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 eight 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 twelve 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 2017 and 2018, the Group recorded an accumulated net unrealised foreign currency remeasurement gain of USD 1 552 million and USD 2 102 million, respectively, in shareholders' equity. 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 2017 and 2018 was approximately USD 909 million and USD 997 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 102 million and USD 108 million as of 31 December 2017 and 2018, respectively. For derivative financial instruments containing credit risk-related contingent features, the Group posted collateral of nil as of 31 December 2017 and 2018, respectively. In the event of a reduction of the Group's credit rating to below investment grade, a fair value of USD 108 million additional collateral would have had to be posted as of 31 December 2018. The total equals the amount needed to settle the instruments immediately as of 31 December 2018.

10 Acquisitions

Bradesco Seguros, S.A.
On 3 July 2017, the Group and Bradesco Seguros, S.A. (Bradesco) entered into a partnership combining the large commercial risk business of Bradesco with Swiss Re Corporate Solutions Brasil Seguros S.A. (SRCSB). Upon closing this transaction, SRCSB became one of the leading insurers in the commercial large-risk insurance market in Brazil. The acquisition cost was BRL 210 million paid in cash and 40% shares of SRCSB. The transaction includes Bradesco's related operations, its team of experts and a business portfolio, including existing, new and renewal business.

This transaction strengthens the Group's position in the Brazilian commercial insurance market by combining two diversified portfolios and securing a sustainable and large distribution channel.

11 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	2017	2018
Senior financial debt	433	235
Subordinated financial debt[1]		637
Contingent capital instruments classified as financial debt[1]		761
Short-term debt	433	**1 633**
Senior financial debt	3 781	3 428
Senior operational debt	390	388
Subordinated financial debt[1]	2 632	1 892
Subordinated operational debt	2 370	2 112
Contingent capital instruments classified as financial debt[1]	975	682
Long-term debt	10 148	**8 502**
Total carrying value	10 581	**10 135**
Total fair value	12 681	**11 685**

[1] Certain items previously described within the disclosure table as subordinated financial debt or convertible debt are now included as contingent capital instruments classified as financial debt. Comparative information for 2017 has been amended accordingly.

As of 31 December 2017 and 2018, operational debt, ie debt related to operational leverage, amounted to USD 2.8 billion (thereof USD 2.4 billion limited- or non-recourse) and USD 2.5 billion (thereof USD 2.1 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	2017	2018
Due in 2019	2 341	0
Due in 2020	197	188
Due in 2021	213	816
Due in 2022	845	817
Due in 2023	897	855
Due after 2023	5 655	5 826
Total carrying value	10 148	**8 502**

Senior long-term debt

Maturity	Instrument	Issued in	Currency	Nominal in millions	Interest rate	Book value in USD millions
2021	Syndicated senior bank loans	2018	GBP	468	variable	596
2022	Senior notes	2012	USD	250	2.88%	249
2023	Senior notes	2016	EUR	750	1.38%	853
2024	EMTN	2014	CHF	250	1.00%	253
2026	Senior notes[1]	1996	USD	397	7.00%	476
2027	EMTN	2015	CHF	250	0.75%	254
2030	Senior notes[1]	2000	USD	193	7.75%	257
2042	Senior notes	2012	USD	500	4.25%	490
Various	Payment undertaking agreements	various	USD	344	various	388
Total senior long-term debt as of 31 December 2018						**3 816**
Total senior long-term debt as of 31 December 2017						4 171

[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
2042	Subordinated fixed-to-floating rate loan note	2012	EUR	500	6.63%	2022	568
2044	Subordinated fixed rate resettable callable loan note	2014	USD	500	4.50%	2024	498
2057	Subordinated private placement (amortising, limited recourse)	2007	GBP	1 658	5.28%		2 112
	Perpetual subordinated fixed-to-floating rate callable loan note	2015	EUR	750	2.60%	2025	826
Total subordinated long-term debt as of 31 December 2018							**4 004**
Total subordinated long-term debt as of 31 December 2017[1]							5 002

[1] Certain items previously described within the disclosure table as subordinated long-term debt are now included as contingent capital instruments classified as long-term debt. Comparative information for 2017 has been amended accordingly.

Contingent capital instruments classified as long-term debt

Maturity	Instrument	Issued in	Currency	Nominal in millions	Interest rate	First call in	Book value in USD millions
2024	Senior unsecured exchangeable instrument with issuer stock settlement	2018	USD	500	3.25%		494
2045	Subordinated contingent write-off securities	2013	CHF	175	7.50%	2020	188
Total contingent capital instruments classified as long-term debt as of 31 December 2018							**682**
Total contingent capital instruments classified as long-term debt as of 31 December 2017[1]							975

[1] Certain items previously described within the disclosure table as subordinated long-term debt are now included as contingent capital instruments classified as long-term debt. Comparative information for 2017 has been amended accordingly.

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	2017	2018
Senior financial debt	114	100
Senior operational debt	11	11
Subordinated financial debt[1]	128	108
Subordinated operational debt	114	118
Contingent capital instruments classified as financial debt[1]	38	38
Total	405	**375**

[1] Certain items previously described within the disclosure table as subordinated financial debt or convertible debt are now included as contingent capital instruments classified as financial debt. Comparative information for 2017 has been amended accordingly.

In addition to the above, interest expense on contingent capital instruments classified as equity was USD 67 million and USD 41 million for the years ended 31 December 2017 and 2018, respectively.

Long-term debt issued in 2018

In June 2018, Swiss Re Ltd issued a six-year senior unsecured exchangeable instrument with issuer stock settlement. The instrument has a face value of USD 500 million, with a fixed coupon of 3.25% per annum payable semi-annually in arrear until the maturity date (13 June 2024). The interest expense was USD 10 million for the year ended 31 December 2018. In limited circumstances, the instrument may be redeemed early, in cash. Noteholders have a put option requiring the issuer to redeem the instrument at par if a delisting, nationalisation or change of control occurs. The higher of the par value and the fair market value of the instrument may be stock-settled, at any time at the option of the issuer, by delivering Swiss Re Ltd shares at a prevailing share price which uses a forward-looking 15 trading day volume-weighted average share price with a 1% discount. If the issuer stock settlement option is exercised at a time when the Group's, or the issuer's, regulatory solvency ratio calculated under the Swiss Solvency Test is less than 160%, the prevailing share price is subject to a share price floor of USD 44.3305. After year five, holders of the instrument have the unrestricted option (and prior to year five, a restricted option) to exchange the instrument for Swiss Re Ltd shares at the prevailing exchange price, which is initially set at USD 115.2593, representing a premium of 30% to the reference share price, which used a forward-looking ten trading day volume-weighted average share price commencing on 7 June 2018. The number of Swiss Re Ltd shares to be delivered upon a noteholder-initiated exchange will be determined by dividing the principal amount of the instrument held by such noteholder by the prevailing exchange price at the time. The issuer may elect to settle a noteholder exchange in cash or Swiss Re Ltd shares. The share price floor and the exchange price are subject to customary anti-dilution adjustments. To economically hedge the settlement of a noteholder-initiated exchange (in cash or in Swiss Re Ltd shares), Swiss Re Ltd purchased matching call options in an aggregate amount of USD 500 million with an expiry date of 13 June 2024 on Swiss Re Ltd shares with a portion of the proceeds of the offering through an internal call option entered through Swiss Reinsurance Company Ltd with external banks. Consequently, no new Swiss Re Ltd shares will be issued upon a noteholder-initiated exchange. Both the noteholder-initiated exchange option and the matching call options are accounted as equity within Swiss Re Ltd.

In June 2018, Swiss Re ReAssure Limited entered into a GBP 550 million revolving credit facility with a syndicate of banks. The facility has an expiry date of 26 June 2021. At 29 June 2018, the amount drawn under the facility was GBP 468 235 294. This revolving credit facility replaces the previous GBP 550 million revolving credit facility that Swiss Re ReAssure Limited (formerly known as Swiss Re Admin Re Limited) had entered into in April 2016.

Contingent capital instruments classified as equity

In March 2012, Swiss Reinsurance Company Ltd issued a perpetual subordinated capital instrument with issuer stock settlement, a face value of USD 750 million and a fixed coupon of 8.25% per annum. This capital instrument was redeemed on 1 September 2018.

12 Earnings per share

Most jurisdictions require reinsurers to maintain a minimum amount of capital in excess of the statutory definition of net assets or maintain certain minimum capital and surplus levels. In addition, some jurisdictions place certain restrictions on amounts that may be loaned or transferred to the parent company. The Group's ability to pay dividends may be restricted by these requirements.

Dividends are declared in Swiss francs. During the years ended 31 December 2017 and 2018, the Group paid dividends per share of CHF 4.85 and CHF 5.00, respectively.

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

USD millions (except share data)	2017	2018
Basic earnings per share		
Net income	393	481
Non-controlling interests	5	–19
Interest on contingent capital instruments[1]	–67	–41
Net income attributable to common shareholders	331	**421**
Weighted average common shares outstanding	320 811 238	306 841 773
Net income per share in USD	1.03	**1.37**
Net income per share in CHF[2]	1.02	**1.34**
Effect of dilutive securities		
Change in income available to common shares due to contingent capital instruments[1]		8
Change in average number of shares due to contingent capital instruments		6 203 404
Change in average number of shares due to employee options	514 803	604 473
Diluted earnings per share		
Net income assuming debt conversion and exercise of options	331	**429**
Weighted average common shares outstanding	321 326 041	313 649 650
Net income per share in USD	1.03	**1.37**
Net income per share in CHF[2]	1.01	**1.34**

[1] Please refer to Note 11 "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.

At the 153rd Annual General Meeting held on 21 April 2017 and at the 154th Annual General Meeting held on 20 April 2018, the Group's shareholders authorised the Group Board of Directors to repurchase up to a maximum CHF 1 billion purchase value of the Group's own shares by way of a public buy-back programme for cancellation purposes prior to the 2018 and 2019 Annual General Meetings, respectively.

The public share buy-back programme approved by the 2017 Annual General Meeting was completed on 16 February 2018. The total number of shares repurchased amounted to 10.8 million, of which 6.3 million and 4.5 million shares were repurchased as of 31 December 2017 and between 1 January and 16 February 2018, respectively. On 20 April 2018, the 154th Annual General Meeting resolved the cancellation of the repurchased 10.8 million shares by way of share capital reduction. The shares were cancelled as of 24 July 2018, after completion of the procedure in respect of a share capital reduction as set forth in Article 732 et seqq. of the Swiss Code of Obligations.

The public share buy-back programme approved by the 2018 Annual General Meeting was completed on 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.

Net of tax expense effects from contingent capital instruments, totalling USD 41 million in 2018, and the potential impact of these instruments on the weighted average number of shares, of 15 625 000 shares, have not been included in the diluted earnings per share calculation because the impact of such an inclusion was antidilutive.

13 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	2017	2018
Current taxes	727	636
Deferred taxes	–595	–567
Income tax expense	132	**69**

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	2017	2018
Income tax at the Swiss statutory tax rate of 21.0%	110	115
Increase (decrease) in the income tax charge resulting from:		
Foreign income taxed at different rates	11	122
Impact of foreign exchange movements	71	–64
Tax exempt income/dividends received deduction	–51	–61
Change in valuation allowance	–77	–92
Non-deductible expenses	57	55
Change in statutory rate	–60	25
Change in liability for unrecognised tax benefits including interest and penalties	13	72
Intra-entity transfers	16	–68
Other, net[1]	42	–35
Total	132	**69**

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

For the year ended 31 December 2018, the Group reported a tax charge of USD 69 million on a pre-tax income of USD 550 million, compared to a charge of USD 132 million on a pre-tax income of USD 525 million for 2017. This translates into an effective tax rate in the current and prior-year reporting periods of 12.5% and 25.1%, respectively.

For the year ended 31 December 2018, the tax rate 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. The higher rate in the year ended 31 December 2017 was largely driven by tax charges from currency translation differences between statutory and US GAAP accounts, impacts from unrecognised tax benefits and recognition of deferred tax charges from intra-entity transfers, partially offset by tax benefits from US tax law changes.

Deferred and other non-current taxes

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

USD millions	2017	2018
Deferred tax assets		
Income accrued/deferred	259	212
Technical provisions	488	560
Pension provisions	313	293
Benefit on loss carryforwards	2 296	2 675
Currency translation adjustments	490	423
Unrealised gains in income	487	424
Other	981	1 212
Gross deferred tax asset	5 314	5 799
Valuation allowance	–475	–366
Unrecognised tax benefits offsetting benefits on loss carryforwards	–22	–22
Total deferred tax assets	4 817	**5 411**
Deferred tax liabilities		
Present value of future profits	–322	–294
Income accrued/deferred	–473	–199
Investment valuation in income	–535	–382
Deferred acquisition costs	–918	–1 071
Technical provisions	–2 191	–2 264
Unrealised gains on investments	–984	–584
Foreign exchange provisions	–507	–602
Other	–807	–780
Total deferred tax liabilities	–6 737	**–6 176**
Liability for unrecognised tax benefits including interest and penalties	–238	–295
Total deferred and other non-current tax liabilities	–6 975	**–6 471**

As of 31 December 2018, 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 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 2018, the Group had USD 11 649 million net operating tax loss carryforwards, expiring as follows: USD 5 million in 2019, USD 17 million in 2020, USD 9 million in 2021, USD 7 million in 2022, USD 7 128 million in 2023 and beyond, and USD 4 483 million never expire.

As of 31 December 2018, the Group had capital loss carryforwards of USD 1 084 million, expiring as follows: USD 3 million in 2020, USD 4 million in 2021, USD 39 million in 2023, and USD 1 038 million never expire.

For the year ended 31 December 2018, net operating tax losses of USD 487 million and net capital tax losses of USD 117 million were utilised.

Income taxes paid in 2017 and 2018 were USD 720 million and USD 740 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	2017	2018
Balance as of 1 January	216	206
Additions based on tax positions related to current year	24	49
Additions based on tax positions related to prior years	16	57
Reductions for tax positions of current year	–9	–8
Reductions for tax positions of prior years	–12	–15
Statute expiration	–9	–19
Settlements	–29	–7
Other (including foreign currency translation)	9	–6
Balance as of 31 December	206	**257**

As of 31 December 2017 and 2018, the amount of gross unrecognised tax benefits within the tabular reconciliation that, if recognised, would affect the effective tax rate were approximately USD 206 million and USD 257 million, respectively.

Interest and penalties related to unrecognised tax benefits are recorded in income tax expense. For the years ended 31 December 2017 and 2018, such expenses were USD 2 million and USD 7 million, respectively. For the years ended 31 December 2017 and 2018, USD 54 million and USD 60 million, respectively, were accrued for the payment of interest (net of tax benefits) and penalties. The accrued interest balance as of 31 December 2018 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 2018 presented in the table above excludes accrued interest and penalties (USD 60 million).

During the year, certain tax positions and audits in Switzerland, Australia and France 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	2013–2018
Brazil	2013–2018
Canada	2011–2018
China	2009–2018
Colombia	2012–2018
Denmark	2013–2018
France	2016–2018
Germany	2014–2018
Hong Kong	2013–2018
India	2006–2018
Ireland	2014–2018
Israel	2014–2018
Italy	2013–2018
Japan	2013–2018

Korea	2013–2018
Luxembourg	2014–2018
Malaysia	2009–2018
Mexico	2013–2018
Netherlands	2014–2018
New Zealand	2013–2018
Nigeria	2016–2018
Singapore	2013–2018
Slovakia	2014–2018
South Africa	2014–2018
Spain	2014–2018
Switzerland	2015–2018
United Kingdom	2008, 2011–2018
United States	2011–2018

14 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.

2017 USD millions	Swiss plan	Foreign plans	Other benefits	Total
Benefit obligation as of 1 January	3 916	2 358	369	6 643
Service cost	111	8	4	123
Interest cost	24	69	9	102
Amendments	–55		–3	–58
Actuarial gains/losses	–57	–48	42	–63
Benefits paid	–185	–78	–17	–280
Employee contribution	26			26
Effect of settlement, curtailment and termination	2	–20		–18
Effect of foreign currency translation	166	175	9	350
Benefit obligation as of 31 December	3 948	2 464	413	6 825
Fair value of plan assets as of 1 January	3 532	2 257	0	5 789
Actual return on plan assets	264	167		431
Company contribution	95	61	17	173
Benefits paid	–185	–78	–17	–280
Employee contribution	26			26
Effect of settlement, curtailment and termination	2	–20		–18
Effect of foreign currency translation	153	178		331
Fair value of plan assets as of 31 December	3 887	2 565	0	6 452
Funded status	–61	101	–413	–373

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**

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

2017 USD millions	Swiss plan	Foreign plans	Other benefits	Total
Non-current assets		278		278
Current liabilities		–3	–18	–21
Non-current liabilities	–61	–174	–395	–630
Net amount recognised	–61	101	–413	–373

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**

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

2017 USD millions	Swiss plan	Foreign plans	Other benefits	Total
Net gain/loss	805	375	13	1 193
Prior service cost/credit	–115	2		–113
Total	690	377	13	1 080

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**

Components of net periodic benefit cost

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

2017 USD millions	Swiss plan	Foreign plans	Other benefits	Total
Service cost (net of participant contributions)	111	8	4	123
Interest cost	24	69	9	102
Expected return on assets	–90	–78		–168
Amortisation of:				
Net gain/loss	77	35	–1	111
Prior service cost	–9			–9
Effect of settlement, curtailment and termination	2		–61	–59
Net periodic benefit cost	115	34	–49	100

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**

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

2017 USD millions	Swiss plan	Foreign plans	Other benefits	Total
Net gain/loss	–231	–137	42	–326
Prior service cost/credit	–55		–3	–58
Amortisation of:				
Net gain/loss	–77	–35	1	–111
Prior service cost	9			9
Effect of settlement, curtailment and termination			61	61
Exchange rate gain/loss recognised during the year		34		34
Total recognised in other comprehensive income, gross of tax	–354	–138	101	–391
Total recognised in net periodic benefit cost and other comprehensive income, gross of tax	–239	–104	52	–291

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**

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 2019 are USD 56 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 2019 are USD 2 million and USD 15 million, respectively.

The accumulated benefit obligation (the current value of accrued benefits excluding future salary increases) for pension benefits was USD 6 335 million and USD 6 043 million as of 31 December 2017 and 2018, respectively.

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

USD millions	2017	**2018**
Projected benefit obligation	5 071	4 898
Accumulated benefit obligation	5 025	4 856
Fair value of plan assets	4 834	4 654

Principal actuarial assumptions

	Swiss plan		Foreign plans weighted average		Other benefits weighted average	
	2017	**2018**	2017	**2018**	2017	**2018**
Assumptions used to determine obligations at the end of the year						
Discount rate	0.6%	0.8%	2.8%	3.0%	2.1%	2.2%
Rate of compensation increase	1.8%	1.8%	3.0%	3.0%	2.1%	2.1%
Assumptions used to determine net periodic pension costs for the year ended						
Discount rate	0.6%	0.6%	2.9%	2.8%	2.4%	2.1%
Expected long-term return on plan assets	2.5%	2.5%	3.5%	3.6%		
Rate of compensation increase	1.8%	1.8%	3.1%	3.0%	2.1%	2.1%
Assumed medical trend rates at year end						
Medical trend – initial rate					5.6%	4.7%
Medical trend – ultimate rate					3.8%	3.6%
Year that the rate reaches the ultimate trend rate					2021	2021

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 2018:

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	–15

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 2017 and 2018 was as follows:

	Swiss plan allocation			Foreign plans allocation		
	2017	**2018**	**Target allocation**	2017	**2018**	**Target allocation**
Asset category						
Equity securities	29%	23%	23%	21%	13%	20%
Debt securities	41%	46%	45%	71%	73%	74%
Real estate	23%	24%	24%	0%	2%	0%
Other	7%	7%	8%	8%	12%	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 common stock of USD 6 million (0.1% of total plan assets) and USD 4 million (0.1% of total plan assets) as of 31 December 2017 and 2018, 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:

2017 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	30	181			211
Debt securities issued by non-US governments and government agencies		1 224			1 224
Corporate debt securities		1 846	10		1 856
Residential mortgage-backed securities		23			23
Commercial mortgage-backed securities		1			1
Agency securitised products					0
Other asset-backed securities		1			1
Equity securities:					
Equity securities held for proprietary investment purposes	1 141	414	103		1 658
Short-term investments		38			38
Derivative financial instruments		–13			–13
Real estate			692		692
Other assets		89		563	652
Total assets at fair value	1 171	3 804	805	563	6 343
Cash	109				109
Total plan assets	1 280	3 804	805	563	6 452

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:					
Equity securities held for proprietary investment purposes	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**

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:

2017 USD millions	Real estate	Other assets	Total
Balance as of 1 January	612	106	718
Realised/unrealised gains/losses:			
Relating to assets still held at the reporting date	34	–26	8
Relating to assets sold during the period		19	19
Purchases, issuances and settlements	19	11	30
Transfers in and/or out of level 3			0
Impact of foreign exchange movements	27	3	30
Closing balance as of 31 December	692	113	805

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**

Expected contributions and estimated future benefit payments

The employer contributions expected to be made in 2019 to the defined benefit pension plans are USD 122 million and to the post-retirement benefit plan are USD 17 million.

As of 31 December 2018, 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
2019	214	89	17	320
2020	210	93	17	320
2021	204	96	17	317
2022	200	98	17	315
2023	194	100	18	312
Years 2024–2028	934	532	89	1 555

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 2017 and 2018 was USD 81 million and USD 85 million, respectively.

15 Share-based payments

As of 31 December 2017 and 2018, 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 55 million and USD 47 million in 2017 and 2018, respectively. The related tax benefit was USD 12 million and USD 10 million, respectively.

Restricted shares

The Group granted 29 914 and 24 627 restricted shares to selected employees in 2017 and 2018, respectively. Moreover, as an alternative to the Group's cash bonus programme, 276 483 and 194 536 shares were delivered during 2017 and 2018, 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 2018 is as follows:

	Weighted average grant date fair value in CHF[1]	Number of shares
Non-vested at 1 January	88	483 844
Granted	96	219 163
Forfeited	87	–462
Vested	88	–322 238
Outstanding as of 31 December	**93**	**380 307**

[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 2015, LPP 2016, LPP 2017 and LPP 2018 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 an additional special dividend of CHF 3.00 for the LPP 2015) and the risk-free rate based on the average of the 5-year US Treasury bond rate (for LPP 2015) and the average of the 10-year US Treasury bond rate (for LPP 2016, LPP 2017 and LPP 2018) 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 2018, the outstanding units were as follows:

RSUs	LPP 2015	LPP 2016	LPP 2017	LPP 2018
Non-vested at 1 January	310 080	348 339	511 141	
Granted				353 171
Forfeited	–7 395	–25 188	–23 788	–7 914
Vested	–302 685			
Outstanding as of 31 December	**0**	**323 151**	**487 353**	**345 257**
Grant date fair value in CHF	**67.65**	**67.91**	**47.41**	**70.18**

PSUs				
Non-vested at 1 January	341 955	472 628	696 804	
Granted				286 193
Forfeited	–8 150	–34 180	–32 426	–6 413
Vested	–333 805			
Outstanding as of 31 December	**0**	**438 448**	**664 378**	**279 780**
Grant date fair value in CHF	**61.37**	**50.04**	**34.78**	**86.62**

Unrecognised compensation cost

As of 31 December 2018, the total unrecognised compensation cost (net of forfeitures) related to non-vested, share-based compensation awards was USD 49 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 4 411 532 and 4 172 886 as of 31 December 2017 and 2018, 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 2017 and 2018, Swiss Re contributed USD 11 million and USD 11 million to the plans and authorised 162 487 and 197 194 shares as of 31 December 2017 and 2018, respectively.

16 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 165–170 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 318–319 of the Annual Report of Swiss Re Ltd.

17 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 2017 and 2018, the Group's investment in mortgages and other loans included USD 301 million and USD 373 million, respectively, of loans due from employees, and USD 181 million and USD 212 million, 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 14 "Benefit plans". Plan assets of the defined benefit pension plans include Swiss Re common stock of USD 6 million (0.1% of total plan assets) and USD 4 million (0.1% of total plan assets) as of 31 December 2017 and 2018, respectively.

The total number of shares, options and related instruments held by members of the BoD and the Group EC and persons closely related to, amounts to less than 1% of the shares issued by Swiss Re Ltd. None of the members of BoD and the Group EC has any significant business connection with Swiss Re Ltd or any of its Group companies. The Group BoD member Susan L. Wagner is also a board member of BlackRock, Inc. BlackRock, Inc. is acting as 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	2017	**2018**
Share in earnings of equity-accounted investees	100	166
Dividends received from equity-accounted investees	170	170

18 Commitments and contingent liabilities

Leasing commitments

As part of its normal business operations, the Group enters into a number of lease agreements. As of 31 December 2018, such agreements, which are operating leases, total the following obligations for the next five years and thereafter:

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**

Minimum rentals for all operating leases (except those with terms of one month or less that were not renewed) for the years ended 31 December 2017 and 2018 were USD 94 million and USD 86 million, respectively. Sublease rental income for the years ended 31 December 2017 and 2018 was USD 2 million and USD 2 million, respectively.

Other commitments

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 2018 were USD 1 954 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 disposition 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.

19 Significant subsidiaries and equity investees

		Share capital (millions)	Affiliation in % as of 31.12.2018	Method of consolidation
Europe				
Germany				
Swiss Re Germany GmbH, Munich	EUR	45	100	f
Ireland				
Ark Life Assurance Company dac, Dublin	EUR	19	100	f
Jersey				
ReAssure Holdings Limited, St Helier	GBP	0	100	f
ReAssure Jersey One Limited, St Helier	GBP	1	85	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 Funds (Lux) I, Senningerberg[1]	EUR	13 271	100	f
Swiss Re International SE, Luxembourg	EUR	182	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
United Kingdom				
IptiQ Holdings Limited, Shropshire	GBP	0	100	f
ReAssure FSH UK Limited, Shropshire	GBP	710	100	f
ReAssure Group Limited, Shropshire	GBP	0	100	f
ReAssure Limited, Shropshire	GBP	289	100	f
Swiss Re Capital Markets Limited, London	USD	60	100	f
Swiss Re Services Limited, London	GBP	2	100	f

[1] Net asset value instead of share capital

		Share capital (millions)	Affiliation in % as of 31.12.2018	Method of consolidation
Americas and Caribbean				
Barbados				
European Finance Reinsurance Company Ltd., Bridgetown	USD	5	100	f
European International Reinsurance Company Ltd., Bridgetown	USD	1	100	f
Milvus I Reassurance Limited, Bridgetown	USD	481	100	f
Bermuda				
CORE Reinsurance Company Limited, Hamilton	USD	0	100	f
Brazil				
Sul America S.A., Rio de Janeiro	BRL	3 320	15	e
Swiss Re Brasil Resseguros S.A., São Paulo	BRL	295	100	f
Swiss Re Corporate Solutions Brasil Seguros S.A., São 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	484	100	f
Colombia				
Compañía Aseguradora de Fianzas S.A. Confianza, Bogotá	COP	224 003	51	f
United States				
Claret Re Inc., Burlington	USD	5	100	f
Facility Insurance Holding Corporation, Dallas	USD	0	100	f
First Specialty Insurance Corporation, Jefferson City	USD	5	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., Burlington	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., Burlington	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 Management (US) Corporation, Wilmington	USD	0	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
Washington International Insurance Company, Manchester	USD	4	100	f
Westport Insurance Corporation, Jefferson City	USD	6	100	f

		Share capital (millions)	Affiliation in % as of 31.12.2018	Method of consolidation
Africa				
Ivory Coast				
Société Manzi Finances S.A., Abidjan	XOF	15 311	29	e
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	320	100	f
Vietnam				
Vietnam National Reinsurance Corporation, Hanoi	VND	1 310 759	25	e

Method of consolidation

f full
e equity

20 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 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 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 below.

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 below.

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

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

Senior commercial mortgage and infrastructure loans

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

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

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

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

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

Other

The Group consolidates 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 2018 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	2017	2018
Fixed income securities available-for-sale	3 974	3 444
Investment real estate	198	166
Short-term investments	62	79
Cash and cash equivalents	14	20
Accrued investment income	34	30
Premiums and other receivables	29	26
Deferred acquisition costs	4	3
Deferred tax assets	41	212
Other assets	15	16
Total assets	4 371	**3 996**
Unpaid claims and claim adjustment expenses	84	66
Liabilities for life and health policy benefits	1	
Unearned premiums	12	8
Reinsurance balances payable	17	15
Deferred and other non-current tax liabilities	133	180
Accrued expenses and other liabilities	174	144
Long-term debt	2 369	2 112
Total liabilities	2 790	**2 525**

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	2017	2018
Fixed income securities available-for-sale	587	935
Equity securities available-for-sale	700	
Equity securities at fair value through earnings		272
Policy loans, mortgages and other loans	1 035	1 313
Other invested assets	1 831	1 953
Investments for unit-linked and with-profit business	9 223	5 999
Total assets	13 376	**10 472**
Accrued expenses and other liabilities	67	58
Total liabilities	67	**58**

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:

			2017			2018
USD millions	Total assets	Total liabilities	Maximum exposure to loss[1]	Total assets	Total liabilities	Maximum exposure to loss[1]
Insurance-linked securitisations	311		314	447		462
Life and health funding vehicles	27	1	2 052	25		2 174
Swaps in trusts	25	66	–[2]	76	58	–[2]
Investment vehicles	2 493		2 494	2 130		2 130
Investment vehicles for unit-linked business	9 223			5 999		
Senior commercial mortgage and infrastructure loans	1 297		1 297	1 795		1 795
Total	13 376	67	–[2]	**10 472**	**58**	**–[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.

21 Subsequent events

Investment by MS&AD Insurance Group Holdings Inc into ReAssure

In December 2018, Swiss Re reached an agreement with MS&AD Insurance Group Holdings Inc (MS&AD) for a further investment of GBP 315 million into ReAssure. MS&AD increased its 15% minority stake in ReAssure to a total shareholding of 25% as a result of the transaction, which closed on 20 February 2019.

The Group financial statements and related notes presented in this report are not impacted.

Report of the statutory auditor

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 consolidated balance sheet as of 31 December 2018, and the related consolidated income statement, statement of comprehensive income, statement of shareholders' equity, statement of cash flows and notes for the year ended 31 December 2018.

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 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 about 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 judgement, 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 present fairly, in all material respects, the financial position of the Company at 31 December 2018, the results of operations and the cash flows for the year then ended in accordance with accounting principles generally accepted in the United States of America and comply with Swiss law.

Other matter

Accounting principles generally accepted in the United States of America require that the supplementary information based on the requirements of ASU 2015-09, Disclosures about Short-Duration Contracts, on pages 232 to 240 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 management about the methods of preparing the information and comparing the information for consistency with management'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.

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 judgement, 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

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 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

How our audit addressed the key audit matter

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 management'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 experts to perform independent valuations of selected level 2 and 3 investments.

Based on the work performed, we consider the methodology and assumptions used by management in determining the valuation to be appropriate.

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

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 judgemental 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 judgement 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, interest rates, inflation trends, claims trends, regulatory decisions, historical claims information and the growth of exposure.

In particular, loss reserves for 'long tail' lines of business (for example, the Liability, US Asbestos and Environmental, Motor Liability and Workers' Compensation portfolios) are generally more difficult to project. This is due to the protracted period over which claims may be reported as well as the fact that claim settlements are often less frequent but of higher magnitude. Long-tailed lines of business generally rely on many assumptions based on experts' judgement.

Moreover, not all natural catastrophe events and significant man-made losses can be modelled using traditional actuarial methodologies, which increases the degree of judgement needed in establishing reserves for these events.

How our audit addressed the key audit matter

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 management 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 management'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 management's assumptions as appropriate.
- Assessing the process and related judgements of management 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 management 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 management 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

The Company's valuation of liabilities for L&H policy benefits and policyholder account balances involves complex judgements 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 judgemental 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, management 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 changes in estimates or as an out-of-period adjustment.

How our audit addressed the key audit matter

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 management 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 that the methodologies and assumptions used by management in the valuation of actuarially determined L&H reserves to be appropriate.

Completeness and valuation of uncertain tax items

Key audit matter

The Company is carrying a provision for uncertain tax items on its books. The valuations of these items are based on management's estimates and management's assessment whether deferred tax assets are more likely than not to be realised. Changes in the estimates of uncertain tax items have an impact (through income tax expense) on the results.

How our audit addressed the key audit matter

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 management'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 management's 'more likely than not' tax assessments to evaluate the Company's judgements and estimates of the probabilities and the amounts.
- Assessing how the Company had considered new information or changes in tax law or case law, and assessing the Company's judgement 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 management's assessment of completeness of the uncertain tax provisions.
- Examining material movements within the uncertain tax positions in each jurisdiction.

Based on the work performed, we determined management's assessment of uncertain tax items to be appropriate.

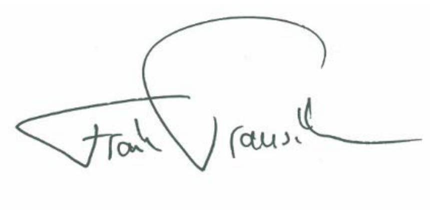
Report on other legal requirements

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 Ltd



Roy Clark
Audit expert
Auditor in charge

Frank Trauschke

Zurich, 13 March 2019

Group financial years 2009–2018

USD millions	2009[1]	2010	2011
Income statement			
Revenues			
Premiums earned	22 664	19 652	21 300
Fee income	847	918	876
Net investment income	6 399	5 422	5 469
Net realised investment gains/losses	875	2 783	388
Other revenues	178	60	50
Total revenues	30 963	28 835	28 083
Expenses			
Claims and claim adjustment expenses	–8 336	–7 254	–8 810
Life and health benefits	–8 639	–8 236	–8 414
Return credited to policyholders	–4 597	–3 371	–61
Acquisition costs	–4 495	–3 679	–4 021
Other operating costs and expenses	–3 976	–3 620	–3 902
Total expenses	–30 043	–26 160	–25 208
Income before income tax expense	920	2 675	2 875
Income tax expense	–221	–541	–77
Net income before attribution of non-controlling interests	699	2 134	2 798
Income/loss attributable to non-controlling interests		–154	–172
Net income after attribution of non-controlling interests	699	1 980	2 626
Interest on contingent capital instruments, net of tax	–203	–1 117	
Net income attributable to common shareholders	496	863	2 626
Balance sheet			
Assets			
Investments	151 341	156 947	162 224
Other assets	81 407	71 456	63 675
Total assets	232 748	228 403	225 899
Liabilities			
Unpaid claims and claim adjustment expenses	68 412	64 690	64 878
Liabilities for life and health policy benefits	39 944	39 551	39 044
Unearned premiums	6 528	6 305	8 299
Other liabilities	73 336	72 524	65 850
Long-term debt	19 184	18 427	16 541
Total liabilities	207 404	201 497	194 612
Shareholders' equity	25 344	25 342	29 590
Non-controlling interests		1 564	1 697
Total equity	25 344	26 906	31 287
Earnings/losses per share in USD	1.46	2.52	7.68
Earnings/losses per share in CHF	1.49	2.64	6.79

[1] The Group changed its reporting currency from CHF into USD in 2010. Periods prior to 2010 have been translated to USD for informational purposes only based on the Group's average exchange rates for the income statements and year-end rates for the balance sheets.
[2] 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.

	2012[2]	2013	2014	2015	2016	2017	2018
	24 661	28 276	30 756	29 751	32 691	33 119	**33 875**
	785	542	506	463	540	586	**586**
	5 302	4 735	4 992	4 236	4 740	4 702	**5 077**
	2 688	3 325	1 059	1 220	5 787	4 048	**–2 530**
	188	24	34	44	28	32	**39**
	33 624	36 902	37 347	35 714	43 786	42 487	**37 047**
	–7 763	–9 655	–10 577	–9 848	–12 564	–16 730	**–14 855**
	–8 878	–9 581	–10 611	–9 080	–10 859	–11 083	**–11 769**
	–2 959	–3 678	–1 541	–1 166	–5 099	–3 298	**1 033**
	–4 548	–4 895	–6 515	–6 419	–6 928	–6 977	**–6 919**
	–3 953	–4 268	–3 876	–3 882	–3 964	–3 874	**–3 987**
	–28 101	–32 077	–33 120	–30 395	–39 414	–41 962	**–36 497**
	5 523	4 825	4 227	5 319	4 372	525	**550**
	–1 125	–312	–658	–651	–749	–132	**–69**
	4 398	4 513	3 569	4 668	3 623	393	**481**
	–141	–2		–3	3	5	**–19**
	4 257	4 511	3 569	4 665	3 626	398	**462**
	–56	–67	–69	–68	–68	–67	**–41**
	4 201	4 444	3 500	4 597	3 558	331	**421**
	152 812	150 075	143 987	137 810	155 016	161 897	**147 302**
	68 691	63 445	60 474	58 325	60 049	60 629	**60 268**
	221 503	213 520	204 461	196 135	215 065	222 526	**207 570**
	63 670	61 484	57 954	55 518	57 355	66 795	**67 446**
	36 117	36 033	33 605	30 131	41 176	42 561	**39 593**
	9 384	10 334	10 576	10 869	11 629	11 769	**11 721**
	62 020	57 970	53 670	55 033	59 402	56 959	**51 581**
	16 286	14 722	12 615	10 978	9 787	10 148	**8 502**
	187 477	180 543	168 420	162 529	179 349	188 232	**178 843**
	34 002	32 952	35 930	33 517	35 634	34 124	**27 930**
	24	25	111	89	82	170	**797**
	34 026	32 977	36 041	33 606	35 716	34 294	**28 727**
	11.85	12.97	10.23	13.44	10.72	1.03	**1.37**
	11.13	12.04	9.33	12.93	10.55	1.02	**1.34**