Swiss Re

Financial Review 2019

Contents

This 2019 Financial Review of the Swiss Re Group contains updates on our business and results and preliminary unaudited financial information for 2019. The updates on our business and results will be included in our 2019 Annual Report, together with our audited financial statements for 2019 and other disclosures we are required to include or historically have included in an annual report. This Financial Review is not intended to be a substitute for the full 2019 Annual Report, which will be published on the Swiss Re website on 19 March 2020.

Financial highlights

Financial highlights

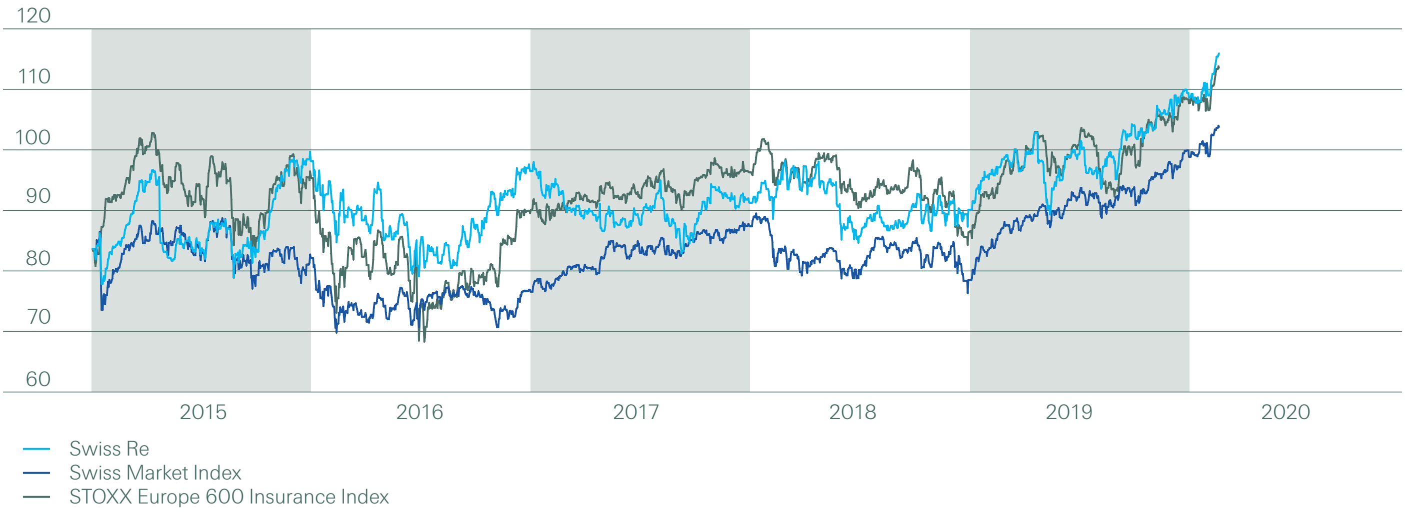
For the years ended 31 December

USD millions, unless otherwise stated	2018	2019	Change in %
Group			
Net income attributable to common shareholders	421	727	73
Gross premiums written	36 406	42 228	16
Premiums earned and fee income	34 461	38 594	12
Earnings per share in CHF	1.34	2.46	84
Shareholders' equity	27 930	29 251	5
Return on equity in %[1]	1.4	2.5	
Return on investments in %	2.8	4.7	
Net operating margin in %[2]	2.9	3.4	
Number of employees[3]	14 943	15 401	3
Property & Casualty Reinsurance			
Net income attributable to common shareholders	370	396	7
Gross premiums written	16 545	21 562	30
Premiums earned	16 095	19 275	20
Combined ratio in %	104.0	107.8	
Net operating margin in %[2]	4.3	3.8	
Return on equity in %[1]	3.7	4.4	
Life & Health Reinsurance			
Net income attributable to common shareholders	761	899	18
Gross premiums written	14 527	14 452	–1
Premiums earned and fee income	12 835	13 004	1
Net operating margin in %[2]	9.4	10.0	
Return on equity in %[1]	11.1	12.4	
Corporate Solutions			
Net loss attributable to common shareholders	–405	–647	60
Gross premiums written	4 694	4 974	6
Premiums earned	3 925	4 166	6
Combined ratio in %	117.5	127.9	
Net operating margin in %[2]	–11.1	–16.7	
Return on equity in %[1]	–19.4	–34.1	
Life Capital			
Net income/loss attributable to common shareholders	23	–177	–
Gross premiums written	2 739	2 831	3
Premiums earned and fee income	1 606	2 149	34
Gross cash generation[4]	818	1 138	39
Net operating margin in %[2]	3.9	2.4	
Return on equity in %[1]	0.4	–3.4	

[1] Return on equity is calculated by dividing net income/loss attributable to common shareholders by average common shareholders' equity.
[2] Net operating margin is calculated as "Income before interest and income tax expense" divided by "Total revenues" excluding "Net investment result – unit-linked and with-profit business".
[3] Regular staff.
[4] Gross cash generation is the estimated net cash arising from business activity within the Life Capital Business Unit during the reporting period taking into account both surplus development and certain capital actions. It is calculated gross across both Swiss Re's and MS&AD's interest in ReAssure.

Share information

Share price (CHF)



Share information

As of 18 February 2020	
Share price in CHF	115.95
Market capitalisation in CHF millions	37 963

Share performance

Share performance in %	1 January 2015 – 18 February 2020 (p.a.)	2019
Swiss Re	6.6	**20.6**
Swiss Market Index	4.3	**26.0**
STOXX Europe 600 Insurance Index	6.1	**11.9**

Financial strength ratings

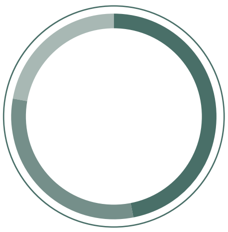
As of 18 February 2020	Standard & Poor's	Moody's	A.M.Best
Rating	AA–	Aa3	A+
Outlook	Stable	Stable	Stable
Last update	18 October 2019	16 December 2019	20 December 2019

Swiss Re at a glance

The Swiss Re Group is one of the world's leading providers of reinsurance, insurance and other forms of insurance-based risk transfer, working to make the world more resilient.

Diversified and global

Net premiums earned and fee income by region
(Total USD 38.6 billion)



- **47%** Americas
- **31%** EMEA
- **22%** Asia-Pacific

Financial strength

AA–
Standard&Poor's AA– stable

Our people

15 401
employees
(2018: 14 943)

Commitment to ESG

AAA
MSCI rating
(as of May 2018)

Reinsurance

Reinsurance provides clients and brokers with reinsurance products, insurance-based capital market instruments and risk management services. Reinsurance operates globally through two segments – Property & Casualty and Life & Health.

Property & Casualty

Net premiums earned
(USD billions)

2019	**19.3**
2018	16.1

Net income
(USD millions)

2019	**396**
2018	370

4.4%
Return on equity
(2018: 3.7%)

107.8%
Combined ratio
(2018: 104.0%)

Life & Health

Net premiums earned and fee income
(USD billions)

2019	**13.0**
2018	12.8

Net income
(USD millions)

2019	**899**
2018	761

12.4%
Return on equity
(2018: 11.1%)

10.0%
Net operating margin
(2018: 9.4%)

Corporate Solutions

Corporate Solutions provides risk transfer solutions to large and mid-sized corporations around the world. Its innovative, highly customised products and standard insurance covers help to make businesses more resilient, while its industry-leading claims service provides additional peace of mind.

Net premiums earned
(USD billions)

Net income
(USD millions)

–34.1%
Return on equity
(2018: –19.4%)

127.9%
Combined ratio
(2018: 117.5%)

Life Capital

Life Capital supports and incubates entities in the B2B2C primary business, B2B corporate business as well as the closed book space.* As a key part of Swiss Re's strategic growth plan, Life Capital provides alternative access to new Life & Health and Property & Casualty risk pools and creates simple and transparent digital propositions that make insurance products simpler and more accessible, and help boost the business of our partners.

* Following completion of the sale of ReAssure, pending the required regulatory approvals, Life Capital will focus on its open book businesses.

Net premiums earned and fee income
(USD billions)

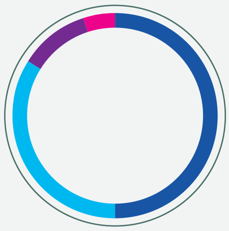
Net income
(USD millions)

–3.4%
Return on equity
(2018: 0.4%)

1138m
Gross cash generation
(2018: USD 818m)

Group
(After consolidation)

Net premiums earned and fee income by business segments
(Total USD 38.6 billion)



- **50%** P&C Reinsurance
- **34%** L&H Reinsurance
- **11%** Corporate Solutions
- **5%** Life Capital

2.5%
Return on equity
(2018: 1.4%)

3.4%
Net operating margin
(2018: 2.9%)

Summary of financial statements

Income statement

USD millions	2018	2019	Change in %
Revenues			
Gross premiums written	36 406	42 228	16
Net premiums written	34 042	39 649	16
Change in unearned premiums	–167	–1 675	–
Premiums earned	33 875	37 974	12
Fee income from policyholders	586	620	6
Net investment income – non-participating business	4 075	4 171	2
Net realised investment gains/losses – non-participating business	65	1 580	–
Net investment result – unit-linked and with-profit business	–1 593	4 939	–
Other revenues	39	30	–23
Total revenues	37 047	**49 314**	33
Expenses			
Claims and claim adjustment expenses	–14 855	–18 683	26
Life and health benefits	–11 769	–13 087	11
Return credited to policyholders	1 033	–4 633	–
Acquisition costs	–6 919	–7 834	13
Operating expenses	–3 432	–3 579	4
Total expenses before interest expenses	–35 942	**–47 816**	33
Income before interest and income tax expense	1 105	**1 498**	36
Interest expenses	–555	–589	6
Income before income tax expense	550	909	65
Income tax expense	–69	–140	103
Net income before attribution of non-controlling interests	481	**769**	60
Income attributable to non-controlling interests	–19	–42	121
Net income after attribution of non-controlling interests	462	**727**	57
Interest on contingent capital instruments, net of tax	–41		–100
Net income attributable to common shareholders	421	**727**	73

Changes in equity

USD millions	2018	2019	Change in %
Total shareholders' equity as of 1 January	34 124	27 930	–18
Net income attributable to common shareholders	421	727	73
Dividends	–1 592	–1 659	4
Change in unrealised gains/losses on securities, net	–2 841	3 247	–
Change in other-than-temporary impairment, net of tax	–1	2	–
Change in foreign currency translation	–356	110	–
Purchase/sale of treasury shares and share based payments	–1 402	–1 166	–17
Other changes in equity	–423	60	–
Total shareholders' equity as of 31 December	27 930	**29 251**	5
Non-controlling interests	797	1 786	124
Total equity as of 31 December	28 727	**31 037**	8

Summary balance sheet

USD millions	2018	**2019**	Change in %
Assets			
Fixed income securities	95 952	81 573	–15
Equity securities	3 036	2 993	–1
Other investments	13 351	12 892	–3
Short-term investments	5 417	5 768	6
Investments for unit-linked and with-profit business	29 546	520	–98
Cash and cash equivalents	5 985	7 562	26
Deferred acquisition costs	8 217	7 838	–5
Acquired present value of future profits	1 818	1 042	–43
Reinsurance recoverable	7 058	5 898	–16
Other reinsurance assets	22 798	24 743	9
Goodwill	4 071	3 945	–3
Other	10 321	9 354	–9
Assets held for sale[1]		74 439	–
Total assets	207 570	**238 567**	15
Liabilities and equity			
Unpaid claims and claim adjustment expenses	67 446	72 373	7
Liabilities for life and health policy benefits	39 593	19 836	–50
Policyholder account balances	31 938	5 405	–83
Other reinsurance liabilities	15 865	17 775	12
Short-term debt	1 633	185	–89
Long-term debt	8 502	10 138	19
Other	13 866	13 232	–5
Liabilities held for sale[1]		68 586	–
Total liabilities	178 843	**207 530**	16
Shareholders' equity	27 930	**29 251**	5
Non-controlling interests	797	1 786	124
Total equity	28 727	**31 037**	8
Total liabilities and equity	207 570	**238 567**	15

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

Group results

Swiss Re reported a full-year 2019 net income of USD 727 million, driven by a strong Life & Health Reinsurance result and excellent investment performance.

Strategy and priorities

Swiss Re's purpose is to make the world more resilient and act as the ultimate shock absorber for societies and communities. We collect premiums and risk from all over the world, diversify the risks on our balance sheet and pay out claims to those who have been hit by catastrophes. Our business strategy is centred around diversifying our access to risk pools by leveraging our risk knowledge, unique client access and capital strength to achieve our financial targets and create sustainable value for all stakeholders.

The Reinsurance Business Unit remains the core engine of profitability, delivering a market-leading combination of shareholder returns and capital repatriation for the Group. Long-term performance of Property & Casualty Reinsurance (P&C Re) remains strong, despite significant natural catastrophe claims in recent years. Life & Health Reinsurance (L&H Re) is delivering peer-leading returns underpinned by global diversification and strong growth in Asia. In line with our strategy, we are profitably expanding our Reinsurance business through our capabilities in underwriting large transactions and providing innovative solutions. At the same time, we are also accessing corporate and retail market risk directly, through our Corporate Solutions and Life Capital Business Units, respectively. Asset Management is consistently generating attractive returns while taking an industry-leading approach focused on Environmental, Social and Governance (ESG) criteria, leveraging our financial markets expertise and benefiting from our flexible investment platform built on the latest technology and advanced analytics.

An integral part of the Group strategy relies on monetising our research and development (R&D) capabilities, thereby cementing Swiss Re's position as the leading risk knowledge company. We are running 80 R&D programs with 450 dedicated FTEs and investing about USD 300 million a year in key technology projects. The aim is to strengthen Swiss Re's proprietary risk knowledge and to advance our capabilities to enter new risk pools, compete and advise. In particular, platforms such as iptiQ, the digital B2B2C business, and Magnum, the leading automated underwriting solution for L&H Re, are becoming a significant business driver.

In Corporate Solutions, we took decisive management actions in 2019 to return this business to profitability. These measures included cost cutting, reserve strengthening, as well as a reduction in risk exposures in specific lines of business. Portfolio repositioning will allow Corporate Solutions to focus on selected profitable segments, where we are seeing an improving price environment. The next steps in business transformation will focus on de-commoditisation of its core portfolio, selective growth with differentiating capabilities such as innovative risk solutionsand expansion through tech-driven initiatives.

Life Capital is successfully transitioning to a dynamically growing, digital B2B2C business. In line with our objective to deconsolidate our UK subsidiary ReAssure, Swiss Re entered into an agreement to sell this closed-book business to Phoenix Group Holdings plc in December 2019. The transaction has a compelling strategic rationale and valued ReAssure at GBP 3.25 billion. The sale is expected to close in mid-2020, subject to regulatory and antitrust approvals. We also continue to expand our open book businesses. In particular, iptiQ is developing dynamically and averaged more than 4 000 policy sales a week, with significant expansion opportunities geographically.

Performance

Swiss Re reported net income of USD 727 million for the year, compared with USD 421 million for 2018, driven by strong L&H Re results and excellent investment performance. The Group's property and casualty businesses were impacted by natural catastrophes and man-made losses, as well as ongoing trends in US casualty business. The Group's net operating margin[1] increased to 3.4% compared with 2.9% in the prior year.

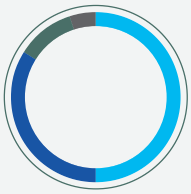
Reinsurance generated a net income of USD 1.3 billion, compared with USD 1.1 billion in 2018. P&C Re reported a net income of USD 396 million in 2019, up from USD 370 million in 2018. The current year's result benefited from profitable business growth and a very strong investment result, while both years were adversely impacted by large natural catastrophe losses.

Claims in 2019 primarily stemmed from Typhoon Hagibis and Typhoon Faxai in Japan, Hurricane Dorian in the Atlantic, and wildfires, floods and hail storms in Australia, as well as losses from the Ethiopian Airlines crash and the subsequent grounding of the Boeing 737 MAX fleet. The result was further impacted by late claims development from Typhoon Jebi. The net operating margin decreased slightly to 3.8% in 2019 from 4.3% in 2018.

L&H Re contributed a net income of USD 899 million in 2019, up from USD 761 million in 2018. The underwriting result included a negative adjustment to the carrying value of an existing treaty, which had to be fair valued following the acquisition of Old Mutual Wealth Life Assurance Limited by ReAssure from Quilter plc. This was partially offset by active portfolio management and improved mortality development in the Americas. The net operating margin increased to 10.0% in 2019 from 9.4% in the previous year.

Net premiums and fees earned by business segment, 2019

Total: USD 38.6 billion



- **50%** P&C Reinsurance
- **34%** L&H Reinsurance
- **11%** Corporate Solutions
- **5%** Life Capital

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

4.2
Net investment income in USD billions, 2019
(2018: USD 4.1 billion)

4.7%
Group return on investments, 2019
(2018: 2.8%)

Corporate Solutions incurred a net loss of USD 647 million in 2019, compared with a net loss of USD 405 million in 2018. The current year's result reflected management actions to reposition the business and large and medium-sized man-made losses, mainly from prior accident years related to the recent deterioration in US casualty. The net operating margin was –16.7% and –11.1% for 2019 and 2018, respectively.

Life Capital reported a net loss of USD 177 million in 2019, compared with a net income of USD 23 million in 2018, mainly due to a charge related to the agreement to sell ReAssure. Excluding this one-time accounting impact, net income rose to USD 53 million, Life Capital's net operating margin declined to 2.4% in 2019 from 3.9% in 2018.

Shareholders' equity, excluding non-controlling interests, increased to USD 29.3 billion at the end of 2019, up from USD 27.9 billion at the end of 2018. The rise was mainly driven by net income of USD 0.7 billion and unrealised gains on fixed income securities of USD 3.2 billion, partially offset by a payment to shareholders of USD 2.6 billion for the 2018 regular dividend and the share buyback programmes.

Swiss Re achieved a return on equity (ROE) of 2.5% for 2019, compared with an ROE in 2018 of 1.4%.

Earnings per share for 2019 were USD 2.46 or CHF 2.46, compared with USD 1.37 or CHF 1.34 for 2018.

Book value per share stood at USD 100.64 or CHF 97.46 at the end of 2019, compared with USD 93.09 or CHF 91.72 at the end of 2018. Book value per share is based on shareholders' equity and excludes non-controlling interests.

Business performance

Net premiums earned and fee income for the Group amounted to USD 38.6 billion for 2019, an increase of 12.0% year-on-year. At constant exchange rates, net premiums earned and fee income increased by 15.0%.

Gross premiums written increased by 16.0% to USD 42.2 billion in 2019, driven primarily by growth in P&C Re.

P&C Re contributed USD 19.3 billion of net premiums earned in 2019, up 19.8% from USD 16.1 billion in 2018, reflecting large transactions and growth in the natural catastrophe business. At constant exchange rates, net premiums earned increased by 23.0% year-on-year.

The P&C Re combined ratio increased to 107.8% in 2019 from 104.0% in the prior year, mainly due to unfavourable prior-year development and a higher large loss burden.

L&H Re net premiums earned and fee income increased 1.3% to USD 13.0 billion, affected by unfavourable foreign exchange movements and the termination of an intragroup retrocession agreement with Life Capital. At constant exchange rates, premiums earned and fee income increased by 4.5%.

Corporate Solutions net premiums earned were USD 4.2 billion for 2019, up 6.1% from the previous year, as double-digit rate increases and growth in targeted lines of business more than offset the impact from active pruning of selected underwriting portfolios. At constant exchange rates, net premiums earned increased 7.3% year-on-year. The Corporate Solutions combined ratio was 127.9% in 2019, compared with 117.5% in the previous year, mainly due to exceptionally severe and frequent large- and medium-sized man-made losses from prior accident years and reserve increases.

Net premiums earned and fee income for Life Capital increased to USD 2.1 billion in 2019 from USD 1.6 billion in the prior year, driven by growth in the open book life and health insurance business and the termination of an intragroup retrocession agreement with L&H Re. Life Capital continued to generate significant gross cash[2] amounting to USD 1.1 billion in 2019, compared with USD 818 million in 2018.

Investment result and expenses

The Group's investment portfolio, excluding unit-linked and with-profit investments, increased to USD 134.5 billion at the end of 2019, from USD 122.6 billion at the end of 2018. The increase was largely driven by the impact of declining interest rates and credit spread tightening, as well as favourable foreign exchange movements.

The return on investment (ROI) was 4.7% for 2019, compared with 2.8% in 2018, reflecting strong equity market performance, as well as additional gains within the fixed income portfolio.

The Group's non-participating net investment income increased to USD 4.2 billion in 2019 from USD 4.1 billion in the prior year, demonstrating the stability of the recurring investment income.

The Group reported non-participating net realised investment gains of USD 1.6 billion in 2019, compared with USD 0.1 billion in 2018. The increase was primarily due to the contribution from equity securities and additional gains on sales of fixed income securities.

Acquisition costs for the Group amounted to USD 7.8 billion in 2019, up from USD 6.9 billion in 2018, driven primarily by growth in P&C Re.

Operating expenses were USD 3.6 billion in 2019, compared with USD 3.4 billion in 2018. The year-on-year increase of 4.3% was primarily driven by expenses related to the suspended initial public offering of and subsequently, the agreement to sell ReAssure.

Interest expenses increased by 6.1% to USD 589 million in 2019 from USD 555 million in the prior year.

The Group reported a tax charge of USD 140 million on a pre-tax income of USD 909 million for 2019, compared with a tax charge of USD 69 million on a pre-tax income of USD 550 million for 2018. This translated into an effective tax rate in the current and prior-year reporting periods of 15.4% and 12.5%, respectively. The tax rate in 2019 was largely driven by tax benefits from effective settlement of tax audits and tax-exempt income, partially offset by tax charges from other income-based taxes and non-deductible expenses.

[2] Gross cash generation is the estimated net cash arising from business activity within the Life Capital Business Unit during the reporting period taking into account both surplus development and certain capital actions. It is calculated gross across both Swiss Re's and MS&AD Insurance Group Holdings Inc's interest in ReAssure.

Reinsurance

As windstorms, floods, earthquakes and wildfires continued to hit communities around the world, reinsurance again served as a key resilience tool.

Climate change impacts

Over the last few years, climate change is believed to have contributed to the increased occurrence of dangerous weather events. In particular, so-called "secondary perils" – events such as wildfires, drought, heatwaves, landslides, torrential rain and flooding of a small or mid-sized magnitude, are increasingly fuelled by changes in climate patterns. Sometimes a secondary effect of larger "primary perils" including natural catastrophes like hurricanes and earthquakes, secondary perils affect millions of households and businesses. This is especially so in the world's growing cities and densely populated areas which are exposed to rising temperatures and heavier precipitation. As in recent years, such secondary disaster events accounted for more than half of industry insured natural catastrophe losses.

The positive impact of reinsurance

In 2019, Reinsurance helped people, businesses and communities by paying out more than USD 12 billion in property and casualty claims. The benefits of reinsurance were not only felt by those impacted by natural catastrophes or other property or casualty losses. During 2019, through the use of mortality payments, Reinsurance supported 142 000 family members who lost a loved one. It is our financial strength and stability that allows us to make insurance payouts promptly, making a difference to people in their time of need.

Resilience is at the heart of our strategy

The strategy of Swiss Re's Reinsurance Business Unit is focused on differentiation, which is driven by three key assets:

1. Direct access to our clients, in particular our C-Suite access, which allows us to understand their specific needs and deliver tailored solutions.

2. Our risk knowledge, built up over more than 150 years, which helps us build actionable solutions to close existing and growing protection gaps.

3. Our capital strength, which allows us to promptly pay claims.

Differentiation helps us navigate an evolving industry, where change is driven by factors including digitalisation and technology, geopolitical tensions and persistently low interest rates. To continue to be effective and help our clients succeed in this complex environment, we have developed a strategy that moves from solving traditional business problems to responding to future needs. Through the three pillars of Core, Transactions and Solutions, we respond to today's risks, while fulfilling a key role in maintaining society's resilience.

Core is our traditional business, focused on transferring an insurance risk from a client's balance sheet to our own, while also deploying technology to make processes more efficient. Transactions are large and complex deals that we can complete thanks to our execution ability and the strength of our balance sheet. Our Solutions are all about working alongside our clients to help them grow their underlying business. Joint risk sharing ensures an alignment of interest and makes us an even stronger partner.

Keeping our edge, now and in the future

These are challenging times for our industry, and we need to be a step ahead of risk, predicting loss trends and providing a compelling risk-return balance for our capital providers. We continue to focus on capital allocation to risk pools and on extending the reach of our products, to make them more accessible and inclusive and help to close the protection gap.

Property & Casualty Reinsurance

Property & Casualty Reinsurance

Property & Casualty Reinsurance (P&C Re) reported a net income for 2019 of USD 396 million compared with USD 370 million in 2018. The result reflected large natural catastrophe and man-made losses of USD 2.3 billion as well as proactive measures to address ongoing trends in US casualty. This was balanced by profitable business growth, driven by large transactions and growth in natural catastrophe business, as well as by a very strong investment result. The large natural catastrophe losses were mainly driven by typhoons Hagibis and Faxai in Japan, Hurricane Dorian in the Atlantic and wildfires, floods and hailstorms in Australia. The result was further impacted by late claims development for Typhoon Jebi. In addition, large man-made losses included the Ethiopian Airlines crash and the subsequent grounding of the Boeing 737 MAX fleet. The net operating margin decreased from 4.3% to 3.8%.

The investment result increased by 68.8% to USD 2.3 billion, driven by gains on sales of fixed income securities and market value gains on equity securities. The return on investments was 4.3%.

Property & Casualty Reinsurance results

USD millions	2018	2019	Change in %
Revenues			
Gross premiums written	16 545	21 562	30
Net premiums written	16 098	20 882	30
Change in unearned premiums	–3	–1 607	–
Premiums earned	16 095	**19 275**	20
Net investment income	1 380	1 419	3
Net realised investment gains/losses	–16	883	–
Other revenues	36	18	–50
Total revenues	17 495	**21 595**	23
Expenses			
Claims and claim adjustment expenses	–11 614	–14 783	27
Acquisition costs	–4 012	–4 810	20
Operating expenses	–1 114	–1 189	7
Total expenses before interest expenses	–16 740	**–20 782**	24
Income before interest and income tax expense	755	**813**	8
Interest expenses	–313	–352	12
Income before income tax expense	442	**461**	4
Income tax expense	–72	–65	–10
Net income attributable to common shareholders	370	**396**	7
Claims ratio in %	72.2	76.7	
Expense ratio in %	31.8	31.1	
Combined ratio in %	104.0	107.8	

Premiums

Gross premiums written increased by 30.3% to USD 21.6 billion in 2019. Net premiums earned were USD 19.3 billion for 2019, up from USD 16.1 billion in the prior period. The increase was driven by large transactions in the Americas and EMEA, as well as growth in the natural catastrophe business.

Combined ratio

The P&C Re combined ratio was 107.8% in 2019, compared with a reported combined ratio of 104.0% in 2018. The impact from natural catastrophes of USD 1.9 billion in 2019 was 3.5 percentage points above the expected level for the year. The unfavourable prior-year development negatively impacted the combined ratio by 3.5 percentage points in 2019.

Administrative expense ratio[1]

The administrative expense ratio decreased to 6.2% in 2019 from 6.9% in 2018, reflecting higher net premiums while expenses remained contained.

Lines of business

The property combined ratio increased to 101.3% in 2019, compared with 99.9% a year earlier. While both periods were impacted by large natural catastrophe losses, the deterioration was driven by an adverse prior-year development in 2019, mainly due to late claims from Typhoon Jebi, partly compensated by reserve releases from large losses.

The casualty combined ratio increased to 116.6% in 2019, up from 110.6% in 2018.

[1] Operating expenses divided by premiums earned

The specialty combined ratio deteriorated to 95.3% in 2019 compared with 93.4% in 2018. The current period included the impact of the Ethiopian Airlines crash and the subsequent Boeing 737 MAX fleet grounding, partly offset by favourable prior-year developments, mainly in marine and credit & surety businesses.

Investment result

The return on investments was 4.3% for 2019 up from 2.4% in 2018, reflecting an increase in the investment result of USD 1 080 million, mainly driven by additional net realised gains.

Net investment income increased by USD 36 million to USD 1 310 million for 2019, driven by a higher invested asset base.

Net realised gains were USD 985 million for 2019 compared with net realised losses of USD 63 million for the prior period. The increase was driven by both additional gains on sales of fixed income securities and market value gains on equity securities, given strong equity market performance.

Insurance-related investment results and foreign exchange gains/losses are not included in the figures above.

Shareholders' equity

Shareholders' equity decreased to USD 8.3 billion as of 31 December 2019 from USD 9.5 billion on 31 December 2018, primarily driven by dividends paid to the Group of USD 1.4 billion and the capitalisation of inter-segmental payables and receivables following a change in presentation of historic intercompany expense balances. This was partially offset by the net changes in unrealised gains/losses and net income. The return on equity for 2019 was 4.4% compared with 3.7% in 2018.

Outlook

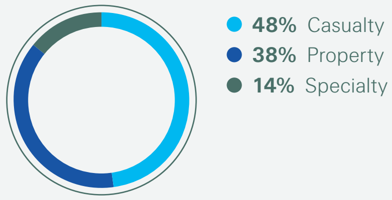
Renewals of loss-affected natural catastrophe business experienced favourable rate increases. Property rates are generally hardening for tropical cyclone exposed and loss-affected business and otherwise are broadly stable.

The Business Unit observed rate increases for loss-affected lines and markets within specialty lines and otherwise stable terms and conditions.

For casualty, Swiss Re saw strong rate increases in the US for Excess of Loss treaty business and improvements on proportional treaty business supported by the material rate increases on the primary side as a response to the growing loss trends. In EMEA and Asia the outlook for casualty rates is stable.

The Business Unit continued to see some good opportunities for transactions and participated in those that meet its return requirements.

Premiums earned by line of business, 2019
Total: USD 19.3 billion



Life & Health Reinsurance

Life & Health Reinsurance

Life & Health Reinsurance (L&H Re) reported a strong net income for 2019 of USD 899 million, compared with USD 761 million in 2018. The underwriting result included a negative adjustment to the carrying value of an existing treaty, which had to be fair valued following the acquisition of Old Mutual Wealth Life Assurance Limited by ReAssure from Quilter plc, reflecting the decrease in interest rates since treaty inception. As a result, L&H Re rebalanced its asset porfolio realising gains of a similiar magnitude. Excluding this adjustment, the underwriting result was higher than in 2018, driven by active portfolio management and improved mortality developments in the Americas.

The investment result was very strong, reflecting higher net realised gains from sales of fixed income securities and market value gains on equity securities. The return on equity was 12.4%, compared with 11.1% in 2018, above the business segment's target range of 10–12%.

Premiums

Net premiums earned and fee income in 2019 increased by 1.3% to USD 13.0 billion from USD 12.8 billion for the prior year. Gross premiums written decreased by 0.5% to USD 14.5 billion, reflecting unfavourable foreign exchange movements and the termination of an intragroup retrocession agreement with Life Capital. Adjusting for these two items, gross premiums written increased by 5.6%.

Net operating margin

The net operating margin for 2019 was 10.0%, an increase from 9.4% in 2018 due to strong investment performance.

Management expense ratio

The management expense ratio was 5.2%, a decrease from 5.4% in 2018, reflecting lower operating expenses and higher premium volumes.

Life & Health Reinsurance results

USD millions	2018	2019	Change in %
Revenues			
Gross premiums written	14 527	14 452	–1
Net premiums written	12 647	12 734	1
Change in unearned premiums	36	101	–
Premiums earned	12 683	**12 835**	1
Fee income from policyholders	152	169	11
Net investment income – non-participating business	1 305	1 207	–8
Net realised investment gains/losses – non-participating business	347	628	81
Net investment result – unit-linked and with-profit business	–33	118	–
Other revenues	1	4	–
Total revenues	14 455	**14 961**	4
Expenses			
Life and health benefits	–10 280	–10 587	3
Return credited to policyholders	–5	–162	–
Acquisition costs	–2 045	–1 975	–3
Operating expenses	–758	–746	–2
Total expenses before interest expenses	–13 088	**–13 470**	3
Income before interest and income tax expense	1 367	**1 491**	9
Interest expenses	–410	–445	9
Income before income tax expense	957	**1 046**	9
Income tax expense	–155	–147	–5
Net income before interest on contingent capital instruments	802	**899**	12
Interest on contingent capital instruments, net of tax	–41		–100
Net income attributable to common shareholders	761	**899**	18
Management expense ratio in %	5.4	5.2	
Net operating margin in %	9.4	10.0	

Lines of business

Income before interest and income tax (EBIT) for the life segment decreased to USD 581 million for 2019, from USD 720 million in the prior year. The result in 2019 was adversely impacted by the carrying value adjustment following the acquisition of Old Mutual Wealth Life Assurance Limited by ReAssure. Excluding this item, the result benefited from active portfolio management and improved mortality developments in the Americas.

EBIT for the health segment was USD 258 million in 2019, compared with USD 355 million in the prior-year period. The 2019 result reflected the impact from an update of the assumptions for the Group business in Asia, experience and model improvements in EMEA and increased operating expenses in line with premiums growth.

Investment result

The return on investments for 2019 was 5.0%, up from 3.7% in 2018, reflecting an increase in the investment result of USD 480 million.

Net investment income decreased slightly by USD 15 million to USD 1113 million in 2019. The running yield for 2019 was 3.3%.

Net realised gains were USD 687 million for 2019, compared with USD 192 million for the prior period, with the current period positively impacted by gains from sales of fixed income securities and market value gains on equity securities.

Insurance-related investment results as well as foreign exchange gains/losses are not included in the figures above.

Shareholders' equity

Shareholders' equity increased to USD 8.3 billion as of 31 December 2019 from USD 6.3 billion as of 31 December 2018. The increase of USD 2.0 billion reflects a change in net unrealised gains and net income for the period, partly offset by the dividend paid to the Group.

Return on equity was 12.4% in 2019, up from 11.1% in 2018.

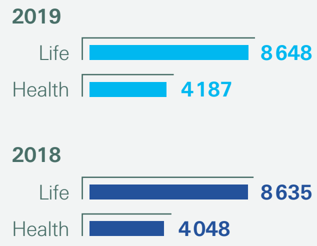
Outlook

The Business Unit expects increases in life and health treaty reinsurance new business to be driven by high-growth markets, and more modest growth in mature markets. In mature markets, the prolonged low interest rate environment continues to have an unfavourable impact on long-term life business. Cession rates are expected to be broadly stable in major markets. The Business Unit sees a continued strong focus on capital, risk and balance sheet optimisation in mature markets, leading to ongoing opportunities for large transactions.

Swiss Re will continue to pursue growth opportunities in high-growth markets and in large transactions, including longevity deals. L&H Re is responding to the expanding need for health protection driven by ageing societies, and applies its risk knowledge experience to help reduce the protection gap in all regions.

Premiums earned by line of business, 2019

Total: USD 12.8 billion



Corporate Solutions

Corporate Solutions' results were impacted by decisive management actions to reposition the business and strengthen reserves. The result was also affected by large and medium-sized man-made losses, mainly from the prior accident years related to the recent deterioration in US casualty.

Strategy and priorities

As communicated with half-year 2019 results, Corporate Solutions has carried out a strategic review of its portfolio to address recent underperformance. In addition to increasing reserves and reinsurance protection, decisive management actions include portfolio pruning measures to ensure a more focused and profitable portfolio going forward. Portfolio repositioning, together with efficiency improvements and accelerated momentum in insurance rates will help Corporate Solutions return to underwriting profitability with an estimated normalised combined ratio of 105% in 2020. The target normalised combined ratio for 2021 remains 98%.

Performance

Net loss was USD 647 million in 2019 with a net operating margin of –16.7%, compared with a net loss of USD 405 million in 2018 with a net operating margin of –11.1% for the previous period. The 2019 result reflected management actions to address underperformance and increased claims in US casualty business. It was also impacted by a high frequency and severity of large and medium-sized man-made losses, mainly from the prior accident years, with a claims burden of USD 1.1 billion. The investment result was higher year-on-year, mainly due to realised gains from sales of fixed income securities and market value gains on equity securities. The 2019 result was supported by higher realised gains from insurance in derivative form. From 1 July 2019 Corporate Solutions entered into an Adverse Development Cover (ADC) with Property & Casualty Reinsurance to protect accident years 2012–2018 across its portfolio.

Premiums

Net premiums earned were USD 4.2 billion in 2019, an increase of 6.1% year-on-year, driven by significant rate increases and growth in many lines of business, which more than offset the active pruning of several portfolios, including US general liability. Gross premiums written increased by 6.0% to USD 5.0 billion in 2019.

Combined ratio

The Business Unit's combined ratio increased to 127.9% in 2019 from 117.5% in 2018, mainly due to large and medium-sized man-made losses from prior accident years and reserve increases as part of the management actions taken in 2019.

Lines of business

The property combined ratio for 2019 improved by 1.3 percentage points to 116.6%, driven by lower natural catastrophe losses, partially offset by higher man-made losses.

The casualty combined ratio increased to 137.6% in 2019, mainly as a result of adverse prior-year development. The casualty combined ratio includes the full recovery from the ADC, as the majority of the reserves covered under the ADC agreement are casualty reserves.

The specialty combined ratio for 2019 deteriorated by 22.7 percentage points to 129.2%, impacted by higher large losses, including the compulsory liquidation of Thomas Cook in the third quarter.

Investment result

The return on investments was 3.4% for 2019, compared with 2.1% in 2018, reflecting an increase in the investment result of USD 124 million.

Net investment income increased by USD 16 million to USD 240 million in 2019, mainly due to a higher running yield.

Net realised gains were USD 84 million, up from net realised losses of USD 24 million in 2018. The current year result benefited from realised gains from sales of fixed income securities and market value gains on equity securities.

Insurance-related derivative results and foreign exchange gains/losses are not included in the investment figures.

Corporate Solutions offers insurance protection against weather perils and other risks, which is accounted for as derivatives. Insurance in derivative form reported net realised gains of USD 89 million in 2019, compared with USD 30 million in 2018.

USD millions	2018	2019	Change in %
Revenues			
Gross premiums written	4 694	4 974	6
Net premiums written	4 122	4 253	3
Change in unearned premiums	–197	–87	–56
Premiums earned	3 925	**4 166**	6
Net investment income	207	234	13
Net realised investment gains/losses	16	162	–
Other revenues	3	5	67
Total revenues	4 151	**4 567**	10
Expenses			
Claims and claim adjustment expenses	–3 241	–3 900	20
Acquisition costs	–607	–640	5
Operating expenses	–763	–788	3
Total expenses before interest expenses	–4 611	**–5 328**	16
Loss before interest and income tax expense	–460	**–761**	65
Interest expenses	–24	–40	67
Loss before income tax expense	–484	**–801**	65
Income tax expense/benefit	75	143	91
Net loss before attribution of non-controlling interests	–409	**–658**	61
Income attributable to non-controlling interests	4	11	175
Net loss attributable to common shareholders	–405	**–647**	60
Claims ratio in %	82.6	93.6	
Expense ratio in %	34.9	34.3	
Combined ratio in %	117.5	127.9	

Shareholders' equity

Shareholders' equity increased to USD 2.0 billion since the end of 2018, due to the Group's injection of USD 600 million capital in the second quarter of 2019 and unrealised investment gains, partly offset by the net loss for the period.

The return on equity was –34.1% in 2019, compared with –19.4% in 2018.

Outlook

Market momentum substantially accelerated throughout 2019. Terms and conditions tightened in parallel. Swiss Re expects the positive momentum in commercial insurance rates to continue after achieving a broad-based 12% price quality increase in 2019 (17% in the fourth quarter), which we expect will have a positive effect on the Business Unit's profitability. Further rate hardening is required until the price level is sufficient across all lines of business. We expect to realise the benefits from the 2019 management actions in our financial results in 2020 and 2021.

Life Capital

Life Capital accelerated its transition to a dynamically growing, digital B2B2C business creating improved access to risk pools.

Strategy and priorities

During 2019, Life Capital further accelerated its transition to a dynamically growing, digital B2B2C business.

A significant step in this transformation was the agreement to sell Life Capital's UK closed book business, ReAssure, to Phoenix Group Holdings plc. As previously communicated, Swiss Re's goal has been to deconsolidate ReAssure by reducing its ownership below 50%. The transaction, which is expected to close in mid-2020, subject to regulatory and antitrust approvals, valued ReAssure at GBP 3.25 billion. Earlier in the year, ReAssure agreed to acquire the UK closed book business of Quilter plc, adding over 0.2 million customer policies and GBP 12 billion of assets to ReAssure's platform. This transaction closed on 31 December 2019.

In the open book business, Life Capital continues to use technology to enable both elipsLife and iptiQ to achieve efficiencies and profitable growth and focuses on expanding both platforms globally. In 2019, the strong growth in these businesses continued, with gross written premiums increasing 22% year-on-year when measured at constant exchange rates.

Steady growth in elipsLife's mature markets allowed the business to expand into new markets, including the US. Meanwhile, iptiQ expanded into property & casualty personal lines in Europe. By the end of 2019, iptiQ had onboarded 29 partners, providing protection to more than 377 000 customers globally, and leading to an estimated valuation of USD 1–1.5 billion.

Life Capital made the first steps towards expanding into Asia in 2019, where significant potential for future growth is expected.

Performance

In 2019, Life Capital reported a net loss of USD 177 million, including a USD 0.2 billion charge in connection with the agreement to sell ReAssure. Excluding this charge, net income was USD 53 million, an increase from USD 23 million in 2018. The current year result benefited from strong investment results, partially offset by expenses related to the separation of ReAssure into a standalone group and operating costs arising from the continued growth in the open book businesses.

The net operating margin in 2019 was 2.4% compared with 3.9% in the prior year, in line with movements in income.

Life Capital generated significant gross cash of USD 1.1 billion in 2019 compared with USD 818 million in the prior year. The gross cash generated in 2019 was mainly driven by the proceeds from the sale of subordinated bonds issued by ReAssure and a 10% stake sale in ReAssure to MS&AD Insurance Group Holdings Inc partially offset by the impact of ReAssure recapitalisation ahead of separation. Consistent with the transition of Life Capital, the Group will no longer disclose the gross cash generation for 2020 and beyond.

Life Capital paid a dividend of USD 0.5 billion to the Group in October 2019.

Premiums

Gross premiums written in the open book businesses increased by 22% during 2019 when measured at constant exchange rates. Net premiums earned and fee income increased to USD 2.1 billion during 2019 from USD 1.6 billion in the prior year, driven by growth in the open book life and health insurance businesses, combined with the net impact of intragroup retrocessions and foreign exchange movements.

Investment result

The return on investments was 3.7% for 2019, compared with 3.3% in 2018, reflecting an increase in the investment result of USD 57 million.

Net investment income decreased by USD 57 million to USD 787 million in 2019, mainly due to run-off within the closed book portfolios.

Net realised gains increased by USD 114 million to USD 191 million in 2019, reflecting additional gains from sales of fixed income securities, partially offset by equity and interest rate derivative losses.

Insurance-related investment results as well as foreign exchange gains/losses are not included in the figures above.

Operating expenses

Operating expenses were USD 721 million in 2019 compared with USD 549 million in 2018. The increase was due to expenses related to the separation of ReAssure and investment into the growth of the open book businesses.

Life Capital results

USD millions	2018	2019	Change in %
Revenues			
Gross premiums written	2 739	2 831	3
Net premiums written	1 175	1 780	51
Change in unearned premiums	–3	–82	–
Premiums earned	1 172	**1 698**	45
Fee income from policyholders	434	451	4
Net investment income – non-participating business	1 256	1 193	–5
Net realised investment gains/losses – non-participating business	66	18	–73
Net investment result – unit-linked and with-profit business	–1 560	4 821	–
Other revenues	–	1	–
Total revenues	1 368	**8 182**	498
Expenses			
Life and health benefits	–1 489	–2 500	68
Return credited to policyholders	1 038	–4 471	–
Acquisition costs	–255	–409	60
Operating expenses	–549	–721	31
Total expenses before interest expenses	–1 255	**–8 101**	–
Income before interest and income tax expense	113	**81**	–28
Interest expenses	–41	–72	76
Income before income tax expense	72	**9**	–88
Income tax expense	–26	–133	–
Net income/loss before attribution of non-controlling interests	46	**–124**	–
Income attributable to non-controlling interests	–23	–53	130
Net income/loss attributable to common shareholders	23	**–177**	–

Shareholders’ equity

Shareholders’ equity increased by USD 0.2 billion to USD 5.3 billion, mainly driven by increased unrealised gains, partially offset by the net loss and the USD 0.5 billion dividend paid in 2019. The return on equity was –3.4% for 2019, compared with 0.4% for 2018. The year-on-year decrease was due to lower net income in 2019 including the charge in connection with the agreement to sell ReAssure.

Outlook

Life Capital’s ambition is to build a leading primary business, with attractive economic value creation for shareholders. Its focus is on growing its individual and group open book businesses in Europe, the US and going forward also in Asia.

Swiss Re Institute

Competitive advantage in underwriting

Distinctive knowledge and insights into insurance risk pools and individual risks have been the bedrock of Swiss Re's underwriting outperformance for more than 150 years, and cutting-edge research and development (R&D) continues to underpin the evolution of our capabilities and client offerings. Technological progress has opened up new opportunities to advance our expertise. Access to more and better data, advanced analytics and a strong talent base allows Swiss Re to create new insights at an ever-accelerating pace.

For example, the ability to aggregate and augment large pools of natural catastrophe exposure data from different sources allows Swiss Re to expand its ability to model and understand risk. In this new approach, data-mining techniques and clustering algorithms are being used to enrich risk characteristics of individual property exposures (such as age or construction type, for example). The underlying exposure database with more than 12 billion individual records is fully integrated with Swiss Re's proprietary risk modelling landscape, positioning us well for superior risk selection and advanced accumulation tracking. Strategic collaboration with open-source partners, for example the Global Earthquake Model (GEM) public-private partnership, provides further access to data and ensures timely consideration of leading scientific perspectives as we advance our own views on risk.

Deep risk insight coupled with a data-driven ability to assume forward-looking perspectives on insurance risk pools allows Swiss Re to allocate risk capital to the mutual benefit of our clients and shareholders, as well as society in the broader sense. Strategic investments in targeted R&D activities forms the basis for continued underwriting excellence and positions Swiss Re as a market-leading knowledge company.

Underwriting performance in 2019

The Group's overall underwriting performance in 2019 was impacted by higher-than-expected large natural catastrophe and man-made losses. Normalised for large losses, the Group's underwriting results are solid and bear testimony to our risk selection capabilities and the strong diversification of our business. In property and casualty, higher large loss burden and adverse prior-year development were balanced with profitable business growth, particularly in the natural catastrophe business. The Group's total property and casualty claims payments in the amount of USD 18.7 billion helped individuals, businesses and communities rebuild in the aftermath of natural catastrophe and man-made events. Underlying underwriting performance in life and health was strong, offsetting the adverse impact from carrying value adjustments and the charge related to the agreement to sell ReAssure. Total life and health benefits amounted to USD 13.1 billion, up from USD 11.8 billion in 2018.

Accelerated exposure growth and growing concentrations in areas with heightened exposure to natural catastrophes, such as coastal zones, have been contributing noticeably to loss activity in property and casualty. While technological progress can have a positive impact on loss frequency and severity in some lines of business, there are broad secular trends driving up loss cost tied to climate change, rapid urbanisation and increasing complexity of business operations. Changing societal trends and attitudes have been impacting claims severity further in specific markets, mainly in the US, a phenomenon commonly described as social inflation. Similarly, on the life and health side, the expansion of genetic testing, rising obesity rates, opioid-related mortality and other trends drive up claims amid stalling mortality improvement rates.

Swiss Re is well positioned to support our clients in addressing these challenges by utilising cutting-edge underwriting R&D, innovative risk-transfer solutions and a strong balance sheet.

Market environment and outlook

We anticipate a lackluster global economic expansion in 2020 and 2021: global growth is slowing from an already low base. Insurance premiums are nevertheless expected to grow by around 3.0% in real terms, with emerging Asia powering global industry growth. China, India and other Asian markets continue to expand, based on both solid economic growth of around 6.0% and significant protection gaps in those markets. Government initiatives and industry efforts increasingly seek to close those gaps. Swiss Re aims to be at the forefront in this area to help reduce the barriers to supply and demand that currently hinder insurance uptake.

Profitability, as measured by return on equity, has strengthened in both property and casualty and life and health reinsurance businesses in 2019, in part due to improved realised gains from investment management. With low interest rates set to stay, however, the investment environment will remain extremely challenging. With the industry experiencing its third year of elevated insurance losses, the pressure for improved market discipline is rising, and this discipline has begun to spread from catastrophe-affected portfolios to other lines of business. Enhanced discipline is leading to improvements in pricing and the exit of several re/insurers from otherwise unsustainable markets.

We expect broadly stable to improving property and casualty reinsurance prices as a result of rising claims and a significant reduction of available retrocession capacity. Underlying primary commercial line price increases have gained strength and broadened throughout 2019. Due to our long-standing underwriting experience as a leading reinsurer we are well positioned to navigate fast-developing risk environments.

We are positive about the opportunities available to us. Demand continues to grow for solutions and services that deploy our R&D to clients, and our ability to engage in large and tailored transactions is an asset. In addition, our industry-leading product and geographic franchise enables us to rapidly and flexibly deploy capital across all insurance risk pools.

Group investments

Strategy

Swiss Re's investment portfolio provided an excellent contribution in 2019, despite headwinds from the declining interest rate environment. Fundamentally, the portfolio performed well with no material impairments alongside gains generated from the fixed income portfolio and strong equity performance. Overall, Swiss Re's asset allocation changed only moderately during 2019, with a modest reduction in corporate bond exposure and continued deployment in private debt as well as real estate. We continue to systemically incorporate ESG across the entire investment value chain. As in the past, the Group remains flexible should there be a change in the investment outlook or if market opportunities arise.

Financial markets overview

Financial markets started 2019 on a strong note amid the central bank shift to looser monetary policy early in the year. This turn in policy stance was mainly driven by worsening market conditions coupled with weaker economic data, in particular slowing global trade and manufacturing activity.

Looking at specific asset classes, government bond yields declined significantly across multiple regions in 2019. In August 2019, the US Treasury yield curve briefly inverted for the first time since 2007 and sovereign bond yields hit all-time lows in various countries, with further expansion of negative-yielding debt. Yields have partially recovered since then, but remain very low by historical standards. Equities rose sharply throughout 2019 following the large declines at the end of the prior year, predominantly due to the accommodative monetary policy. The S&P 500 index hit all-time highs and ended the year up 29%, further supported by optimism regarding the US-China "phase one" trade deal. Investment-grade corporate credit spreads tightened notably during the year.

In the global macroeconomic environment, growth weakened in 2019 as trade activity slowed and the manufacturing sector contracted. Meanwhile, inflationary pressures have remained muted. Finally, the US-China trade dispute dominated geopolitics throughout the year, while the prospect of Brexit added to the political uncertainty in Europe.

4.2
Net investment income in USD billions, 2019
(2018: USD 4.1 billion)

4.7%
Group return on investments 2019
(2018: 2.8%)

2.8%
Group running yield 2019
(2018: 2.9%)

Investment result

The Group's investment portfolio, excluding unit-linked and with-profit investments, increased to USD 134.5 billion at the end of 2019, from USD 122.6 billion at the end of 2018. The increase was largely driven by the impact of declining interest rates and credit spread tightening as well as favourable foreign exchange movements.

The return on investments for 2019 was 4.7%. The result was primarily driven by net investment income as well as gains within the fixed income portfolio and performance from equity securities, reflecting the Group's strong overall investment portfolio position. In 2018, the return on investments was 2.8%. The Group's non-participating net investment income increased to USD 4.2 billion in 2019 from USD 4.1 billion the prior year, demonstrating the stability of the recurring investment income. The Group's running yield was largely unchanged at 2.8% from 2.9% in the prior year, alongside declining yields.

The Group reported non-participating net realised investment gains of USD 1.6 billion in 2019 compared with USD 0.1 billion in 2018, as the current year benefited from significant market value gains within the equity portfolio, as well as additional gains from sales within the fixed income portfolio.

Outlook

Global economic growth is set to stay subdued in 2020. Growth in developed markets is expected to slow further, but a recession is not foreseen. In contrast, economic growth in emerging markets will likely improve despite China's continued slowdown, as the main Latin American economies slowly recover. Inflationary pressures are forecast to stay muted.

Central banks are set to stay very accommodative. The US Federal Reserve has said it will use its balance sheet to provide ample liquidity and is expected to keep rates unchanged for the foreseeable future. Meanwhile, the European Central Bank has said it will continue its asset purchase programme throughout 2020.

On the risk landscape, a key topic is continued trade uncertainty, with the US-China conflict the primary focus despite the recent "phase one" trade deal. Other important themes for 2020 revolve around potential late cycle concerns, the overall monetary and fiscal policy mix and the US presidential elections.

Our investment portfolio remains well diversified across investment classes with a continued focus on quality and ESG criteria. We plan to moderately increase our allocation to private markets including investments in private debt and real estate, which will further diversify the overall investment portfolio.

Income statement

For the years ended 31 December

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

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

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

Statement of comprehensive income

For the years ended 31 December

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

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

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

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

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

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

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

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Balance sheet

Assets
As of 31 December

USD millions	Note	2018	2019
Investments	7, 8, 9		
Fixed income securities:			
Available-for-sale (including 11 502 in 2018 and 14 175 in 2019 subject to securities lending and repurchase agreements) (amortised cost: 2018: 89 673; 2019: 74 780)		92 538	**79 163**
Trading (including 2 599 in 2018 and 1 911 in 2019 subject to securities lending and repurchase agreements)		3 414	**2 410**
Equity securities at fair value through earnings (including 480 in 2018 and 186 in 2019 subject to securities lending and repurchase agreements)		3 036	**2 993**
Policy loans, mortgages and other loans		4 542	**3 021**
Investment real estate		2 411	**2 528**
Short-term investments (including 552 in 2018 and 1157 in 2019 subject to securities lending and repurchase agreements)		5 417	**5 768**
Other invested assets		6 398	**7 343**
Investments for unit-linked and with-profit business (including fixed income securities trading: 4 938 in 2018 and nil in 2019, equity securities at fair value through earnings: 23 123 in 2018 and 520 in 2019)		29 546	**520**
Total investments		147 302	**103 746**
Cash and cash equivalents (including 717 in 2018 and 1 257 in 2019 subject to securities lending, and 1 175 in 2018 and 4 in 2019 backing unit-linked and with-profit contracts)		5 985	**7 562**
Accrued investment income		1 052	**673**
Premiums and other receivables		13 789	**15 271**
Reinsurance recoverable on unpaid claims and policy benefits		7 058	**5 898**
Funds held by ceding companies		9 009	**9 472**
Deferred acquisition costs	6	8 217	**7 838**
Acquired present value of future profits	6	1 818	**1 042**
Goodwill		4 071	**3 945**
Income taxes recoverable		526	**466**
Deferred tax assets		5 411	**4 726**
Other assets		3 332	**3 489**
Assets held for sale[1]	11		**74 439**
Total assets		207 570	**238 567**

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

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

Liabilities and Equity

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

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

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

Statement of shareholders' equity

For the years ended 31 December

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

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

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

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

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

Statement of cash flows

For the years ended 31 December

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

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

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

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

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

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

Notes to the Group financial statements

1 Organisation and summary of significant accounting policies

Nature of operations

The Swiss Re Group, which is headquartered in Zurich, Switzerland, comprises Swiss Re Ltd (the parent company) and its subsidiaries (collectively, the "Swiss Re Group" or the "Group"). The Swiss Re Group is a wholesale provider of reinsurance, insurance and other insurance-based forms of risk transfer. Working through brokers and a network of offices around the globe, the Group serves a client base made up of insurance companies, mid-to-large-sized corporations and public-sector clients.

Basis of presentation

The accompanying condensed 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 accompanying condensed consolidated financial statements contain preliminary, unaudited financial information for the annual period ended 31 December 2019. The 2018 year-end balance sheet data presented was derived from audited financial statements. These condensed 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 Swiss Re Group's audited consolidated financial statements for the year ended 31 December 2018. The Swiss Re Group's audited consolidated financial statements for the year ended 31 December 2019 will be published on 19 March 2020.

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

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

Use of estimates in the preparation of financial statements

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

Valuation of financial assets

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

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

For assets or derivative structures at fair value, the Group uses market prices or inputs derived from market prices. A separate internal price verification process, independent of the trading function, provides an additional control over the market prices or market inputs used to determine the fair values of such assets. Although management considers that appropriate values have been ascribed to such assets, there is always a level of uncertainty and judgement related to these valuations. Subsequent valuations could differ significantly from the results of the process described above. The Group may become aware of counterparty valuations, either directly through the exchange of information or indirectly, for example through collateral demands. Any implied differences are considered in the independent price verification process and may result in adjustments to initially indicated valuations. As of 31 December 2019, the Group had not provided any collateral on financial instruments in excess of its own market value estimates.

Subsequent events
Subsequent events for the current reporting period have been evaluated up to 19 February 2020. This is the date on which the condensed unaudited financial statements are available to be issued.

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

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

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

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

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

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

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

Future adoption of new accounting standards

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

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

In August 2018, the FASB issued ASU 2018-12, "Targeted Improvements to the Accounting for Long-Duration Contracts", an update to topic 944, "Financial Services – Insurance". This ASU requires that the cash flows and net premium ratio will be updated for changes in insurance assumptions (eg mortality, morbidity, terminations) when measuring the liability for future policy benefits for nonparticipating traditional and limited-payment insurance and reinsurance contracts. There will no longer be a provision for adverse deviation. In addition, the discount rate used to reflect the time value of money in the calculation of the liability for future policy benefits will be standardised. Further, the ASU requires deferred acquisition costs (DAC) relating to most long-duration contracts to be amortised on a constant basis over the expected term of the contract. As amended by ASU 2019-09 "Effective Date", ASU 2018-12 is effective for annual periods beginning after 15 December 2023, and interim periods beginning after 15 December 2024. Due to the decision of the Board of Directors of Swiss Re Ltd to prepare the Group's consolidated financial statements in accordance with IFRS beginning 1 January 2024, the Group does not plan to adopt ASU 2018-12.

2 Information on business segments

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

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

Accounting policies applied by the business segments are in line with those described in the summary of significant accounting policies (please refer to Note 1).

The Group operating segments are outlined below.

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

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

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

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

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

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

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

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

a) Business segments – income statement

For the year ended 31 December

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

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

Business segments – income statement

For the year ended 31 December

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

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

Business segments – balance sheet

As of 31 December

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

Business segments – balance sheet
As of 31 December

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

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

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

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

Property & Casualty Reinsurance business segment – by line of business

For the year ended 31 December

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

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

For the year ended 31 December

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

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

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

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

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

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

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

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

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

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

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

3 Insurance information

Premiums earned and fees assessed against policyholders

For the years ended 31 December

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

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

Claims and claim adjustment expenses

For the year ended 31 December

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

Acquisition costs

For the year ended 31 December

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

Claims and claim adjustment expenses
For the year ended 31 December

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

Acquisition costs
For the year ended 31 December

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

Reinsurance recoverable on unpaid claims and policy benefits

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

Reinsurance receivables

Reinsurance receivables as of 31 December were as follows:

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

Policyholder dividends

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

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4 Premiums written

For the years ended 31 December

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

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

5 Unpaid claims and claim adjustment expenses

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

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

Prior-year development

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

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

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

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

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

US asbestos and environmental claims exposure

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

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

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

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

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

As of 31 December, the DAC were as follows:

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

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

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

As of 31 December, the PVFP was as follows:

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

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

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

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

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

7 Investments

Investment income

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

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

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

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

Realised gains and losses

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

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

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

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

Investment result – unit-linked and with-profit business

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

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

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

Impairment on fixed income securities related to credit losses

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

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

A reconciliation of other-than-temporary impairments related to credit losses recognised in earnings was as follows:

USD millions	2018	2019
Balance as of 1 January	91	80
Credit losses for which an other-than-temporary impairment was not previously recognised	5	5
Reductions for securities sold during the period	–12	–24
Increase of credit losses for which an other-than-temporary impairment has been recognised previously, when the Group does not intend to sell, or more likely than not will not be required to sell before recovery	2	2
Impact of increase in cash flows expected to be collected	–4	–3
Impact of foreign exchange movements	–2	1
Balance as of 31 December	80	**61**

Investments available-for-sale

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

2018 USD millions	Amortised cost or cost	Gross unrealised gains	Gross unrealised losses	Other-than-temporary impairments recognised in other comprehensive income	Estimated fair value
Debt securities issued by governments and government agencies:					
US Treasury and other US government corporations and agencies	12 144	218	–156		12 206
US Agency securitised products	6 416	18	–130		6 304
States of the United States and political subdivisions of the states	1 584	55	–19		1 620
United Kingdom	7 837	1 085	–74		8 848
Germany	2 723	229	–7		2 945
Canada	2 721	192	–29		2 884
France	1 723	205	–6		1 922
Japan	872	74	–8		938
Other	9 812	213	–130		9 895
Total	45 832	2 289	–559		47 562
Corporate debt securities	39 630	1 617	–542		40 705
Mortgage- and asset-backed securities	4 211	117	–56	–1	4 271
Fixed income securities available-for-sale	89 673	4 023	–1 157	–1	92 538

2019 USD millions	Amortised cost or cost	Gross unrealised gains	Gross unrealised losses	Other-than-temporary impairments recognised in other comprehensive income	Estimated fair value
Debt securities issued by governments and government agencies:					
US Treasury and other US government corporations and agencies	14 192	377	–31		14 538
US Agency securitised products	7 034	104	–14		7 124
States of the United States and political subdivisions of the states	1 783	168	–3		1 948
United Kingdom	7 936	1 309	–26		9 219
Germany	2 870	298	–35		3 133
Canada	2 256	139	–4		2 391
France	2 095	343	–13		2 425
Japan	2 028	98	–2		2 124
Other	10 589	583	–33		11 139
Total	50 783	3 419	–161		54 041
Corporate debt securities	37 293	3 749	–46		40 996
Mortgage- and asset-backed securities	4 397	195	–14	–2	4 576
Reclassified to assets held for sale	–17 693	–2 785	28		–20 450
Fixed income securities available-for-sale	74 780	4 578	–193	–2	79 163

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

Unrealised losses on securities available-for-sale

The following table shows the fair value and unrealised losses of the Group's fixed income securities, aggregated by investment category and length of time that individual securities were in a continuous unrealised loss position as of 31 December 2018 and 2019.

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

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

Maturity of fixed income securities available-for-sale

The amortised cost or cost and estimated fair values of investments in fixed income securities available-for-sale by remaining maturity are shown below. Fixed maturity investments are assumed not to be called for redemption prior to the stated maturity date. As of 31 December 2018 and 2019, USD 18 601 million and USD 20 188 million, respectively, of fixed income securities available-for-sale were callable.

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

Investments trading and at fair value through earnings

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

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

Investments held for unit-linked and with-profit business

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

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

Mortgage, policy and other loans, and investment real estate

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

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

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

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

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

Maturity of lessor cash flows

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

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

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

Other financial assets and liabilities by measurement category

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

2018 USD millions	Fair value	Investments measured at net asset value as practical expedient	Amortised cost or cost	Equity-accounted	Not in scope[1]	Total
Other invested assets						
Derivative financial instruments	564					564
Reverse repurchase agreements			1 051			1 051
Securities lending/borrowing	302		11			313
Equity-accounted investments	312			2 660		2 972
Other	52	812	634			1 498
Other invested assets	1 230	812	1 696	2 660	0	6 398
Accrued expenses and other liabilities						
Derivative financial instruments	582					582
Repurchase agreements			581			581
Securities lending	301		59			360
Securities sold short	1 538					1 538
Other			1 077		2 660	3 737
Accrued expenses and other liabilities	2 421	0	1 717	0	2 660	6 798

2019 USD millions	Fair value	Investments measured at net asset value as practical expedient	Amortised cost or cost	Equity-accounted	Not in scope[1]	Total
Other invested assets						
Derivative financial instruments	472					472
Reverse repurchase agreements			2 089			2 089
Securities lending/borrowing	457		21			478
Equity-accounted investments	335			2 580		2 915
Other	76	913	905			1 894
Reclassified to assets held for sale	-60		-445			-505
Other invested assets	**1 280**	**913**	**2 570**	**2 580**	**0**	**7 343**
Accrued expenses and other liabilities						
Derivative financial instruments	692					692
Repurchase agreements			678			678
Securities lending	458		115			573
Securities sold short	1 764					1 764
Other			1 653		2 512	4 165
Reclassified to liabilities held for sale	-161		-329		-191	-681
Accrued expenses and other liabilities	**2 753**	**0**	**2 117**	**0**	**2 321**	**7 191**

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

Offsetting of derivatives, financial assets and financial liabilities

Offsetting of derivatives, financial assets and financial liabilities as of 31 December was as follows:

2018 USD millions	Gross amounts of recognised financial assets	Amounts set-off in the balance sheet	Net amounts of financial assets presented in the balance sheet	Related financial instruments not set-off in the balance sheet	Net amount
Derivative financial instruments – assets	1 620	–1 052	568		568
Reverse repurchase agreements	4 285	–3 234	1 051	–1 051	0
Securities borrowing	110	–99	11	–11	0
Total	6 015	–4 385	1 630	–1 062	568

2018 USD millions	Gross amounts of recognised financial liabilities	Amounts set-off in the balance sheet	Net amounts of financial liabilities presented in the balance sheet	Related financial instruments not set-off in the balance sheet	Net amount
Derivative financial instruments – liabilities	–1 505	923	–582	21	–561
Repurchase agreements	–3 334	2 753	–581	581	0
Securities lending	–940	580	–360	339	–21
Total	–5 779	4 256	–1 523	941	–582

2019 USD millions	Gross amounts of recognised financial assets	Amounts set-off in the balance sheet	Net amounts of financial assets presented in the balance sheet	Related financial instruments not set-off in the balance sheet	Net amount
Derivative financial instruments – assets	1 662	–1 184	478	–2	**476**
Reverse repurchase agreements	5 185	–3 096	2 089	–2 061	**28**
Securities borrowing	171	–150	21	–20	**1**
Total	**7 018**	**–4 430**	**2 588**	**–2 083**	**505**

2019 USD millions	Gross amounts of recognised financial liabilities	Amounts set-off in the balance sheet	Net amounts of financial liabilities presented in the balance sheet	Related financial instruments not set-off in the balance sheet	Net amount
Derivative financial instruments – liabilities	–1 750	1 058	–692	75	**–617**
Repurchase agreements	–3 352	2 674	–678	653	**–25**
Securities lending	–1 145	572	–573	524	**–49**
Total	**–6 247**	**4 304**	**–1 943**	**1 252**	**–691**

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

Assets pledged

As of 31 December 2018 and 2019, investments with a carrying value of USD 5 776 million and USD 5 239 million, respectively, were on deposit with regulatory agencies in accordance with local requirements, of which USD 277 million and USD 223 million, respectively, were cash and cash equivalents. As of 31 December 2018 and 2019, investments with a carrying value of USD 12 959 million and USD 14 659 million, respectively, were placed on deposit or pledged to secure certain reinsurance liabilities, including pledged investments in subsidiaries, of which USD 404 million and USD 485 million, respectively, were cash and cash equivalents. Cash and cash equivalents pledged include some instances where cash is legally restricted from usage or withdrawal.

As of 31 December 2018 and 2019, securities of USD 15 850 million and USD 18 686 million, respectively, were transferred to third parties under securities lending transactions and repurchase agreements on a fully collateralised basis. Corresponding liabilities of USD 941 million and USD 1 251 million, respectively, were recognised in accrued expenses and other liabilities for the obligation to return collateral that the Group has the right to sell or reuse.

As of 31 December 2018 and 2019, a real estate portfolio with a carrying value of USD 191 million and USD 188 million, respectively, served as collateral for a credit facility, allowing the Group to withdraw funds up to CHF 500 million.

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

As of 31 December 2018 and 2019, the fair value of the equity securities, government and corporate debt securities received as collateral was USD 4 239 million and USD 5 477 million, respectively. Of this, the amount that was sold or repledged as of 31 December 2018 and 2019 was USD 1 721 million and USD 2 025 million, respectively. The sources of the collateral are securities borrowing, reverse repurchase agreements and derivative transactions.

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

As of 31 December 2018 and 2019, the gross amounts of liabilities related to repurchase agreements and securities lending by the class of securities transferred to third parties and by the remaining maturity are shown below.

2018 USD millions	Remaining contractual maturity of the agreements Overnight and continuous	Up to 30 days	30–90 days	Greater than 90 days	Total
Repurchase agreements					
Debt securities issued by governments and government agencies	149	2 894	100	141	3 284
Corporate debt securities	9	41			50
Total repurchase agreements	158	2 935	100	141	3 334
Securities lending					
Debt securities issued by governments and government agencies	110	146	242	431	929
Corporate debt securities	7	4			11
Total securities lending	117	150	242	431	940
Gross amount of recognised liabilities for repurchase agreements and securities lending					4 274

2019 USD millions	Remaining contractual maturity of the agreements Overnight and continuous	Up to 30 days	30–90 days	Greater than 90 days	Total
Repurchase agreements					
Debt securities issued by governments and government agencies	30	3 312			3 342
Corporate debt securities	3	7			10
Total repurchase agreements	**33**	**3 319**	**0**	**0**	**3 352**
Securities lending					
Debt securities issued by governments and government agencies	295		493	299	1 087
Corporate debt securities	58				58
Total securities lending	**353**	**0**	**493**	**299**	**1 145**
Gross amount of recognised liabilities for repurchase agreements and securities lending					**4 497**

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

8 Fair value disclosures

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

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

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

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

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

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

The fair values of assets are adjusted to incorporate the counterparty risk of non-performance. Similarly, the fair values of liabilities reflect the risk of non-performance of the Group, captured by the Group's credit spread. These valuation adjustments from assets and liabilities measured at fair value using significant unobservable inputs are recognised in net realised gains and losses. For 2019, these adjustments were not material. Whenever the underlying assets or liabilities are reported in a specific business segment, the valuation adjustment is allocated accordingly. Valuation adjustments not attributable to any business segment are reported in Group items.

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

Valuation techniques

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

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

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

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

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

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

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

The Group's OTC interest rate derivatives primarily include interest rate swaps, futures, options, caps and floors and are valued based on the cash flow discounting models which generally utilise as inputs observable market yield curves and volatility assumptions.

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

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

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

Governance around level 3 fair valuation

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

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

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

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

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Assets and liabilities measured at fair value on a recurring basis

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

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

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

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

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

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

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

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

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

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

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

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

The gains and losses relating to the assets and liabilities measured at fair value using significant unobservable inputs (level 3) for the years ended 31 December were as follows:

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

Quantitative information about level 3 fair value measurements

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

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

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

Sensitivity of recurring level 3 measurements to changes in unobservable inputs

The significant unobservable input used in the fair value measurement of the Group's infrastructure loans is valuation spread. A significant increase (decrease) in this input in isolation would result in a significantly lower (higher) fair value measurement. The significant unobservable input used in the fair value measurement of the Group's private placement corporate debt securities is credit spread. A significant increase (decrease) in this input in isolation would result in a significantly lower (higher) fair value measurement. The significant unobservable input used in the fair value measurement of the Group's private placement credit tenant leases is illiquidity premium. A significant increase (decrease) in this input in isolation would result in a significantly lower (higher) fair value measurement.

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

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

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

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

Other invested assets measured at net asset value

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

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

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

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

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

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

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

Fair value option

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

Other invested assets

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

Funds held by ceding companies

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

Liabilities for life and health policy benefits

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

Other derivative liabilities

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

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

Pursuant to the election of the fair value option for the items described, the balances as of 31 December were as follows:

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

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

Gains/losses included in earnings for items measured at fair value pursuant to election of the fair value option including foreign exchange impact for the years ended 31 December were as follows:

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

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

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

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

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

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

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

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

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

9 Derivative financial instruments

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

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

Fair values and notional amounts of derivative financial instruments

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

2018 USD millions	Notional amount assets/liabilities	Fair value assets	Fair value liabilities	Carrying value assets/liabilities
Derivatives not designated as hedging instruments				
Interest rate contracts	52 719	441	–326	115
Foreign exchange contracts	19 415	186	–148	38
Equity contracts	12 493	719	–538	181
Credit contracts	379		–1	–1
Other contracts	11 385	61	–471	–410
Total	96 391	1 407	–1 484	–77
Derivatives designated as hedging instruments				
Foreign exchange contracts	12 679	213	–21	192
Total	12 679	213	–21	192
Total derivative financial instruments	109 070	1 620	–1 505	115
Amount offset				
Where a right of set-off exists		–623	623	
Due to cash collateral		–429	300	
Total net amount of derivative financial instruments		568	–582	–14

2019 USD millions	Notional amount assets/liabilities	Fair value assets	Fair value liabilities	Carrying value assets/liabilities
Derivatives not designated as hedging instruments				
Interest rate contracts	27 544	494	–395	99
Foreign exchange contracts	26 256	291	–108	183
Equity contracts	16 089	721	–531	190
Credit contracts	3 283	17	–63	–46
Other contracts	10 290	48	–443	–395
Total	**83 462**	**1 571**	**–1 540**	**31**
Derivatives designated as hedging instruments				
Interest rate contracts	1 403	1	–22	–21
Foreign exchange contracts	15 038	90	–188	–98
Total	**16 441**	**91**	**–210**	**–119**
Total derivative financial instruments	**99 903**	**1 662**	**–1 750**	**–88**
Amount offset				
Where a right of set-off exists		–675	675	
Due to cash collateral		–509	383	
Total net amount of derivative financial instruments		**478**	**–692**	**–214**

The notional amounts of derivative financial instruments give an indication of the Group's volume of derivative activity. The fair value assets are included in "Other invested assets", "Investments for unit-linked and with-profit business" and "Assets held for sale". The fair value liabilities are included in "Accrued expenses and other liabilities" and "Liabilities held for sale". The fair value amounts that were not offset were nil as of 31 December 2018 and 2019.

Non-hedging activities

The Group primarily uses derivative financial instruments for risk management and trading strategies. Gains and losses of derivative financial instruments not designated as hedging instruments are recorded in "Net realised investment gains/losses — non-participating business" and "Net investment result — unit-linked and with-profit business" in the income statement.

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

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

Hedging activities

The Group designates certain derivative financial instruments as hedging instruments. The designation of derivative financial instruments is primarily used for overall portfolio and risk management strategies. As of 31 December 2018 and 2019, the following hedging relationships were outstanding:

Fair value hedges

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

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

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

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

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

Cash flow hedges

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

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

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

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

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

Hedges of the net investment in foreign operations

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

For the years ended 31 December 2018 and 2019, the Group recorded an accumulated net unrealised foreign currency remeasurement gain of USD 2 102 million and USD 1 895 million, respectively, in "Other comprehensive income - Foreign currency translation". These offset translation gains and losses on the hedged net investment.

Maximum potential loss

In consideration of the rights of set-off and the qualifying master netting arrangements with various counterparties, the maximum potential loss as of 31 December 2018 and 2019 was approximately USD 997 million and USD 987 million, respectively. The maximum potential loss is based on the positive market replacement cost assuming non-performance of all counterparties, excluding cash collateral.

Credit risk-related contingent features

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

The total fair value of derivative financial instruments containing credit risk-related contingent features amounted to USD 108 million and USD 75 million as of 31 December 2018 and 2019, respectively. For derivative financial instruments containing credit risk-related contingent features, the Group posted collateral of nil as of 31 December 2018 and 2019, respectively. In the event of a reduction of the Group's credit rating to below investment grade, a fair value of USD 75 million additional collateral would have had to be posted as of 31 December 2019. The total equals the amount needed to settle the instruments immediately as of 31 December 2019.

10 Acquisitions

Old Mutual Wealth Life Assurance Limited

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

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

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

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

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

11 Assets held for sale

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

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

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

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

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

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

12 Debt and contingent capital instruments

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

The Group's debt as of 31 December was as follows:

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

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

Maturity of long-term debt

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

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

Senior long-term debt

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

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

Subordinated long-term debt

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

[1] Reclassified to liabilities held for sale.

Contingent capital instruments classified as long-term debt

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

Interest expense on long-term debt and contingent capital instruments classified as equity

Interest expense on long-term debt for the years ended 31 December was as follows:

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

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

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

Long-term debt issued in 2019

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

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

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

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

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

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

13 Leases

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

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

Lease liabilities and right-of-use assets

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

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

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

Maturity of lease liabilities

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

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

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

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

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

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

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

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

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

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

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

14 Earnings per share

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

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

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

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

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

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

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

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

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

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

15 Commitments and contingent liabilities

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

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

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

16 Variable interest entities

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

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

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

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

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

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

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

Insurance-linked securitisations

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

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

Life and health funding vehicles

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

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

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

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

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

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

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

Investment vehicles for unit-linked business
Additionally, the Group invests on behalf of the policyholders as a passive investor in a variety of investment funds across various jurisdictions. By design, many of these funds meet a VIE definition. While the Group may have a potentially significant variable interest in some of these entities due to its share of the fund's total net assets, in most cases it does not have power over the fund's investment decisions or unilateral kick-out rights relative to the decision maker.

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

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

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

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

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

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

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

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

The Group did not provide financial or other support to any VIEs during 2019 that it was not previously contractually required to provide.

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

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

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

Non-consolidated VIEs

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

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

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

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

[1] Maximum exposure to loss is the loss the Group would absorb from a variable interest in a VIE in the event that all of the assets of the VIE are deemed worthless.
[2] The maximum exposure to loss for swaps in trusts cannot be meaningfully quantified due to their derivative character.

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

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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", "may fluctuate" and similar expressions, or by future or conditional verbs such as "will", "should", "would" and "could". These forward-looking statements involve known and unknown risks, uncertainties and other factors, which may cause the Group's actual results of operations, financial condition, solvency ratios, capital or liquidity positions or prospects to be materially different from any future results of operations, financial condition, solvency ratios, capital or liquidity positions or prospects expressed or implied by such statements 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 or acts of war;
- mortality, morbidity and longevity experience;
- the cyclicality of the reinsurance sector;
- central bank intervention in the financial markets, trade wars or other protectionist measures relating to international trade arrangements, adverse geopolitical events, domestic political upheavals or other developments that adversely impact global economic conditions;
- increased volatility of, and/or disruption in, global capital and credit markets;
- the Group's ability to maintain sufficient liquidity and access to capital markets, including sufficient liquidity to cover potential recapture of reinsurance agreements, early calls of debt or debt-like arrangements and collateral calls due to actual or perceived deterioration of the Group's financial strength or otherwise;
- the Group's inability to realise amounts on sales of securities on the Group's balance sheet equivalent to their values recorded for accounting purposes;
- the Group's inability to generate sufficient investment income from its investment portfolio, including as a result of fluctuations in the equity and fixed income markets, the composition of the investment portfolio or otherwise;
- changes in legislation and regulation, or the interpretations thereof by regulators and courts, affecting the Group or its ceding companies, including as a result of comprehensive reform or shifts away from multilateral approaches to regulation of global operations;
- the lowering or loss of one of the financial strength or other ratings of one or more companies in the Group, and developments adversely affecting its ability to achieve improved ratings;
- uncertainties in estimating reserves, including differences between actual claims experience and underwriting and reserving assumptions;
- policy renewal and lapse rates;

- uncertainties in estimating future claims for purposes of financial reporting, particularly with respect to large natural catastrophes and certain large man-made losses, as significant uncertainties may be involved in estimating losses from such events and preliminary estimates may be subject to change as new information becomes available;
- legal actions or regulatory investigations or actions, including in respect of industry requirements or business conduct rules of general applicability;
- the outcome of tax audits, the ability to realise tax loss carryforwards and the ability to realise deferred tax assets (including by reason of the mix of earnings in a jurisdiction or deemed change of control), which could negatively impact future earnings, and the overall impact of changes in tax regimes on the Group's business model;
- changes in accounting estimates or assumptions that affect reported amounts of assets, liabilities, revenues or expenses, including contingent assets and liabilities;
- changes in accounting standards, practices or policies;
- strengthening or weakening of foreign currencies;
- reforms of, or other potential changes to, benchmark reference rates;
- failure of the Group's hedging arrangements to be effective;
- significant investments, acquisitions or dispositions, and any delays, unforeseen liabilities or other costs, lower-than-expected benefits, impairments, ratings action or other issues experienced in connection with any such transactions;
- extraordinary events affecting the Group's clients and other counterparties, such as bankruptcies, liquidations and other credit-related events;
- changing levels of competition;
- the effects of business disruption due to terrorist attacks, cyberattacks, natural catastrophes, public health emergencies, hostilities or other events;
- limitations on the ability of the Group's subsidiaries to pay dividends or make other distributions; and
- operational factors, including the efficacy of risk management and other internal procedures in anticipating and managing the foregoing risks.

These factors are not exhaustive. The Group operates in a continually changing environment and new risks emerge continually. Readers are cautioned not to place undue reliance on forward-looking statements. 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.

Note on risk factors

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 macroeconomic factors, which are outside of the Group's control.

Financial, credit and foreign exchange markets are experiencing continued periods of volatility reflecting a range of political, economic and other uncertainties, some of the more significant of which are inter-related. These include the withdrawal of the United Kingdom from the European Union and significant uncertainty regarding the future relationship between the United Kingdom and the European Union; the possible emergence of trade barriers and other protection policies across a range of economies, including a sustained trade war between the United States and China; geopolitical tensions more broadly; a prolonged slowdown in one or more of the principal global economies, particularly in China, and possible recession; continued challenges faced by the Eurozone; the tightening of monetary policy; sustained challenges to multilateral institutions and frameworks; the domestic political situation in the United States, various member states of the European Union and potentially other countries; and heightened scrutiny of technology companies.

Further adverse developments or the continuation of adverse trends that, in turn, have a negative impact on financial markets and economic conditions could limit the Group's ability to access the capital markets and bank funding markets, could adversely affect the ability of counterparties to meet their obligations to the Group and could adversely affect the confidence of the ultimate buyers of insurance and reinsurance.

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

Regulatory changes

Swiss Re and its subsidiaries operate in a highly regulated environment. The regulatory regimes to which members of the Group are subject have changed significantly in recent years and are expected to continue to evolve.

While some regulation is national in scope, the global nature of the Group's business means that its operations are subject in effect to a patchwork of global, national and regional standards. Swiss Re and its subsidiaries are subject to group supervision and Swiss Re's subsidiaries are also subject to applicable regulation in each of the jurisdictions in which they conduct business, particularly Switzerland, the United States, the United Kingdom, Luxembourg and Germany. The Group is subject to the Swiss Solvency Test and, through its legal entities organised in the EEA, Solvency II.

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

The Group is also subject to credit and other risks in its credit business, including reliance on banks that underwrite and monitor facilities in which the Group participates and potential default by borrowers under those facilities.

Liquidity risks

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

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

Unexpected liquidity needs (including to meet collateral calls) could require the Group to 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 has increased its allocation to higher return-generating strategies, including high-quality corporate debt and some alternative assets, which tend to also be subject to potentially greater counterparty risk.

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

Risks relating to credit rating downgrades

Ratings are an important factor in establishing the competitive position of reinsurance companies. Third-party rating agencies assess and rate the financial strength of reinsurers and insurers. 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 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 (potentially impacting the Group's ability to rollover existing facilities or obtain new facilities) 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. These same factors could also impact the Group's insurance business.

Legal and regulatory risks

In the ordinary course of business, the Group is involved in lawsuits, arbitrations and other formal and informal dispute resolution procedures, the outcomes of which determine rights and obligations under the Group's 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. 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), 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 financial reporting, including in this report. 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.

The Group includes in its annual report a section in respect of its results, including financial statements, prepared in accordance with the Group's proprietary economic value management ("EVM") principles ("EVM report"). Financial information included in the EVM report contains non-GAAP financial measures. The EVM principles differ significantly from US GAAP and, accordingly, the Group's results prepared in accordance with US GAAP will differ from its EVM results, and those differences could be material. The Group's annual EVM results can be more volatile than the US GAAP results because, among other things, assets and liabilities are measured on a market consistent basis, profit recognition on new contracts is recognised at inception rather than over the life time of the contract, and life and health actuarial assumptions are on a best estimate basis as opposed to generally being locked-in. The Group's EVM financial statements should not be viewed as a substitute for the Group's US GAAP financial statements.

Risks related to the Swiss Re corporate structure
Swiss Re is a holding company, a legal entity separate and distinct from its subsidiaries, including Swiss Reinsurance Company Ltd. As a holding company with no operations of its own, Swiss Re is dependent upon dividends and other payments from Swiss Reinsurance Company Ltd and its other principal operating subsidiaries. The Group expects that, over time, its structure will continue to evolve. In the future it may, for example, elect again (having accepted an equity investment within its Life Capital Business Unit from a third party) to partner with minority investors in or within one or more of the Group's Business Units or sub-groups within its Business Units, which could alter 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, or may elect otherwise to dispose of interests in Group businesses or portions thereof, or to grow through acquisitions. To the extent it undertakes acquisitions, it is subject to the risks inherent in acquiring and integrating new

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Corporate calendar

2020

17 April 2020
156th Annual General Meeting

30 April 2020
First quarter 2020 key financial data

31 July 2020
Half-year 2020 results

30 October 2020
Nine months 2020 key financial data

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