Swiss Re

Swiss Reinsurance Company Consolidated

Half-Year 2018 Report

Content

Income statement

For the six months ended 30 June

USD millions	Note	2017	2018
Revenues			
Gross premiums written	4	15 879	**16 996**
Net premiums written	4	14 819	**15 713**
Change in unearned premiums		–1 095	**–1 696**
Premiums earned	3	13 724	**14 017**
Fee income from policyholders	3	33	**74**
Net investment income – non-participating business	7	998	**1 296**
Net realised investment gains/losses – non-participating business[1]	7	291	**26**
Net investment result – unit-linked business[2]	7	37	**–9**
Other revenues		19	**31**
Total revenues		15 102	**15 435**
Expenses			
Claims and claim adjustment expenses	3	–5 100	**–4 562**
Life and health benefits	3	–4 540	**–5 053**
Return credited to policyholders		–55	**–12**
Acquisition costs	3	–3 085	**–3 065**
Operating expenses		–1 151	**–1 064**
Total expenses before interest expenses		–13 931	**–13 756**
Income before interest and income tax expense		1 171	**1 679**
Interest expenses		–284	**–293**
Income before income tax expense		887	**1 386**
Income tax expense		–246	**–264**
Net income before attribution of non-controlling interests		641	**1 122**
Income/loss attributable to non-controlling interests		–16	**–25**
Net income after attribution of non-controlling interests		625	**1 097**
Interest on contingent capital instruments, net of tax		–34	**–24**
Net income attributable to common shareholder		591	**1 073**

[1] Total impairments for the six months ended 30 June of USD 5 million in 2017 and nil in 2018, respectively, were fully recognised in earnings.
[2] Total impairments for the six months ended 30 June of USD 16 million in 2017 and USD 5 million in 2018, respectively, were fully recognised in earnings.

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

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Statement of comprehensive income

For the six months ended 30 June

USD millions	2017	2018
Net income before attribution of non-controlling interests	641	**1 122**
Other comprehensive income, net of tax:		
Change in net unrealised investment gains/losses	294	**–1 082**
Change in other-than-temporary impairment	2	**1**
Change in foreign currency translation	168	**–72**
Change in adjustment for pension benefits	14	**28**
Change in credit risk of financial liabilities at fair value option	0	**–1**
Impact of Acccounting Standards Updates[1]	0	**96**
Other comprehensive income attributable to non-controlling interests	8	**–29**
Total comprehensive income before attribution of non-controlling interests	1 127	**63**
Interest on contingent capital instruments, net of tax	–34	**–24**
Comprehensive income attributable to non-controlling interests	–24	**4**
Total comprehensive income attributable to common shareholder	1 069	**43**

[1] Impact of ASU 2018-02, 2016-16 and ASU 2016-01. Please refer to Note 1 for more details.

Reclassification out of accumulated other comprehensive income

For the six months ended 30 June

2017 USD millions	Net unrealised investment gains/losses[1]	Other-than-temporary impairment[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	2 070	–5	–5 262	–999	0	–4 196
Change during the period	1 142	4	74	–22		1 198
Amounts reclassified out of accumulated other comprehensive income	–751			39		–712
Tax	–97	–2	94	–3		–8
Balance as of period end	2 364	–3	–5 094	–985	0	–3 718

2018 USD millions	Net unrealised investment gains/losses[1]	Other-than-temporary impairment[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	2 064	–3	–4 852	–737	0	**–3 528**
Impact of Accounting Standards Updates[4]	111		–3	–17	5	**96**
Change during the period	–1 559	1	–10	4	–1	**–1 565**
Amounts reclassified out of accumulated other comprehensive income	178		8	32		**218**
Tax	299		–70	–8		**221**
Balance as of period end	**1 093**	**–2**	**–4 927**	**–726**	**4**	**–4 558**

[1] Reclassification adjustment included in net income is presented in "Net realised investment gains/losses – non-participating business".
[2] Reclassification adjustment included in net income is presented in "Operating expenses".
[3] Reclassification adjustent is limited to translation gains and losses realised upon sale or upon complete or substantially complete liquidation of an investment in a foreign entity.
[4] Impact of ASU 2018-02, ASU 2016-16 and 2016-01. Please refer to Note 1 for more details.

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

Balance sheet

Assets

USD millions	Note	31.12.2017	30.06.2018
Investments	7, 8, 9		
Fixed income securities:			
Available-for-sale (including 11 219 in 2017 and 9 632 in 2018 subject to securities lending and repurchase agreements) (amortised cost: 2017: 65 694; 2018: 65 078)		68 682	**66 633**
Trading (including 1 761 in 2017 and 2 263 in 2018 subject to securities lending and repurchase agreements)		2 538	**3 027**
Equity securities:			
Available-for-sale (including 241 in 2017 subject to securities lending and repurchase agreements) (cost: 2017: 2 993)[1]		3 021	
Trading[1]		3	
At fair value through earnings (79 in 2018 subject to securities lending and repurchase agreements)[1]			**2 418**
Policy loans, mortgages and other loans		2 396	**2 535**
Investment real estate		2 017	**2 127**
Short-term investments (including 284 in 2017 and 405 in 2018 subject to securities lending and repurchase agreements)		2 674	**3 250**
Other invested assets		7 800	**8 341**
Investments for unit-linked business (including equity securities trading: 585 in 2017, equity securities at fair value through earnings: 489 in 2018)		585	**489**
Total investments		89 716	**88 820**
Cash and cash equivalents (including 262 in 2017 and 294 in 2018 subject to securities lending)		3 218	**4 174**
Accrued investment income		630	**593**
Premiums and other receivables		12 749	**13 568**
Reinsurance recoverable on unpaid claims and policy benefits		13 245	**12 687**
Funds held by ceding companies		12 617	**12 749**
Deferred acquisition costs	6	6 380	**6 411**
Acquired present value of future profits	6	937	**907**
Goodwill		3 818	**3 771**
Income taxes recoverable		187	**241**
Deferred tax assets		3 660	**4 140**
Other assets		2 961	**3 013**
Total assets		150 118	**151 074**

[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	31.12.2017	30.06.2018
Liabilities			
Unpaid claims and claim adjustment expenses	5	58 221	**56 731**
Liabilities for life and health policy benefits	8	19 361	**18 970**
Policyholder account balances		5 764	**5 670**
Unearned premiums		8 487	**10 159**
Funds held under reinsurance treaties		11 429	**11 546**
Reinsurance balances payable		2 592	**2 431**
Income taxes payable		412	**415**
Deferred and other non-current tax liabilities		4 935	**5 213**
Short-term debt	10	2 826	**4 871**
Accrued expenses and other liabilities	7	7 783	**9 926**
Long-term debt	10	8 114	**6 974**
Total liabilities		129 924	**132 906**
Equity			
Contingent capital instruments		750	**750**
Common shares, CHF 0.10 par value 2017: 344 052 565; 2018: 344 052 565 shares authorised and issued		32	**32**
Additional paid-in capital		8 690	**8 686**
Shares in Swiss Re Ltd, net of tax		–17	**–15**
Accumulated other comprehensive income:			
Net unrealised investment gains/losses, net of tax		2 064	**1 093**
Other-than-temporary impairment, net of tax		–3	**–2**
Foreign currency translation, net of tax		–4 852	**–4 927**
Adjustment for pension and other post-retirement benefits, net of tax		–737	**–726**
Credit risk of financial liabilities at fair value option, net of tax			**4**
Total accumulated other comprehensive income		–3 528	**–4 558**
Retained earnings		12 335	**11 345**
Shareholder’s equity		18 262	**16 240**
Non-controlling interests		1 932	**1 928**
Total equity		20 194	**18 168**
Total liabilities and equity		150 118	**151 074**

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

Statement of shareholder´s equity

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

USD millions	2017	2018
Contingent capital instruments		
Balance as of 1 January	1 102	**750**
Changes during the period	–352	
Balance as of period end	750	**750**
Common shares		
Balance as of 1 January	32	**32**
Issue of common shares		
Balance as of period end	32	**32**
Additional paid-in capital		
Balance as of 1 January	8 695	**8 690**
Contingent capital instrument issuance costs	8	
Share-based compensation	–9	**–7**
Realised gains/losses on treasury shares	–4	**3**
Balance as of period end	8 690	**8 686**
Shares in Swiss Re Ltd, net of tax		
Balance as of 1 January	–19	**–17**
Change in shares in Swiss Re Ltd	2	**2**
Balance as of period end	–17	**–15**
Net unrealised investment gains/losses, net of tax		
Balance as of 1 January	2 070	**2 064**
Change in group structure[1]	–23	
Impact of ASU 2018-02[2]		**175**
Impact of ASU 2016-16[2]		**4**
Impact of ASU 2016-01[2]		**–68**
Changes during the period	17	**–1 082**
Balance as of period end	2 064	**1 093**
Other-than-temporary impairment, net of tax		
Balance as of 1 January	–5	**–3**
Changes during the period	2	**1**
Balance as of period end	–3	**–2**
Foreign currency translation, net of tax		
Balance as of 1 January	–5 262	**–4 852**
Change in group structure[1]	12	
Impact of ASU 2018-02[2]		**–3**
Changes during the period	398	**–72**
Balance as of period end	–4 852	**–4 927**
Adjustment for pension and other post-retirement benefits, net of tax		
Balance as of 1 January	–999	**–737**
Impact of ASU 2018-02[2]		**–17**
Changes during the period	262	**28**
Balance as of period end	–737	**–726**
Credit risk of financial liabilities at fair value option, net of tax		
Balance as of 1 January	0	**0**
Impact of ASU 2016-01[2]		**5**
Changes during the period		**–1**
Balance as of period end	0	**4**

USD millions	2017	2018
Retained earnings		
Balance as of 1 January	15 339	**12 335**
Change in group structure[1]	–45	
Transactions under common control	–358	**–11**
Net income after attribution of non-controlling interests	66	**1 097**
Interest on contingent capital instruments, net of tax	–67	**–24**
Dividends on common shares	–2 600	**–1 950**
Impact of ASU 2018-02[2]		**–155**
Impact of ASU 2016-16[2]		**–10**
Impact of ASU 2016-01[2]		**63**
Balance as of period end	12 335	**11 345**
Shareholder's equity	18 262	**16 240**
Non-controlling interests		
Balance as of 1 January	1 661	**1 932**
Transactions with non-controlling interests	206	
Income attributable to non-controlling interests	48	**25**
Other comprehensive income attributable to non-controlling interests	17	**–29**
Balance as of period end	1 932	**1 928**
Total equity	20 194	**18 168**

[1] In January 2017, the Group sold three primary life and health insurance carriers to Swiss Re Life Capital Group.
[2] 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 six months ended 30 June

USD millions	2017	2018
Cash flows from operating activities		
Net income attributable to common shareholder	591	**1 073**
Add net income/loss attributable to non-controlling interests	16	**25**
Adjustments to reconcile net income to net cash provided/used by operating activities:		
Depreciation, amortisation and other non-cash items	138	**156**
Net realised investment gains/losses	–327	**–16**
Income from equity-accounted investees, net of dividends received	46	**–11**
Change in:		
Technical provisions and other reinsurance assets and liabilities, net	556	**–86**
Funds held by ceding companies and under reinsurance treaties	–427	**–53**
Reinsurance recoverable on unpaid claims and policy benefits	157	**364**
Other assets and liabilities, net	–239	**431**
Income taxes payable/recoverable	–170	**–19**
Trading positions, net	198	**108**
Net cash provided/used by operating activities	539	**1 972**
Cash flows from investing activities		
Fixed income securities:		
Sales	21 023	**20 179**
Maturities	2 161	**2 206**
Purchases	–25 199	**–22 889**
Net purchases/sales/maturities of short-term investments	2 840	**–606**
Equity securities:		
Sales	1 768	**1 158**
Purchases	–1 926	**–551**
Securities purchased/sold under agreement to resell/repurchase, net	–2 158	**459**
Cash paid/received for acquisitions/disposals and reinsurance transactions, net	53	
Net purchases/sales/maturities of other investments	310	**33**
Net purchases/sales/maturities of investments held for unit-linked business	26	**75**
Net cash provided/used by investing activities	–1 102	**64**
Cash flows from financing activities		
Policyholder account balances for unit-linked business:		
Deposits	4	
Withdrawals	–32	**–78**
Issuance/repayment of long-term debt	–60	**–103**
Issuance/repayment of short-term debt	676	**1 147**
Purchase/sale of shares in Swiss Re Ltd.	7	**2**
Dividends paid to parent	–2 600	**–1 950**
Transactions with non-controlling interests	200	
Net cash provided/used by financing activities	–1 805	**–982**

USD millions	2017	2018
Total net cash provided/used	–2 368	**1 054**
Effect of foreign currency translation	107	**–98**
Change in cash and cash equivalents	–2 261	**956**
Cash and cash equivalents as of 1 January	5 830	**3 218**
Cash and cash equivalents as of 30 June	3 569	**4 174**

Interest paid was USD 210 million and USD 219 million (thereof USD 25 million and USD 23 million for letter of credit fees) for the six months ended 30 June 2017 and 2018, respectively. Tax paid was USD 408 million and USD 277 million for the six months ended 30 June 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 Reinsurance Company Group, which is headquartered in Zurich, Switzerland, comprises Swiss Reinsurance Company Ltd (the parent company, referred to as "SRZ") and its subsidiaries (collectively, the "Group"). The Group is a wholesale provider of reinsurance, insurance and other insurance-based forms of risk transfer. Working through brokers and a network of offices around the globe, the Group serves a client base made up of insurance companies and public-sector clients.

SRZ is a wholly owned subsidiary of Swiss Re Ltd. Swiss Re Ltd is the ultimate parent company of the Swiss Re Group, which consists of four business segments: Property & Casualty Reinsurance, Life & Health Reinsurance, Corporate Solutions and Life Capital. The presentation of each segment's balance sheet is closely aligned with the segment legal entity structure.

Basis of presentation

The accompanying consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (US GAAP). All significant intra-group transactions and balances have been eliminated on consolidation. The year-end balance sheet data presented was derived from audited financial statements. These interim financial statements do not include all disclosures that US GAAP requires on an annual basis and therefore they should be read in conjunction with the Group's audited financial statements for the year ended 31 December 2017.

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 disclosures, including contingent assets and liabilities. The Group's liabilities for unpaid claims and claim adjustment expenses and policy benefits for life and health include estimates for premium, claim and benefit data not received from ceding companies at the date of the financial statements. In addition, the Group uses certain financial instruments and invests in securities of certain entities for which exchange trading does not exist. The Group determines these estimates based on historical information, actuarial analysis, financial modelling and other analytical techniques. Actual results could differ significantly from the estimates described above.

Valuation of financial assets

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

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

For assets or derivative structures at fair value, the Group uses market prices or inputs derived from market prices. A separate internal price verification process, independent of the trading function, provides an additional control over the market prices or market input used to determine the fair values of such assets. Although management considers that appropriate values have been ascribed to such assets, there is always a level of uncertainty and judgement over these valuations. Subsequent valuations could differ significantly from the results of the process described above. The Group may become aware of counterparty valuations, either directly through the exchange of information or indirectly, for example, through collateral demands. Any implied differences are considered in the independent price verification process and may result in adjustments to initially indicated valuations. As of 30 June 2018, the Group has not provided any collateral on financial instruments in excess of its own market value estimates.

Subsequent events
Subsequent events for the current reporting period have been evaluated up to 2 August 2018. This is the date on which the financial statements are available to be issued.

Recent accounting guidance
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 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 is a reclassification within shareholder's equity from net unrealised investment gains, net of tax, to retained earnings of USD 68 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 shareholder's equity. The impact on pre-tax earnings in the first half-year of 2018 due to the adoption of ASU 2016-01 is a net realised investment loss of USD 77 million.

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 the ASU on 1 January 2019. The Group is currently assessing the impact of the new requirements.

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 for interim and annual periods after 15 December 2018 is permitted. The Group is currently assessing the impact of the new requirements.

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 4 million, an increase of deferred tax of USD 6 million, and a reduction of retained earnings of USD 10 million. The movements in equity related to the adoption of ASU 2016-16 can be found in the statement of shareholder's equity. The impact on earnings for the first half-year 2018 due to the adoption of ASU 2016-16 is a tax benefit of USD 32 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 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 application of the ASU is permitted. The Group is currently assessing the impact of the new requirements.

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 nonfinancial 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 in 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. For unrealised gains/losses on available-for-sale securities, the Group releases the stranded tax effects to earnings on a straight-line basis over the average duration of the relevant available-for-sale 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. The Group early adopted ASU 2018-02 on 1 January 2018. The adoption resulted in a reclassification within shareholder's equity of USD 155 million of stranded tax charges from accumulated other comprehensive income to retained earnings. These stranded tax charges related to the Tax Cuts and Jobs Act. The reclassification can be found in the statement of shareholder's equity.

2 Information on business segments

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

The Group presents two core operating business segments: Property & Casualty Reinsurance and Life & Health Reinsurance. The presentation of each segment's balance sheet is closely aligned to the segment legal entity structure. The assignment of assets and liabilities for entities that span 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 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. As well as traditional reinsurance solutions, the business unit offers insurance linked securities and other insurance related capital market products in both Property & Casualty and Life & Health.

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

Other
Items not allocated to the business segments are included in the "Other" column which encompasses non-core activities. The "Other" column includes mainly certain costs not allocated to the Reinsurance business segments, certain Treasury activities, as well as the remaining non-core activities which have been in run-off since November 2007.

As of January 2017 the Group's primary life and health insurance business was sold to Swiss Re Life Capital Group.

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. In the periods presented, significant intra-group transactions related to intra-group reinsurance arrangements and certain treasury-related activities are included.

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a) Business segments – income statement

For the six months ended 30 June

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Revenues					
Gross premiums written	9 418	6 399	62		15 879
Net premiums written	9 076	5 732	11		14 819
Change in unearned premiums	–1 098	4	–1		–1 095
Premiums earned	7 978	5 736	10		13 724
Fee income from policyholders		33			33
Net investment income – non-participating business	463	625	–71	–19	998
Net realised investment gains/losses – non-participating business	170	252	–131		291
Net investment result – unit-linked business		37			37
Other revenues	18	1	2	–2	19
Total revenues	8 629	6 684	–190	–21	15 102
Expenses					
Claims and claim adjustment expenses	–5 102		2		–5 100
Life and health benefits		–4 540			–4 540
Return credited to policyholders		–54	–1		–55
Acquisition costs	–2 113	–973	1		–3 085
Operating expenses	–552	–374	–225		–1 151
Total expenses before interest expenses	–7 767	–5 941	–223	0	–13 931
Income/loss before interest and income tax expense/benefit	862	743	–413	–21	1 171
Interest expenses	–142	–151	–12	21	–284
Income/loss before income tax expense/benefit	720	592	–425	0	887
Income tax expense/benefit	–165	–135	54		–246
Net income/loss before attribution of non-controlling interests	555	457	–371	0	641
Income/loss attributable to non-controlling interests			–16		–16
Net income/loss after attribution of non-controlling interests	555	457	–387	0	625
Interest on contingent capital instruments, net of tax	–9	–25			–34
Net income/loss attributable to common shareholder	546	432	–387	0	591
Claims ratio in %	64.0				
Expense ratio in %	33.4				
Combined ratio in %	97.4				
Management expense ratio in %		5.8			
Net operating margin in %	10.0	11.2			7.8

Business segments – income statement

For the six months ended 30 June

2018 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Revenues					
Gross premiums written	9 570	7 372	54		16 996
Net premiums written	9 289	6 423	1		15 713
Change in unearned premiums	–1 588	–107	–1		–1 696
Premiums earned	7 701	6 316			14 017
Fee income from policyholders		73	1		74
Net investment income – non-participating business	637	660	50	–51	1 296
Net realised investment gains/losses – non-participating business	–126	138	14		26
Net investment result – unit-linked business		–9			–9
Other revenues	9		22		31
Total revenues	**8 221**	**7 178**	**87**	**–51**	**15 435**
Expenses					
Claims and claim adjustment expenses	–4 562				–4 562
Life and health benefits		–5 048	–5		–5 053
Return credited to policyholders		–12			–12
Acquisition costs	–2 017	–1 058	10		–3 065
Operating expenses	–572	–352	–140		–1 064
Total expenses before interest expenses	**–7 151**	**–6 470**	**–135**	**0**	**–13 756**
Income/loss before interest and income tax expense/benefit	**1 070**	**708**	**–48**	**–51**	**1 679**
Interest expenses	–148	–190	–6	51	–293
Income/loss before income tax expense/benefit	**922**	**518**	**–54**	**0**	**1 386**
Income tax expense/benefit	–170	–96	2		–264
Net income/loss before attribution of non-controlling interests	**752**	**422**	**–52**	**0**	**1 122**
Income/loss attributable to non-controlling interests			–25		–25
Net income/loss after attribution of non-controlling interests	**752**	**422**	**–77**	**0**	**1 097**
Interest on contingent capital instruments, net of tax		–24			–24
Net income/loss attributable to common shareholder	**752**	**398**	**–77**	**0**	**1 073**
Claims ratio in %	59.3				
Expense ratio in %	33.6				
Combined ratio in %	92.9				
Management expense ratio in %		5.0			
Net operating margin in %	13.0	9.9			10.9

Business segments – balance sheet
As of 31 December

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Total assets	80 475	64 559	16 589	–11 505	150 118

As of 30 June

2018 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Total assets	**83 176**	**65 301**	**15 951**	**–13 354**	**151 074**

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

2017 USD millions	Property	Casualty	Specialty	Unallocated	Total
Revenues					
Gross premiums written	3 876	4 104	1 438		9 418
Net premiums written	3 598	4 080	1 398		9 076
Change in unearned premiums	–894	49	–253		–1 098
Premiums earned	2 704	4 129	1 145		7 978
Net investment income				463	463
Net realised investment gains/losses				170	170
Other revenues				18	18
Total revenues	2 704	4 129	1 145	651	8 629
Expenses					
Claims and claim adjustment expenses	–1 531	–2 973	–598		–5 102
Acquisition costs	–568	–1 244	–301		–2 113
Operating expenses	–299	–168	–85		–552
Total expenses before interest expenses	–2 398	–4 385	–984	0	–7 767
Income/loss before interest and income tax expense	306	–256	161	651	862
Interest expenses				–142	–142
Income/loss before income tax expense	306	–256	161	509	720
Claims ratio in %	56.6	72.0	52.2		64.0
Expense ratio in %	32.1	34.2	33.7		33.4
Combined ratio in %	88.7	106.2	85.9		97.4

Property & Casualty Reinsurance business segment – by line of business

For the six months ended 30 June

2018 USD millions	Property	Casualty	Specialty	Unallocated	Total
Revenues					
Gross premiums written	3 825	4 221	1 524		9 570
Net premiums written	3 594	4 194	1 501		9 289
Change in unearned premiums	–887	–340	–361		–1 588
Premiums earned	2 707	3 854	1 140		7 701
Net investment income				637	637
Net realised investment gains/losses				–126	–126
Other revenues				9	9
Total revenues	**2 707**	**3 854**	**1 140**	**520**	**8 221**
Expenses					
Claims and claim adjustment expenses	–1 405	–2 727	–430		–4 562
Acquisition costs	–574	–1 137	–306		–2 017
Operating expenses	–284	–200	–88		–572
Total expenses before interest expenses	**–2 263**	**–4 064**	**–824**	**0**	**–7 151**
Income/loss before interest and income tax expense	**444**	**–210**	**316**	**520**	**1 070**
Interest expenses				–148	–148
Income/loss before income tax expense	**444**	**–210**	**316**	**372**	**922**
Claims ratio in %	51.9	70.7	37.7		59.3
Expense ratio in %	31.7	34.7	34.6		33.6
Combined ratio in %	83.6	105.4	72.3		92.9

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

For the six months ended 30 June

2017 USD millions	Life	Health	Unallocated	Total
Revenues				
Gross premiums written	4 607	1 792		6 399
Net premiums written	3 985	1 747		5 732
Change in unearned premiums	44	–40		4
Premiums earned	4 029	1 707		5 736
Fee income from policyholders	33			33
Net investment income – non-participating business[1]	485	140		625
Net realised investment gains/losses – non-participating business	16	–2	238	252
Net investment result – unit-linked business	37			37
Other revenues	1			1
Total revenues	4 601	1 845	238	6 684
Expenses				
Life and health benefits	–3 214	–1 326		–4 540
Return credited to policyholders	–54			–54
Acquisition costs	–669	–304		–973
Operating expenses	–264	–110		–374
Total expenses before interest expenses	–4 201	–1 740	0	–5 941
Income before interest and income tax expense	400	105	238	743
Interest expenses			–151	–151
Income before income tax expense	400	105	87	592
Management expense ratio in %	5.8	6.0		5.8
Net operating margin[2] in %	8.8	5.7		11.2

[1]The Group revised the methodology for allocating investment return to lines of business. Comparative information for 2017 has been adjusted accordingly.
[2]Net operating margin is calculated as "Income before interest and income tax expense" divided by "Total revenues" excluding "Net investment result – unit-linked business".

Life & Health Reinsurance business segment – by line of business

For the six months ended 30 June

2018 USD millions	Life	Health	Unallocated	Total
Revenues				
Gross premiums written	5 179	2 193		7 372
Net premiums written	4 296	2 127		6 423
Change in unearned premiums	–1	–106		–107
Premiums earned	4 295	2 021		6 316
Fee income from policyholders	73			73
Net investment income – non-participating business	495	165		660
Net realised investment gains/losses – non-participating business	17	–3	124	138
Net investment result – unit-linked business	–9			–9
Total revenues	**4 871**	**2 183**	**124**	**7 178**
Expenses				
Life and health benefits	–3 537	–1 511		–5 048
Return credited to policyholders	–12			–12
Acquisition costs	–725	–333		–1 058
Operating expenses	–219	–133		–352
Total expenses before interest expenses	**–4 493**	**–1 977**	**0**	**–6 470**
Income before interest and income tax expense	**378**	**206**	**124**	**708**
Interest expenses			–190	–190
Income/loss before income tax expense	**378**	**206**	**–66**	**518**
Management expense ratio in %	4.5	6.1		5.0
Net operating margin[1] in %	7.7	9.4		9.9

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

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3 Insurance information

Premiums earned and fees assessed against policyholders

For the six months ended 30 June

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Premiums earned, thereof:				
Direct		25		25
Reinsurance	8 172	6 379	61	14 612
Intra-group transactions (assumed and ceded)				0
Premiums earned before retrocession to external parties	8 172	6 404	61	14 637
Retrocession to external parties	–194	–668	–51	–913
Net premiums earned	7 978	5 736	10	13 724
Fee income from policyholders, thereof:				
Direct				0
Reinsurance		33	48	81
Gross fee income before retrocession to external parties		33	48	81
Retrocession to external parties			–48	–48
Net fee income	0	33	0	33

2018 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Premiums earned, thereof:				
Direct		33		33
Reinsurance	7 904	7 239	53	15 196
Intra-group transactions (assumed and ceded)				0
Premiums earned before retrocession to external parties	7 904	7 272	53	15 229
Retrocession to external parties	–203	–956	–53	–1 212
Net premiums earned	**7 701**	**6 316**		**14 017**
Fee income from policyholders, thereof:				
Direct				0
Reinsurance		73	47	120
Gross fee income before retrocession to external parties		73	47	120
Retrocession to external parties			–46	–46
Net fee income	**0**	**73**	**1**	**74**

Claims and claim adjustment expenses

For the six months ended 30 June

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Claims paid, thereof:				
Gross claims paid to external parties	–4 752	–4 778	–148	–9 678
Intra-group transactions (assumed and ceded)				0
Claims before receivables from retrocession to external parties	–4 752	–4 778	–148	–9 678
Retrocession to external parties	195	578	149	922
Net claims paid	–4 557	–4 200	1	–8 756
Change in unpaid claims and claim adjustment expenses; life and health benefits, thereof:				
Gross – with external parties	–386	–335	42	–679
Intra-group transactions (assumed and ceded)				0
Unpaid claims and claim adjustment expenses; life and health benefits before impact of retrocession to external parties	–386	–335	42	–679
Retrocession to external parties	–159	–5	–41	–205
Net unpaid claims and claim adjustment expenses; life and health benefits	–545	–340	1	–884
Claims and claim adjustment expenses; life and health benefits	–5 102	–4 540	2	–9 640

Acquisition costs

For the six months ended 30 June

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Acquisition costs, thereof:				
Gross acquisition costs with external parties	–2 169	–1 079	–14	–3 262
Intra-group transactions (assumed and ceded)				0
Acquisition costs before impact of retrocession to external parties	–2 169	–1 079	–14	–3 262
Retrocession to external parties	56	106	15	177
Net acquisition costs	–2 113	–973	1	–3 085

Claims and claim adjustment expenses

For the six months ended 30 June

2018 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Claims paid, thereof:				
Gross claims paid to external parties	–5 939	–5 673	–128	–11 740
Intra-group transactions (assumed and ceded)				0
Claims before receivables from retrocession to external parties	–5 939	–5 673	–128	–11 740
Retrocession to external parties	684	864	119	1 667
Net claims paid	**–5 255**	**–4 809**	**–9**	**–10 073**
Change in unpaid claims and claim adjustment expenses; life and health benefits, thereof:				
Gross – with external parties	1 074	–244	12	842
Intra-group transactions (assumed and ceded)				0
Unpaid claims and claim adjustment expenses; life and health benefits before impact of retrocession to external parties	1 074	–244	12	842
Retrocession to external parties	–381	5	–8	–384
Net unpaid claims and claim adjustment expenses; life and health benefits	**693**	**–239**	**4**	**458**
Claims and claim adjustment expenses; life and health benefits	**–4 562**	**–5 048**	**–5**	**–9 615**

Acquisition costs

For the six months ended 30 June

2018 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Acquisition costs, thereof:				
Gross acquisition costs with external parties	–2 068	–1 205	–13	–3 286
Intra-group transactions (assumed and ceded)				0
Acquisition costs before impact of retrocession to external parties	–2 068	–1 205	–13	–3 286
Retrocession to external parties	51	147	23	221
Net acquisition costs	**–2 017**	**–1 058**	**10**	**–3 065**

Reinsurance assets and liabilities

The reinsurance assets and liabilities as of 31 December 2017 and 30 June 2018 were as follows:

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Assets					
Reinsurance recoverable on unpaid claims and policy benefits	2 541	4 638	6 077	–11	13 245
Deferred acquisition costs	2 146	4 234			6 380
Liabilities					
Unpaid claims and claim adjustment expenses	45 276	12 129	829	–13	58 221
Liabilities for life and health policy benefits		18 230	1 131		19 361
Policyholder account balances		1 574	4 190		5 764

2018 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Assets					
Reinsurance recoverable on unpaid claims and policy benefits	2 141	4 456	6 102	–12	12 687
Deferred acquisition costs	2 238	4 173			6 411
Liabilities					
Unpaid claims and claim adjustment expenses	43 773	12 128	843	–13	56 731
Liabilities for life and health policy benefits		17 862	1 108		18 970
Policyholder account balances		1 456	4 214		5 670

Reinsurance receivables

Reinsurance receivables as of 31 December 2017 and 30 June 2018 were as follows:

USD millions	2017	**2018**
Premium receivables invoiced	2 296	2 653
Receivables invoiced from ceded re/insurance business	1 227	629
Assets arising from the application of the deposit method of accounting and meeting the definition of financing receivables	144	184
Recognised allowance	–31	–29

4 Premiums written

For the six months ended 30 June

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Gross premiums written, thereof:					
Direct		25			25
Reinsurance	9 418	6 374	62		15 854
Intra-group transactions (assumed)					0
Gross premiums written	9 418	6 399	62		15 879
Intra-group transactions (ceded)					0
Gross premiums written before retrocession to external parties	9 418	6 399	62		15 879
Retrocession to external parties	–342	–667	–51		–1 060
Net premiums written	9 076	5 732	11	0	14 819

2018 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Consolidation	Total
Gross premiums written, thereof:					
Direct		33			33
Reinsurance	9 570	7 339	54		16 963
Intra-group transactions (assumed)					0
Gross premiums written	9 570	7 372	54		16 996
Intra-group transactions (ceded)					0
Gross premiums written before retrocession to external parties	9 570	7 372	54		16 996
Retrocession to external parties	–281	–949	–53		–1 283
Net premiums written	**9 289**	**6 423**	**1**	**0**	**15 713**

5 Unpaid claims and claim adjustment expenses

A reconciliation of the opening and closing reserve balances for unpaid claims and claim adjustment expenses as of 31 December 2017 and 30 June 2018 is presented as follows:

USD millions	2017	**2018**
Balance as of 1 January	51 073	58 221
Reinsurance recoverable	–2 837	–4 017
Deferred expense on retroactive reinsurance	–211	–240
Net balance as of 1 January	48 025	**53 964**
Effect of change in group structure	–281	
Net balance as of 1 January after effect of change in group structure	47 744	**53 964**
Incurred related to:		
Current year	22 824	9 777
Prior year	–813	–279
Amortisation of deferred expense on retroactive reinsurance and impact of commutations	–5	–1
Total incurred	22 006	**9 497**
Paid related to:		
Current year	–5 971	–1 556
Prior year	–12 362	–8 517
Total paid	–18 333	**–10 073**
Foreign exchange	2 496	–877
Effect of acquisitions, disposals, new retroactive reinsurance and other items	51	427
Net balance as of period end	53 964	**52 938**
Reinsurance recoverable	4 017	3 636
Deferred expense on retroactive reinsurance	240	157
Balance as of period end	58 221	**56 731**

Prior-year development

Non-life claims development in first the six months ended 30 June 2018 on prior years mainly came from favourable development on the natural catastrophe events in North America and the earthquakes in Mexico that occurred in 2017 and on the earthquake New Zealand that occurred in 2016. The favourable development related to the natural catastrophe events in North America mostly impacted specialty in the marine business and property. The favourable development in property was partially offset by adverse development on natural catastrophe events in Asia. Casualty includes favourable development for liability lines of business in Europe, which was partially offset by adverse development on accident and health and workers compensation.

For the life and health business, claims development on prior-year business was driven by adverse claims experience across a number of lines of business, in particular individual life and disability portfolios in the US. 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 as of 31 December 2017 and 30 June 2018 is shown below:

USD millions	2017	**2018**
Line of business:		
Property	–588	–38
Casualty	–187	–99
Specialty	–234	–226
Life and health	196	84
Total	–813	**–279**

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

As of 31 December 2017 and 30 June 2018, the DAC were as follows:

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Opening balance as of 1 January	2 280	3 465	11	5 756
Change in group structure[1]			–11	–11
Deferred	4 068	1 294		5 362
Effect of acquisitions/disposals and retrocessions		–5		–5
Amortisation	–4 255	–508		–4 763
Effect of foreign currency translation and other changes	53	–12		41
Closing balance	2 146	4 234	0	6 380

2018 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Other	Total
Opening balance as of 1 January	2 146	4 234	0	6 380
Deferred	2 123	309		2 432
Amortisation	–2 017	–282		–2 299
Effect of foreign currency translation and other changes	–14	–88		–102
Closing balance	**2 238**	**4 173**	**0**	**6 411**

[1] In January 2017, the Group sold three primary life and health insurance carriers to the Swiss Re Life Capital Group.

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 2017 and 30 June 2018, the PVFP was as follows:

			2017			**2018**
USD millions	Life & Health Reinsurance	Other	Total	Life & Health Reinsurance	Other	Total
Opening balance as of 1 January	966	577	1 543	921	16	937
Effect of acquisitions/disposals and retrocessions		–562	–562			0
Amortisation	–135	3	–132	–53	3	–50
Interest accrued on unamortised PVFP	52	–1	51	23	–1	22
Effect of change in unrealised gains/losses		–1	–1		9	9
Effect of foreign currency translation	38		38	–11		–11
Closing balance	921	16	937	**880**	**27**	**907**

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

7 Investments

Investment income

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

USD millions	2017	2018
Fixed income securities	924	992
Equity securities	31	33
Policy loans, mortgages and other loans	66	37
Investment real estate	96	109
Short-term investments	28	18
Other current investments	–9	55
Share in earnings of equity-accounted investees	20	64
Cash and cash equivalents	9	12
Net result from deposit-accounted contracts	40	56
Deposits with ceding companies	234	364
Gross investment income	1 439	**1 740**
Investment expenses	–150	–171
Interest charged for funds held	–291	–273
Net investment income – non-participating business	998	**1 296**

Dividends received from investments accounted for using the equity method were USD 66 million and USD 53 million for the six months ended 30 June 2017 and 2018, respectively.

Share in earnings of equity-accounted investees included an impairment of the carrying amount of an equity-accounted investee of USD 5 million for the six months ended 30 June 2017.

Realised gains and losses

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

USD millions	2017	2018
Fixed income securities available-for-sale:		
Gross realised gains	174	184
Gross realised losses	–76	–104
Equity securities available-for-sale:		
Gross realised gains[1]	297	
Gross realised losses[1]	–11	
Other-than-temporary impairments	–16	–4
Net realised investment gains/losses on equity securities[1]		6
Net realised investment gains/losses on trading securities	9	–35
Change in net unrealised investment gains/losses on trading securities	–31	–4
Net realised/unrealised gains/losses on other investments	99	–41
Net realised/unrealised gains/losses on insurance-related activities	30	23
Foreign exchange gains/losses	–184	1
Net realised investment gains/losses – non-participating business	291	**26**

[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 1 million for the six months ended 30 June 2018.

Investment result – unit-linked business

The net investment result on unit-linked business credited to policyholders amounted to gains of USD 37 million and to losses of USD 9 million for the six months ended 30 June 2017 and 2018, respectively, mainly originating from gains/losses on equity securities.

Impairment on fixed income securities related to credit losses

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

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

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

USD millions	2017	**2018**
Balance as of 1 January	94	87
Credit losses for which an other-than-temporary impairment was not previously recognised	2	
Reductions for securities sold during the period	–10	–9
Increase of credit losses for which an other-than-temporary impairment has been recognised previously, when the Group does not intend to sell, or more likely than not will not be required to sell before recovery	1	2
Impact of increase in cash flows expected to be collected	–2	–2
Impact of foreign exchange movements	2	–1
Balance as of 30 June	87	**77**

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 2017 and 30 June 2018 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	11 182	168	−147		11 203
US Agency securitised products	5 796	18	−66		5 748
States of the United States and political subdivisions of the states	1 213	91	−5		1 299
United Kingdom	4 034	758	−18		4 774
Canada	3 630	539	−28		4 141
Germany	2 956	222	−21		3 157
France	1 784	196	−10		1 970
Australia	1 925	16	−3		1 938
Other	6 695	227	−68		6 854
Total	39 215	2 235	−366		41 084
Corporate debt securities	23 060	1 175	−112		24 123
Mortgage- and asset-backed securities	3 419	76	−18	−2	3 475
Fixed income securities available-for-sale	65 694	3 486	−496	−2	68 682
Equity securities available-for-sale	2 993	75	−47		3 021

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	10 830	105	−203		10 732
US Agency securitised products	5 767	8	−147		5 628
States of the United States and political subdivisions of the states	1 198	55	−17		1 236
United Kingdom	3 838	675	−31		4 482
Canada	3 447	455	−25		3 877
Germany	2 500	207	−9		2 698
France	1 677	204	−5		1 876
Australia	1 593	15	−2		1 606
Other	7 436	182	−132		7 486
Total	38 286	1 906	−571		39 621
Corporate debt securities	23 403	587	−367		23 623
Mortgage- and asset-backed securities	3 389	57	−56	−1	3 389
Fixed income securities available-for-sale	**65 078**	**2 550**	**−994**	**−1**	**66 633**

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.

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 business) as of 31 December 2017 and 30 June 2018 were as follows:

USD millions	2017	2018
Debt securities issued by governments and government agencies	2 414	2 923
Corporate debt securities	38	37
Mortgage- and asset-backed securities	86	67
Fixed income securities trading – non-participating business	2 538	**3 027**
Equity securities trading – non-participating business[1]	3	
Equity securities at fair value through earnings – non-participating business[1]		**2 418**

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

Investments held for unit-linked business

As of 31 December 2017, the carrying amounts of investments held for unit-linked business consist of equity securities trading of USD 585 million. As of 30 June 2018, the carrying amounts of investments held for unit-linked business consist of equity securities at fair value through earnings of USD 489 million. Please refer to Note 1 for details on changes related to ASU 2016-01.

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 30 June 2018, USD 14 954 million and USD 14 671 million, respectively, of fixed income securities available-for-sale were callable.

		2017		2018
USD millions	Amortised cost or cost	Estimated fair value	Amortised cost or cost	Estimated fair value
Due in one year or less	5 916	5 918	6 912	6 890
Due after one year through five years	22 063	22 155	21 987	21 905
Due after five years through ten years	11 152	11 427	10 344	10 340
Due after ten years	23 466	26 027	22 810	24 474
Mortgage- and asset-backed securities with no fixed maturity	3 097	3 155	3 025	3 024
Total fixed income securities available-for-sale	65 694	68 682	**65 078**	**66 633**

Assets pledged

As of 30 June 2018, investments with a carrying value of USD 6 229 million were on deposit with regulatory agencies in accordance with local requirements, of which USD 50 million were cash and cash equivalents, and investments with a carrying value of USD 11 097 million were placed on deposit or pledged to secure certain reinsurance liabilities, including pledged investments in subsidiaries, of which USD 320 million 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 30 June 2018, securities of USD 13 767 million and USD 12 673 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 2 119 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 30 June 2018, a real estate portfolio with a carrying value of USD 185 million serves 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 30 June 2018, the fair value of the equity securities, government and corporate debt securities received as collateral was USD 9 443 million and USD 8 139 million, respectively. Of this, the amount that was sold or repledged as of 31 December 2017 and 30 June 2018 was USD 3 947 million and USD 3 685 million, respectively. The sources of the collateral are securities borrowing, reverse repurchase agreements and derivative transactions.

Offsetting of derivatives, financial assets and financial liabilities

Offsetting of derivatives, financial assets and financial liabilities as of 31 December 2017 and 30 June 2018 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	1 797	–1 176	621	–18	603
Reverse repurchase agreements	5 956	–2 995	2 961	–2 961	0
Securities lending	1 589	–524	1 065	–1 065	0
Total	9 342	–4 695	4 647	–4 044	603

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	–1 858	1 342	–516	48	–468
Repurchase agreements	–2 631	2 471	–160	160	0
Securities lending	–1 878	1 049	–829	765	–64
Total	–6 367	4 862	–1 505	973	–532

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	1 767	–1 192	**575**	–6	**569**
Reverse repurchase agreements	6 413	–2 977	**3 436**	–3 436	**0**
Securities lending	361	–163	**198**	–198	**0**
Total	**8 541**	**–4 332**	**4 209**	**–3 640**	**569**

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	–1 690	1 245	**–445**	43	**–402**
Repurchase agreements	–2 802	2 505	**–297**	297	**0**
Securities lending	–2 457	635	**–1 822**	1 688	**–134**
Total	**–6 949**	**4 385**	**–2 564**	**2 028**	**–536**

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

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 30 June 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	76	2 528	188		2 792
Corporate debt securities	10				10
Total repurchase agreements	**86**	**2 528**	**188**		**2 802**
Securities lending					
Debt securities issued by governments and government agencies	257	270	1 520	401	2 448
Corporate debt securities	7				7
Equity securities	2				2
Total securities lending	**266**	**270**	**1 520**	**401**	**2 457**
Gross amount of recognised liabilities for repurchase agreements and securities lending					**5 259**

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.

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 30 June 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	7 402	114	1 368	33	8 770	147
US Agency securitised products	3 753	37	993	29	4 746	66
States of the United States and political subdivisions of the states	259	4	39	1	298	5
United Kingdom	535	9	258	9	793	18
Canada	1 749	27	262	1	2 011	28
Germany	685	18	44	3	729	21
France	209	8	7	2	216	10
Australia	1 013	3	57	0	1 070	3
Other	2 687	52	319	16	3 006	68
Total	18 292	272	3 347	94	21 639	366
Corporate debt securities	5 390	83	860	29	6 250	112
Mortgage- and asset-backed securities	1 429	13	394	7	1 823	20
Total	25 111	368	4 601	130	29 712	498

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	6 672	143	1 343	60	**8 015**	**203**
US Agency securitised products	3 681	97	1 066	50	**4 747**	**147**
States of the United States and political subdivisions of the states	391	12	75	5	**466**	**17**
United Kingdom	749	18	211	13	**960**	**31**
Canada	1 443	21	237	4	**1 680**	**25**
Germany	484	7	51	2	**535**	**9**
France	270	4	13	1	**283**	**5**
Australia	945	2			**945**	**2**
Other	3 231	91	449	41	**3 680**	**132**
Total	17 866	395	3 445	176	**21 311**	**571**
Corporate debt securities	12 760	280	1 367	87	**14 127**	**367**
Mortgage- and asset-backed securities	2 160	45	353	12	**2 513**	**57**
Total	**32 786**	**720**	**5 165**	**275**	**37 951**	**995**

As of 31 December 2017, USD 37 million of the gross unrealised loss on equity securities available-for-sale relates to declines in value for less than 12 months and USD 10 million to declines in value for more than 12 months.

Mortgage, policy and other loans, and investment real estate

As of 31 December 2017 and 30 June 2018, the carrying and respective fair values of investments in mortgage, policy and other loans, and investment real estate (excluding unit-linked business) were as follows:

		2017		**2018**
USD millions	Carrying value	Fair value	Carrying value	Fair value
Policy loans	86	86	83	83
Mortgage loans	1 526	1 529	1 510	1 497
Other loans	784	794	942	950
Investment real estate	2 017	3 895	2 127	3 989

Depreciation expense related to investment real estate was USD 23 million and USD 27 million for the six months ended 30 June 2017 and 2018, respectively. Accumulated depreciation on investment real estate totalled USD 585 million and USD 601 million as of 31 December 2017 and 30 June 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 30 June 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	621					621
Reverse repurchase agreements			2 961			2 961
Securities lending	776		1 065			1 841
Equity accounted investments	111			1 230		1 341
Other	60	607	369			1 036
Other invested assets	1 568	607	4 395	1 230	0	7 800
Accrued expenses and other liabilities						
Derivative financial instruments	516					516
Repurchase agreements			160			160
Securities lending	778		51			829
Securities sold short	1 947					1 947
Other			412		3 919	4 331
Accrued expenses and other liabilities	3 241	0	623	0	3 919	7 783

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	575					575
Reverse repurchase agreements			3 436			3 436
Securities lending	1 787		198			1 985
Equity accounted investments	23			1 290		1 313
Other	55	617	360			1 032
Other invested assets	**2 440**	**617**	**3 994**	**1 290**	**0**	**8 341**
Accrued expenses and other liabilities						
Derivative financial instruments	445					445
Repurchase agreements			297			297
Securities lending	1 787		35			1 822
Securities sold short	2 175					2 175
Other			426		4 761	5 187
Accrued expenses and other liabilities	**4 407**	**0**	**758**	**0**	**4 761**	**9 926**

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

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. 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 the six months ended 30 June 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 Other.

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

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

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

Assets and liabilities measured at fair value on a recurring basis

As of 31 December 2017 and 30 June 2018, 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	10 820	60 039	361			71 220
Debt securities issued by US government and government agencies	10 820	1 847				12 667
US Agency securitised products		5 877				5 877
Debt securities issued by non-US governments and government agencies		24 954				24 954
Corporate debt securities		23 807	354			24 161
Mortgage- and asset-backed securities		3 554	7			3 561
Equity securities held for proprietary investment purposes	3 024					3 024
Equity securities backing unit-linked business	585					585
Short-term investments held for proprietary investment purposes	699	1 975				2 674
Derivative financial instruments	47	1 363	387	–1 176		621
Interest rate contracts	4	534	5			543
Foreign exchange contracts		337				337
Equity contracts	43	478	283			804
Credit contracts		14				14
Other contracts			99			99
Other invested assets	765	12	171		607	1 555
Funds held by ceding companies		206				206
Total assets at fair value	15 940	63 595	919	–1 176	607	79 885
Liabilities						
Derivative financial instruments	–20	–1 569	–269	1 342		–516
Interest rate contracts	–2	–419				–421
Foreign exchange contracts		–436				–436
Equity contracts	–18	–635	–31			–684
Credit contracts		–79				–79
Other contracts			–238			–238
Liabilities for life and health policy benefits			–126			–126
Funds held under reinsurance treaties	–91	–1 712				–1 803
Accrued expenses and other liabilities	–939	–1 785				–2 724
Total liabilities at fair value	–1 050	–5 066	–395	1 342		–5 169

[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	10 332	58 946	382			69 660
Debt securities issued by US government and government agencies	10 332	1 705				12 037
US Agency securitised products		5 814				5 814
Debt securities issued by non-US governments and government agencies		24 693				24 693
Corporate debt securities		23 284	376			23 660
Mortgage- and asset-backed securities		3 450	6			3 456
Equity securities held for proprietary investment purposes	2 418					2 418
Equity securities backing unit-linked business	489					489
Short-term investments held for proprietary investment purposes	649	2 601				3 250
Derivative financial instruments	16	1 386	365	–1 192		575
Interest rate contracts	3	479	6			488
Foreign exchange contracts		390				390
Equity contracts	13	503	283			799
Credit contracts		14				14
Other contracts			76			76
Other invested assets	1 683	105	78		617	2 483
Funds held by ceding companies		205				205
Total assets at fair value	**15 587**	**63 243**	**825**	**–1 192**	**617**	**79 080**
Liabilities						
Derivative financial instruments	–12	–1 465	–213	1 245		–445
Interest rate contracts	–3	–404	–4			–411
Foreign exchange contracts		–365				–365
Equity contracts	–9	–653	–30			–692
Credit contracts		–43				–43
Other contracts			–179			–179
Liabilities for life and health policy benefits			–124			–124
Funds held under reinsurance treaties	–86	–1 499				–1 585
Accrued expenses and other liabilities	–1 747	–2 215				–3 962
Total liabilities at fair value	**–1 845**	**–5 179**	**–337**	**1 245**		**–6 116**

[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 2017 and 30 June 2018, the reconciliation of the fair values of assets and liabilities measured on a recurring basis using significant unobservable inputs was as follows:

2017 USD millions	Fixed income securities	Equity securities	Derivative assets	Other invested assets	Total assets	Derivative liabilities	Liabilities for life and health policy benefits	Accrued expenses and other liabilities	Total liabilities
Assets and liabilities									
Balance as of 1 January	348	1	459	160	968	–440	–144	–1 236	–1 820
Realised/unrealised gains/losses:									
Included in net income	1		–23		–22	216	19		235
Included in other comprehensive income	–4			16	12				0
Purchases	92		32		124				0
Issuances					0	–38			–38
Sales	–7		–2		–9	2			2
Settlements	–81		–79	–6	–166	–9		1 286	1 277
Transfers into level 3[1]	1				1				0
Transfers out of level 3[1]		–1			–1				0
Impact of foreign exchange movements	11			1	12		–1	–50	–51
Closing balance as of 31 December	361	0	387	171	919	–269	–126	0	–395

[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	Other invested assets	**Total assets**	Derivative liabilities	Liabilities for life and health policy benefits	Accrued expenses and other liabilities	**Total liabilities**
Assets and liabilities									
Balance as of 1 January	361	0	387	171	**919**	–269	–126	0	**–395**
Realised/unrealised gains/losses:									
Included in net income			–13	–7	**–20**	84	2		**86**
Included in other comprehensive income	–8				**–8**				**0**
Purchases	71		7		**78**				**0**
Issuances					**0**	–9			**–9**
Sales	–6		–3	–81	**–90**				**0**
Settlements	–30		–14		**–44**	–15			**–15**
Transfers into level 3[1]			1		**1**	–3			**–3**
Transfers out of level 3[1]				–2	**–2**				**0**
Impact of foreign exchange movements	–6			–3	**–9**	–1			**–1**
Closing balance as of 30 June	**382**	**0**	**365**	**78**	**825**	**–213**	**–124**	**0**	**–337**

[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 six months ended 30 June were as follows:

USD millions	2017	2018
Gains/losses included in net income for the period	108	66
Whereof change in unrealised gains/losses relating to assets and liabilities still held at the reporting date	84	41

Quantitative information about level 3 fair value measurements

Unobservable inputs for major level 3 assets and liabilities as of 31 December 2017 and 30 June 2018 were as follows:

USD millions	2017 Fair value	2018 Fair value	Valuation technique	Unobservable input	Range (weighted average)
Assets					
Corporate debt securities	354	**376**			
Infrastructure loans	215	274	Discounted Cash Flow Model	Valuation spread	99 bps–222 bps (153 bps)
Private placement corporate debt	91	57	Corporate Spread Matrix	Credit spread	87 bps–233 bps (147 bps)
Private placement credit tenant leases	46	43	Discounted Cash Flow Model	Illiquidity premium	75 bps–175 bps (133 bps)
Derivative equity contracts	283	**283**			
OTC equity option referencing correlated equity indices	283	283	Proprietary Option Model	Correlation	−39%–100% (30.5%)[1]
Liabilities					
Derivative equity contracts	−31	**−30**			
OTC equity option referencing correlated equity indices	−31	−30	Proprietary Option Model	Correlation	−39%–100% (30.5%)[1]
Other derivative contracts and liabilities for life and health policy benefits	−364	**−303**			
Variable annuity and fair valued GMDB contracts	−325	−286	Discounted Cash Flow Model	Risk margin	4% (n.a.)
				Volatility	4%–42%
				Lapse	0.5%–33%
				Mortality adjustment	−10%–0%
				Withdrawal rate	0%–90%

[1] Represents average input value for the reporting period.

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 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.

Other invested assets measured at net asset value

Other invested assets measured at net asset value as of 31 December 2017 and 30 June 2018 were as follows:

USD millions	2017 Fair value	**2018** Fair value	Unfunded commitments	Redemption frequency (if currently eligible)	Redemption notice period
Private equity funds	381	363	188	non-redeemable	n.a.
Hedge funds	128	207		redeemable[1]	45–95 days[2]
Private equity direct	1	1		non-redeemable	n.a.
Real estate funds	97	46	32	non-redeemable	n.a.
Total	607	**617**	**220**		

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

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

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

Private equity and real estate funds generally have limitations imposed on the amount of redemptions from the fund during the redemption period due to illiquidity of the underlying investments. Fees may apply for redemptions or transferring of interest to other parties. Distributions are expected to be received from these funds as the underlying assets are liquidated over the life of the fund, which is generally from 10 to 12 years.

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

Fair value option

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

Other invested assets

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

Funds held by ceding companies

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

Liabilities for life and health policy benefits

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

Funds held under reinsurance treaties

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

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

Pursuant to the election of the fair value option for the items described, the balances as of 31 December 2017 and 30 June 2018 were as follows:

USD millions	2017	2018
Assets		
Other invested assets	7 800	8 341
of which at fair value pursuant to the fair value option	111	23
Funds held by ceding companies	12 617	12 749
of which at fair value pursuant to the fair value option	206	205
Liabilities		
Liabilities for life and health policy benefits	–19 361	–18 970
of which at fair value pursuant to the fair value option	–126	–124
Funds held under reinsurance treaties	–11 429	–11 546
of which at fair value pursuant to the fair value option	–1 803	–1 585

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

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

USD millions	2017	2018
Other invested assets		–5
Funds held by ceding companies	–2	–1
Liabilities for life and health policy benefits	15	2
Funds held under reinsurance treaties	–43	62
Total	–30	**58**

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

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

Assets and liabilities not measured at fair value but for which the fair value is disclosed as of 31 December 2017 and 30 June 2018 were as follows:

2017 USD millions	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Total
Assets			
Policy loans		86	86
Mortgage loans		1 529	1 529
Other loans		794	794
Investment real estate		3 895	3 895
Total assets	0	6 304	6 304
Liabilities			
Debt	–6 149	–6 825	–12 974
Total liabilities	–6 149	–6 825	–12 974

2018 USD millions	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Total
Assets			
Policy loans		83	83
Mortgage loans		1 497	1 497
Other loans		950	950
Investment real estate		3 989	3 989
Total assets	**0**	**6 519**	**6 519**
Liabilities			
Debt	–5 851	–7 624	–13 475
Total liabilities	**–5 851**	**–7 624**	**–13 475**

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 do not differ materially from the carrying amount. Considering these circumstances for these positions, the Group presents the carrying amount as an approximation for the fair value. For certain commercial mortgage loans and infrastructure loans, which are included in mortgage loans and other loans respectively, the fair value can be estimated using discounted cash flow models which are based on discount curves and spread inputs that require management's judgement.

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

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

9 Derivative financial instruments

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

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

Fair values and notional amounts of derivative financial instruments

As of 31 December 2017 and 30 June 2018, 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	37 655	543	–421	122
Foreign exchange contracts	19 021	227	–152	75
Equity contracts	18 767	804	–684	120
Credit contracts	4 894	14	–79	–65
Other contracts	11 737	99	–238	–139
Total	92 074	1 687	–1 574	113
Derivatives designated as hedging instruments				
Foreign exchange contracts	14 426	110	–284	–174
Total	14 426	110	–284	–174
Total derivative financial instruments	106 500	1 797	–1 858	–61
Amount offset				
Where a right of set-off exists		–801	801	
Due to cash collateral		–375	541	
Total net amount of derivative financial instruments		621	–516	105

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	44 703	488	–411	77
Foreign exchange contracts	22 672	214	–205	9
Equity contracts	15 535	799	–692	107
Credit contracts	3 339	14	–43	–29
Other contracts	11 309	76	–179	–103
Total	**97 558**	**1 591**	**–1 530**	**61**
Derivatives designated as hedging instruments				
Foreign exchange contracts	13 404	176	–160	16
Total	**13 404**	**176**	**–160**	**16**
Total derivative financial instruments	**110 962**	**1 767**	**–1 690**	**77**
Amount offset				
Where a right of set-off exists		–774	774	
Due to cash collateral		–418	471	
Total net amount of derivative financial instruments		**575**	**–445**	**130**

The notional amounts of derivative financial instruments give an indication of the Group's volume of derivative activity. The fair value assets are included in "Other invested assets" and the fair value liabilities are included in "Accrued expenses and other liabilities". The fair value amounts that were not offset were nil as of 31 December 2017 and 30 June 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" in the income statement. For the six months ended 30 June, the gains and losses of derivative financial instruments not designated as hedging instruments were as follows:

USD millions	2017	2018
Derivatives not designated as hedging instruments		
Interest rate contracts	88	–150
Foreign exchange contracts	362	70
Equity contracts	–90	7
Credit contracts	–1	8
Other contracts	115	74
Total gains/losses recognised in income	474	**9**

Hedging activities

The Group designates certain derivative financial instruments as hedging instruments. The designation of derivative financial instruments is primarily used for overall portfolio and risk management strategies. As of 30 June 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 six months ended 30 June, 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	–324	324	207	–207
Total gains/losses recognised in income	–324	324	**207**	**–207**

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 year ended 31 December 2017 and the six months ended 30 June 2018, the Group recorded accumulated net unrealised foreign currency remeasurement gains of USD 737 million and USD 982 million, respectively, in shareholder's 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 30 June 2018 was approximately USD 996 million and USD 993 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 66 million and USD 58 million as of 31 December 2017 and 30 June 2018, respectively. For derivative financial instruments containing credit risk-related contingent features, the Group posted collateral of nil as of 31 December 2017 and 30 June 2018, respectively. In the event of a reduction of the Group's credit rating to below investment grade, a fair value of USD 58 million additional collateral would have had to be posted as of 30 June 2018. The total equals the amount needed to settle the instruments immediately as of 30 June 2018.

10 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 2017 and 30 June 2018 was as follows:

USD millions	2017	**2018**
Senior financial debt	2 826	4 211
Senior operational debt		
Subordinated financial debt		660
Short-term debt – financial and operational debt	2 826	**4 871**
Senior financial debt	2 244	1 982
Senior operational debt	390	393
Subordinated financial debt	3 110	2 381
Subordinated operational debt	2 370	2 218
Long-term debt – financial and operational debt	8 114	**6 974**
Total carrying value	10 940	**11 845**
Total fair value	12 974	**13 475**

Interest expense on long-term debt and contingent capital instruments

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

USD millions	2017	**2018**
Senior financial debt	45	39
Senior operational debt	6	5
Subordinated financial debt	70	71
Subordinated operational debt	55	60
Total	176	**175**

In addition to the above, interest expense on contingent capital instruments classified as equity was USD 34 million and USD 24 million for the six months ended 30 June 2017 and 2018, respectively.

Long-term debt issued in 2018

No long-term debt was issued in the first half of 2018.

11 Benefit plans

Net periodic benefit cost

Pension and post-retirement cost for the Group and affiliated companies for the six months ended 30 June 2017 and 2018 were USD 69 million and USD 58 million, respectively. Pension and post-retirement cost is presented in "Operating expenses".

Employer's contribution for 2018

For the six months ended 30 June 2018, the Group and affiliated companies contributed USD 58 million to its defined benefit pension plans and USD 9 million to other post-retirement plans, compared to USD 91 million and USD 9 million, respectively, in the same period of 2017.

The expected 2018 contributions to the defined benefit pension plans and to the post-retirement benefit plans, revised as of 30 June 2018 for the latest information, amount to USD 184 million and USD 18 million, respectively.

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12 Variable interest entities

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

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

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

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

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

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

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

Insurance-linked securitisations

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

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

Life and health funding vehicles

The Group participates in certain structured transactions that retrocede longevity and mortality risks to captive reinsurers with an aim to provide regulatory capital credit to a transaction sponsor through 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'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 2017 and 30 June 2018:

USD millions	2017	2018
Fixed-income securities available-for-sale	3 974	3 626
Short-term investments	62	56
Cash and cash equivalents	12	18
Accrued investment income	34	32
Premiums and other receivables	29	36
Deferred acquisition costs	4	3
Deferred tax assets	41	81
Other assets	15	18
Total assets	4 171	**3 870**
Unpaid claims and claim adjustment expenses	84	86
Liabilities for life and health policy benefits	1	1
Unearned premiums	12	11
Reinsurance balances payable	17	17
Deferred and other non-current tax liabilities	133	147
Accrued expenses and other liabilities	20	17
Long-term debt	2 369	2 218
Total liabilities	2 636	**2 497**

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 2017 and 30 June 2018:

USD millions	2017	2018
Fixed income securities available-for-sale	412	571
Equity securities available-for-sale	656	
Equity securities at fair value through earnings		266
Policy loans, mortgages and other loans	848	992
Other invested assets	1 167	1 192
Investments for unit-linked business	180	163
Total assets	3 263	**3 184**
Accrued expenses and other liabilities	67	59
Total liabilities	67	**59**

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 and 30 June 2018:

			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	356		355
Life and health funding vehicles	27	1	2 052	25	1	2 113
Swaps in trusts	25	66	–[2]	60	58	–[2]
Investment vehicles	1 771		1 772	1 373		1 373
Investment vehicles for unit-linked business	180			163		
Senior commercial mortgage and infrastructure loans	949		949	1 207		1 207
Total	3 263	67	–[2]	**3 184**	**59**	**–[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.

Cautionary note on forward-looking statements

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

Forward-looking statements typically are identified by words or phrases such as "anticipate", "assume", "believe", "continue", "estimate", "expect", "foresee", "intend", "may increase" and "may fluctuate" and similar expressions or by future or conditional verbs such as "will", "should", "would" and "could". These forward-looking statements involve known and unknown risks, uncertainties and other factors, which may cause Swiss Re's actual results of operations, financial condition, solvency ratios, liquidity position or prospects to be materially different from any future results of operations, financial condition, solvency ratios, liquidity position or prospects expressed or implied by such statements or cause Swiss Re to not achieve its published targets.
Such factors include, among others:

- the frequency, severity and development of insured claim events, particularly natural catastrophes, man-made disasters, pandemics, acts of terrorism and acts of war;
- mortality, morbidity and longevity experience;
- the cyclicality of the insurance and reinsurance sectors;
- instability affecting the global financial system;
- deterioration in global economic conditions;
- the effect of market conditions, including the global equity and credit markets, and the level and volatility of equity prices, interest rates, credit spreads, currency values and other market indices, on the Group's investment assets;
- changes in the Group's investment result as a result of changes in the Group's investment policy or the changed composition of the Group's investment assets, and the impact of the timing of any such changes relative to changes in market conditions;
- the Group's ability to maintain sufficient liquidity and access to capital markets, including sufficient liquidity to cover potential recapture of reinsurance agreements, early calls of debt or debt-like arrangements and collateral calls due to actual or perceived deterioration of the Group's financial strength or otherwise;
- any inability to realize amounts on sales of securities on the Group's balance sheet equivalent to their values recorded for accounting purposes;
- changes in legislation and regulation, and the interpretations thereof by regulators and courts, affecting us or the Group's ceding companies, including as a result of shifts away from multilateral approaches to regulation of global operations;
- the outcome of tax audits, the ability to realize tax loss carryforwards, the ability to realize deferred tax assets (including by reason of the mix of earnings in a jurisdiction or deemed change of control), which could negatively impact future earnings, and the overall impact of changes in tax regimes on business models;
- failure of the Group's hedging arrangements to be effective;
- the lowering or loss of one of the financial strength or other ratings of one or more Swiss Re companies, and developments adversely affecting the Group's ability to achieve improved ratings;
- uncertainties in estimating reserves;
- policy renewal and lapse rates;
- uncertainties in estimating future claims for purposes of financial reporting, particularly with respect to large natural catastrophes and certain large man-made losses, as significant uncertainties may be involved in estimating losses from such

Note on risk factors

events and preliminary estimates may be subject to change as new information becomes available;
- extraordinary events affecting the Group's clients and other counterparties, such as bankruptcies, liquidations and other credit-related events;
- legal actions or regulatory investigations or actions, including those in respect of industry requirements or business conduct rules of general applicability;
- changes in accounting standards;
- significant investments, acquisitions or dispositions, and any delays, unexpected costs, lower-than expected benefits, or other issues experienced in connection with any such transactions;
- changing levels of competition, including from new entrants into the market; and
- operational factors, including the efficacy of risk management and other internal procedures in managing the foregoing risks and the ability to manage cybersecurity risks.

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

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

General impact of adverse market conditions

The operations of Swiss Re Ltd ("Swiss Re") and its subsidiaries (collectively, the "Group") as well as its investment returns are subject to market volatility and macro-economic factors, which are outside of the Group's control and are often inter-related.

Growth forecasts among the principal global economies remain uneven and uncertain in an environment of elevated political uncertainty. The forming of a new government in Italy consisting of the anti-European parties had stirred fears of a resurfacing of a Eurozone crisis. The planned withdrawal of the United Kingdom from the EU has created uncertainty not only for the United Kingdom but for the rest of the EU, and negotiations over withdrawal will likely continue to contribute to volatility and pose significant challenges for the EU and the United Kingdom. The long-term effects of a withdrawal of the United Kingdom from the EU will depend in part on any agreements the United Kingdom makes to retain access to the single market within the European Economic Area (EEA) following such withdrawal, the scope and nature of which currently remain highly uncertain. As China's economy undergoes structural changes, recent near-term growth stabilisation may be reversed in the context of a broader economic slowdown were it to occur. The foregoing may be exacerbated by geopolitical tensions, fears over security and migration, and uncertainty created generally by the policy pronouncements that have been, and may in the coming months be, announced by the US administration on a range of trade, security, foreign policy, environmental protection and other issues having global implications, as well as by the consequences of the implementation of such policy pronouncements, including in particular trade wars.

With fewer options available to policymakers and concerns generally over the absence of realistic confidence-building measures, and with heightened risk that volatility or depressed conditions in one sector, one market, one country or one region could have far broader implications, volatility can be expected to continue. Further adverse developments or the continuation of adverse trends that, in turn, have a negative impact on financial markets and economic conditions could limit the Group's ability to access the capital markets and bank funding markets, could adversely affect the ability of counterparties to meet their obligations to the Group and could adversely affect the confidence of the ultimate buyers of reinsurance.

Any of the foregoing factors, developments and trends could have an adverse effect on the Group's investment results, which in the current low interest rate environment and soft (albeit hardening) insurance cycle could have a material adverse effect on the Group's overall results, make it difficult to determine the value of certain assets in the Group's portfolio, make it more difficult to acquire suitable investments to meet its risk and return criteria and otherwise have a material adverse effect on its business and operations.

Regulatory changes
Swiss Re and its subsidiaries operate in a highly regulated environment. The regulatory regimes to which members of the Group are subject have changed significantly in recent years and are expected to continue to evolve. During this period, there has been a noticeable trend to extend the scope of reforms and oversight, which initially targeted banks, beyond such institutions to cover reinsurance operations.

While some regulation is national in scope, the global nature of the Group's business means that its operations are subject in effect to a patchwork of global, national and regional standards. Swiss Re and its subsidiaries are subject to applicable regulation in each of the jurisdictions in which they conduct business, particularly Switzerland, the United States, the United Kingdom, Luxembourg and Germany. The Group is subject to the Swiss Solvency Test and, through its legal entities organised in the EEA, Solvency II. The Group could be affected by regulatory changes or developments affecting the overall Swiss Re group, comprising Swiss Re Ltd ("SRL") and its consolidated subsidiaries, of which the Group is a part (the "Swiss Re Group").

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

While in recent years there has been an evolving focus on classifying certain insurance companies as systemically important, it is unclear whether and, if so, in what form reforms will be enacted. The Group could be designated as a global systemically important financial institution (“SIFI”) under the framework for SIFIs developed by the Financial Stability Board, or as a systemically important insurer by the Financial Stability Oversight Council (“FSOC”) in the United States. The International Association of Insurance Supervisors, an international body that represents insurance regulators and supervisors, has published and since refined its methodology for identifying global systemically important insurers (“G-SIIs”). Were the Group to be designated as a G-SII, it could be subject to one or both of the resulting regimes, including capital standards (the basic capital requirement for G-SIIs), which would have various implications for the Group, including additional compliance costs, reporting obligations, capital costs (in the form of capital charges or high loss absorption capacity) as well as heightened regulatory scrutiny in various jurisdictions. In addition, the Group ultimately will be subject to oversight of its Swiss regulator in respect of recovery and resolution planning.

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

In addition, regulatory changes could occur in areas of broader application, such as competition policy and tax laws. Changes in tax laws, for example, could increase the taxes the Group pays, the attractiveness of products offered by the Group, the Group’s investment activities and the value of deferred tax assets. Any number of these changes could apply to the Group and its operations. Changes to the US tax regime enacted in early 2018 prompted us to consider modifications to our operating model for our US business. These changes, or inconsistencies between the various regimes that apply to the Group, could increase the costs of doing business (including due to increased capital requirements), reduce access to liquidity, limit the scope of current or future business or affect the competitive balance, or could make reinsurance less attractive to primary insurers.

Market risk

Volatility and disruption in the global financial markets could expose the Group to significant financial and capital markets risk, including changes in interest rates, credit spreads, equity prices and foreign currency exchange rates, which may adversely impact the Group’s financial condition, results of operations, liquidity and capital position. The Group’s exposure to interest rate risk is primarily related to the market price and cash flow variability associated with changes in interest rates. In general, a low interest rate environment, such as the one experienced in recent years, poses significant challenges to the reinsurance industry, with earnings capacity under stress unless lower investment returns from fixed income assets can be offset by lower combined ratios or higher returns from other asset classes. Exposure to credit spreads primarily relates to market price and cash flow variability associated with changes in credit spreads. When credit spreads widen, the net unrealised loss position of the

Group's investment portfolio can increase, as could other-than-temporary impairments.

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

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

Credit risk

If the credit markets were again to deteriorate and further asset classes were to be impacted, the Group could experience losses. Changes in the market value of the underlying securities and other factors impacting their price could give rise to market value losses. If the credit markets were to deteriorate again, the Group could also face write-downs in other areas of its portfolio, including other structured instruments, and the Group and its counterparties could face difficulties in valuing credit-related instruments. Differences in opinion with respect to valuations of credit-related instruments could result in legal disputes among the Group and its counterparties as to their respective obligations, the outcomes of which are difficult to predict and could be material.

Liquidity risks

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

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

Unexpected liquidity needs (including to meet collateral calls) could require the Group to incur indebtedness or liquidate investments or other assets. The Group may not be able to secure new sources of liquidity or funding, should projected or actual liquidity fall below levels it requires. The ability to meet liquidity needs through asset sales may be constrained by market conditions and the related stress on valuations, and through third-party funding may be limited by constraints on the general availability of credit and willingness of lenders to lend. In addition, the Group's ability to meet liquidity needs may also be constrained by regulatory requirements that require regulated entities to maintain or increase regulatory capital, or that restrict intra-group transactions, the timing of dividend payments from subsidiaries or the fact that certain assets may be encumbered or otherwise non-tradable. Failure to meet covenants in lending arrangements could give rise to collateral-posting or defaults, and further constrain access to liquidity. Finally, any adverse ratings action could trigger a need for further liquidity (for example, by triggering termination provisions or collateral delivery requirements in contracts to which the Group is a party) at a time when the Group's ability to obtain liquidity from external sources is limited by such ratings action.

Counterparty risks

The Group is exposed to the risk of defaults, or concerns about defaults, by its counterparties. Securities trading counterparties, counterparties under swaps and other derivative contracts, and financial intermediaries may default on their obligations due to bankruptcy, insolvency, lack of liquidity, adverse economic conditions, operational failure, fraud or other reasons, which could have a material adverse effect on the Group.

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

Risks relating to credit rating downgrades

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

The Group's ratings reflect the current opinion of the relevant rating agencies. One or more of its ratings could be downgraded or withdrawn in the future, and market conditions could increase the risk of downgrade. Rating agencies may increase the frequency and scope of ratings reviews, revise their criteria or take other actions that may negatively impact the Group's ratings and/or the ratings of its key legal entities. In addition, changes to the process or methodology of issuing ratings, or the occurrence of events or developments affecting the Group, could make it more difficult for the Group to achieve improved ratings which it would otherwise have expected.

As claims paying and financial strength ratings are key factors in establishing the competitive position of reinsurers, a decline in ratings alone could make reinsurance provided by the Group less attractive to clients relative to reinsurance from competitors with similar or stronger ratings. A decline in ratings could also cause the loss of clients who are required by policy or regulation to purchase reinsurance only from reinsurers with certain ratings. Certain larger reinsurance contracts contain terms that would allow the ceding companies to cancel the contract if the Group's ratings or those of its subsidiaries are downgraded beyond a certain threshold. Moreover, a decline in ratings could impact the availability and terms of unsecured financing and obligate the Group to provide collateral or other guarantees in the course of its business or trigger early termination of funding arrangements, potentially resulting in a need for additional liquidity. As a ratings decline could also have a material adverse impact on the Group's costs of borrowing or ability to access the capital markets, the adverse implications of a downgrade could be more severe.

Legal and regulatory risks

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

The Group is also involved, from time to time, in investigations and regulatory proceedings, which could result in adverse judgments, settlements, fines and other outcomes. The number of these investigations and proceedings involving the financial services industry has increased in recent years, and the potential scope of these investigations and proceedings has also increased, not only in respect of matters covered by the Group's direct regulators, but also in respect of compliance with broader business conduct rules, including those in respect of market abuse, bribery, money laundering, trade sanctions and data protection and privacy. Aggressive tax enforcement is becoming a higher priority for many tax authorities and the Group also is subject to audits and challenges from time to time by tax authorities, which could result in increases in tax costs, changes to internal structures and interest and penalties. Tax authorities may also actively pursue additional taxes based on retroactive changes to tax laws. The Group could be subject to risks arising from alleged, or actual, violations of any of the foregoing, and could also be subject to risks arising from potential employee misconduct, including non-compliance with internal policies and procedures and malfeasance, such as undertaking or facilitating cyber attacks on internal systems. Substantial legal liability could materially adversely affect the Group's business, financial condition or results of operations or could cause significant reputational harm, which could seriously affect its business.

Insurance, operational and other risks

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

Use of models; accounting matters

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

The Group's results may be impacted by changes in accounting standards, or changes in the interpretation of accounting standards. Changes in accounting standards could impact future reported results or require restatement of past reported results. The

Group's results may also be impacted if regulatory authorities take issue with any conclusions the Group may reach in respect of accounting matters.

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

Risks related to the Swiss Re corporate structure
Following the realignment of the corporate structure of SRL and the creation of separate business units in 2012, the asset base, liquidity position, capital profile and other characteristics of the Group of relevance to its counterparties changed. Swiss Re is a wholly owned subsidiary of SRL, and the Group represents only two of the four principal operating segments of the Swiss Re Group. Capital, funding, reserve and cost allocations are made at the Swiss Re Group level across the four operating segments based principally on business plans as measured against US GAAP and economic value management metrics. Decisions at the Swiss Re Group level in respect of the broader Swiss Re Group could have an adverse impact on the Group's financial condition, including its capital and liquidity levels, as well as on its SST ratio. As part of the Swiss Re Group's focus on efficient capital allocation, the Group expects to be paying dividends to SRL. Decisions on dividends payable by each of the operating segments, including the Group, are made at the Swiss Re Group level based on legal entity, regulatory, capital and liquidity considerations. While to date the Group remains wholly owned by SRL, in the future, the Swiss Re Group may partner (for purposes of acquisitions or otherwise) with other investors in, or within, one or more of its business units or sub-groups within its business units (including the Group), which, subject to applicable regulatory requirements, have the potential to alter its historical approaches taken in respect of capital, liquidity, funding and/or dividends, as well as other governance matters, including strategy for such business unit or sub-group and board composition at the relevant corporate level. The Group's structure could also change in connection with acquisitions.

While further changes to the overall Swiss Re Group structure may not have a financial statement impact on a Swiss Re Group consolidated basis, they would impact the Group to the extent that operations are transferred into or from the Group, or as a result of intra-group transactions (from the perspective of the Swiss Re Group) to the extent the Group is a counterparty to any such transactions.

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