

Half-Year 2017 Report

We make
the world
more
resilient.

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Swiss Re Ltd

Swiss Re Ltd is the holding company of the Swiss Re Group. Its shares are listed in accordance with the International Reporting Standard on the SIX Swiss Exchange and trade under the symbol SREN.

Financial highlights

For the six months ended 30 June

USD millions, unless otherwise stated	2016	2017	Change in %
Group			
Net income attributable to common shareholders	1 866	1 211	-35
Premiums earned and fee income	16 118	16 204	1
Earnings per share in CHF	5.51	3.75	-32
Common shareholders' equity (31.12.2016/30.06.2017)	34 532	34 373	-
Return on equity in % ¹	10.9	7.0	
Return on investments in %	3.7	3.5	
Net operating margin in %	13.6	9.9	
Number of employees ² (31.12.2016/30.06.2017)	14 053	14 352	2
Property & Casualty Reinsurance			
Net income attributable to common shareholders	870	546	-37
Premiums earned	8 092	7 978	-1
Combined ratio in %	97.2	97.4	
Net operating margin in %	13.6	10.0	
Return on equity in % ¹	13.7	9.1	
Life & Health Reinsurance			
Net income attributable to common shareholders	417	432	4
Premiums earned and fee income	5 695	5 769	1
Net operating margin in %	10.7	11.2	
Return on equity in % ¹	12.6	12.7	
Corporate Solutions			
Net income attributable to common shareholders	55	39	-29
Premiums earned	1 740	1 748	-
Combined ratio in %	101.6	104.5	
Net operating margin in %	2.6	2.4	
Return on equity in % ¹	4.8	3.6	
Life Capital			
Net income attributable to common shareholders	569	143	-75
Premiums earned and fee income	591	709	20
Gross cash generation ³	116	532	
Net operating margin in %	41.4	13.9	
Return on equity in % ¹	18.1	4.0	

¹ Return on equity is calculated by dividing annualised net income attributable to common shareholders by average common shareholders' equity.

² Regular staff.

³ Gross cash generation is the change in excess capital available over and above the target capital position, with the target capital being the minimum statutory capital plus the additional capital required by Life Capital's capital management policy.

Financial strength ratings

Standard & Poor's

AA-

stable
(as of 25.11.2016)

Moody's

Aa3

stable
(as of 15.12.2015)

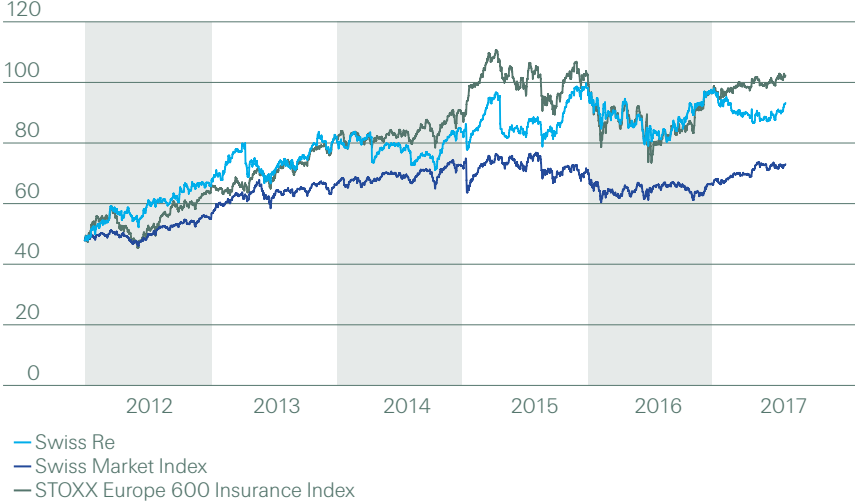
A.M. Best

A+

stable
(as of 16.12.2016)

Share information

Share price (CHF)



Share information

As of 31.07.2017	
Share price in CHF	93.25
Market capitalisation in CHF millions	32 586

Share performance

in %	1 January 2012 – 31 July 2017 (p.a.)	Year to 31 July 2017
Swiss Re	12.7	-3.4
Swiss Market Index	7.9	10.2
STOXX Europe 600 Insurance Index	14.6	5.6

Letter to shareholders

Building long-term value

1.2

Group net income
(USD billions)
For the first six
months of 2017

Dear shareholders,

In the first half of this year, we continued to build the long-term value of our business. We are still facing a challenging environment, even if there are some encouraging signs that pressure on interest rates might be starting to ease.

Swiss Re reported a solid underlying performance amid a difficult business environment and macroeconomic and political uncertainty. Net income was USD 1.2 billion and we reported an annualised return on equity (ROE) of 7.0%. All three Business Units have contributed to these results.

As expected, natural catastrophes, such as Cyclone Debbie in Australia, weighed on our performance. Events like these ruin lives and destroy assets — yet, they also illustrate the role Swiss Re and other participants in the re/insurance industry can play, which is to provide financial means to affected populations fast and efficiently.

We continued to focus on disciplined underwriting to allocate capital to attractive risk pools that we believe will support our business in the future. We also continued to respond to pricing pressure across the industry by offering large and tailored solutions and by pruning our portfolio, walking away from unprofitable business.

Our capitalisation remains very strong, with a Group SST ratio of 262%. Our investment portfolio again significantly contributed to the overall result, despite low interest rates that continued to hamper investment income. This year also marked a shift in the way we manage our investments: we are including environmental, social and governance benchmarks across our entire investment portfolio. For a long-term investor, this decision makes economic sense and we believe it helps make our portfolio more resilient against financial market shocks. We are also proud to be among the first movers in the industry and hope other institutional investors will follow.

Product innovation continues to play an important role. In July, Corporate Solutions launched Insur8, the first-ever typhoon warning insurance product for businesses operating in Hong Kong. This new product indemnifies local businesses against loss of earnings caused by forced shut-downs and other costs stemming from a signal 8 or above typhoon warning.



Walter B. Kielholz
Chairman of the Board of Directors



Christian Mumenthaler
Group CEO

In June, the World Bank launched bonds that will support the Pandemic Emergency Financing Facility (PEF) – we are proud to support this pioneering instrument to channel first-response funding to developing countries facing the risk of a pandemic. This marks the first time pandemic risk is being transferred to the market to cover low-income countries.

China, with its growing population and purchasing power, continues to be a driver of growth, together with other emerging markets. According to our latest Swiss Re Institute *sigma* report, China was the most important source of premium growth in life insurance in 2016 for the entire industry. We are currently one of the leading reinsurers in China and expect to continue to grow our presence there.

Overall, the entire Asian region is of strategic importance for us, as evidenced by the establishment of our new regional legal entity in Singapore for our Reinsurance business unit. This entity will become Swiss Re's regional headquarters for our network of reinsurance operations in Asia and will further strengthen our commitment to the region to benefit our clients and partners.

We are also seizing opportunities in other promising areas of the world: last month, Swiss Re's Corporate Solutions and Bradesco Seguros S.A. started a new joint venture, creating one of the leading large-risk insurers in Brazil, a country with a lot of growth potential in this segment.

Corporate Solutions also opened a new office in Manchester to grow our regional commercial insurance portfolio in the UK, the largest insurance market in Europe.

How do we chart the future from here? We continue to seek access to attractive risk pools, which, we believe, will grow over the next decades, as construction in catastrophe-prone and other areas continues and we all live longer.

We put research and development at the core of what we do and we strive to attract the best talent in the industry by creating an inspiring work environment. Our employees are the foundation of our success.

Finally, we work to position Swiss Re as a risk knowledge company and a long-term thinker, able to seize opportunities both in good times and in more challenging ones – and to strengthen resilience around the world.

Thank you for your continued trust.

Zurich, 4 August 2017

Walter B. Kielholz
Chairman of the Board of Directors

Christian Mumenthaler
Group CEO

Key events

23 January 2017

[Swiss Re receives branch license to offer reinsurance in India](#)

Swiss Re received the approval from the Insurance Regulatory and Development Authority of India (IRDAI) to open a branch in Mumbai. With the composite branch license, Swiss Re will be able to operate in India and offer both non-life and life and health reinsurance solutions directly to clients and brokers in the country.

10 February 2017

[Swiss Re completes 2016 public share buy-back programme](#)

Swiss Re announced that it has completed the 2016 public share buy-back programme of up to CHF 1.0 billion purchase value, authorised by the Annual General Meeting on 22 April 2016 and which it launched on 4 November 2016.

23 February 2017

[Swiss Re reports good results, with full-year net income of USD 3.6 billion for 2016 and proposes new share buy-back programme up to CHF 1.0 billion](#)

Swiss Re delivered a good 2016 performance with full-year net income of USD 3.6 billion, supported by solid underwriting and a strong investment result. Swiss Re's Board of Directors proposes to the Annual General Meeting a higher dividend of CHF 4.85 and the authorisation of a new public share buy-back programme of up to CHF 1.0 billion.

01 March 2017

[Getting to grips with Cyber Risk, Swiss Re *sigma* study published](#)

Cyber risk is a growing concern for businesses, with recent attacks demonstrating that the costs of a cyber breach can escalate well beyond managing the fallout of lost or corrupted data. Swiss Re's latest *sigma* report "Cyber: getting to grips with a complex risk," says businesses need to do much more to integrate cyber security into their risk management programmes.

16 March 2017

[Swiss Re proposes a regular dividend of CHF 4.85 per share](#)

At Swiss Re's Annual General Meeting of shareholders (AGM) on 21 April 2017, the Board of Directors proposes a regular dividend of CHF 4.85 per share. Together with the share buy-back that finished on 9 February 2017, this will bring total pay-out to shareholders for 2016 to CHF 2.5 billion.

28 March 2017

[Global insured losses from disaster events were USD 54 billion in 2016, a Swiss Re *sigma* study says](#)

Total economic losses from natural catastrophes and man-made disasters amounted to USD 175 billion in 2016, almost twice the USD 94 billion seen in 2015, the latest *sigma* study from the Swiss Re Institute says. Global insured losses from disasters were USD 54 billion in 2016, up from USD 38 billion in the previous year.

13 April 2017

[Swiss Re estimates its losses from Cyclone Debbie at approximately USD 350 million](#)

Swiss Re estimated its claims burden from Tropical Cyclone Debbie in Australia at approximately USD 350 million, net of retrocession and before tax. Swiss Re expects Cyclone Debbie to have resulted in a higher share of large commercial and corporate losses compared to similar events in the past.

18 April 2017

[Swiss Re strengthens its commitment to Asia](#)

Swiss Re announced plans to further strengthen its commitment to Asia by establishing a dedicated regional legal entity in Singapore for its Reinsurance business unit. This legal entity will, at the same time, become Swiss Re's regional headquarters for its network of reinsurance operations in Asia.

21 April 2017

[Shareholders approve proposals put forward by the Board of Directors](#)

Swiss Re's shareholders approved all proposals put forward by the Board of Directors at its Annual General Meeting (AGM), held in Zurich. This included the increase in regular dividend to CHF 4.85 per share and the authorisation of a new public share buy-back programme of up to CHF 1.0 billion purchase value to be executed before the 2018 AGM.

04 May 2017

[Swiss Re reports solid first quarter net income of USD 656 million](#)

Despite expected insurance claims from Cyclone Debbie in Australia and pressures from a challenging business environment, Swiss Re generated a solid Group net income of USD 656 million in the first quarter of 2017. The annualised Group return on equity (ROE) of 7.5% demonstrates Swiss Re is able to generate positive returns even when challenged by rate pressures, low interest rates and natural catastrophe losses.

22 May 2017

[Swiss Re creates combined property & casualty underwriting hub in Asia](#)

Swiss Re announced that it is establishing a combined Property & Casualty (P&C) Underwriting Hub for the Asia Pacific region within its Reinsurance business unit in Singapore.

13 June 2017

[Swiss Re's 2017 SONAR report examines top emerging risks](#)

Reduced market access, regulatory fragmentation, the return of inflation, cloud risk accumulation, but also emerging liability legislation for artificial intelligence, are some of the key risks identified in this year's SONAR report. The publication is based on the SONAR process, a crowdsourcing tool drawing on Swiss Re's unique internal risk management expertise to pick up early signals of what lies beyond the horizon.

28 June 2017




[World Bank launch first-ever bonds to combat pandemic outbreaks](#)

The World Bank (International Bank for Reconstruction and Development) launched bonds that will support the Pandemic Emergency Financing Facility (PEF), which will channel first-response surge funding to developing countries facing the risk of a pandemic. This marks the first time that World Bank bonds are being used to combat infectious diseases. It is also the first time that pandemic risk is being transferred to the capital market to cover low-income countries. Swiss Re Capital Markets is the joint structurer and sole book-runner for the cat bond transaction.

Business Units at a glance

Swiss Re is a leader in wholesale reinsurance, insurance and risk transfer solutions. Our clients include insurance companies, corporations, the public sector and policyholders.

THE SWISS RE GROUP

Business Unit	Net premiums earned and fee income (USD millions)		Net income (USD millions)		
Reinsurance Reinsurance is Swiss Re’s largest business in terms of income, providing about 85% of gross premiums and fee income through two segments – Property & Casualty and Life & Health. Reinsurance aims to extend Swiss Re’s industry-leading position with disciplined underwriting, prudent portfolio management and diligent client service.  Read more: page 12	Property & Casualty	2017	H1 7978	2017	H1 546
		2016	H1 8092	2016	H1 870
	Life & Health	2017	H1 5769	2017	H1 432
		2016	H1 5695	2016	H1 417
Corporate Solutions Corporate Solutions serves mid-sized and large corporations, with product offerings ranging from traditional property and casualty insurance to highly customised solutions. Corporate Solutions serves customers from more than 50 offices worldwide.  Read more: page 15		2017	H1 1748	2017	H1 39
		2016	H1 1740	2016	H1 55
Life Capital Life Capital manages closed and open life and health insurance books. The Business Unit provides key diversification benefits to the Group, helping to generate stable returns and seize attractive new opportunities. For our clients and partners, it provides insurance solutions, primary life and health expertise and knowledge, new tools and insights that help them reach new markets and offer new products.  Read more: page 16		2017	H1 709	2017	H1 143
		2016	H1 591	2016	H1 569
Total (after consolidation)		2017	H1 16204	2017	H1 1211
		2016	H1 16118	2016	H1 1866

Return on equity
YTD (1 Jan–30 June)

9.1%

(2016: 13.7%)

Operating performance
YTD (1 Jan–30 June)

97.4%

(2016: 97.2%)

Combined ratio

12.7%

(2016: 12.6%)

11.2%

(2016: 10.7%)

Net operating margin

3.6%

(2016: 4.8%)

104.5%

(2016: 101.6%)

Combined ratio

4.0%

(2016: 18.1%)

532m

(2016: USD 116m)

Gross cash generation

7.0%

(2016: 10.9%)

1.2bn

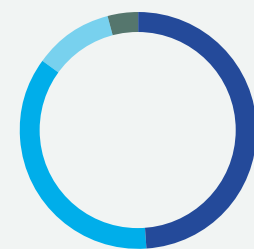
(2016: USD 1.9bn)

Group net income

Diversified and global

Net premiums earned and
fee income by business segment
(Total USD 16.2 billion)

- 49% P&C Reinsurance
- 36% L&H Reinsurance
- 11% Corporate Solutions
- 4% Life Capital



Group results

Swiss Re reported solid net income of USD 1.2 billion for the first six months of 2017, supported by disciplined underwriting and strong investment results.

Swiss Re reported net income of USD 1.2 billion for the first six months of 2017, down from USD 1.9 billion for the same period in 2016. The decline was primarily driven by the absence of large one-off realised gains within the investment portfolio of Life Capital in 2016, which did not recur, as expected, in 2017. The current result includes losses from insurance claims in the aftermath of Cyclone Debbie in Australia. The net operating margin for the 2017 period was 9.9%, compared to 13.6% for the first six months of 2016.

Reinsurance reported net income of USD 978 million, compared to USD 1 287 million for the first six months of 2016. Property & Casualty Reinsurance accounted for USD 546 million, a decrease from USD 870 million in the previous year period, due to lower investment result and foreign exchange movements. The current result was supported by solid underwriting performance, despite losses from Cyclone Debbie in Australia and floods in Peru. The net operating margin was 10.0%, compared to 13.6% in the prior-year period.

Life & Health Reinsurance contributed USD 432 million for the first six months of 2017, a slight increase compared to USD 417 million for the same period in 2016. The current year result reflected stable underwriting performance and a strong investment return. The net operating margin was 11.2% in the first half of 2017 and 10.7% for the same period in 2016.

Corporate Solutions reported net income of USD 39 million for the first six months of 2017, compared to USD 55 million for the same period of the previous year.

The 2017 result was impacted by continued pricing pressure and high natural catastrophe losses.

Life Capital delivered net income of USD 143 million for the first six months of 2017, down from USD 569 million for the same period in 2016, as large one-off realised gains within the investment portfolio in the first six months of 2016 were not repeated, as expected. Life Capital's net operating margin dropped to 13.9% in the first half of 2017, compared to 41.4% in the same period of the previous year.

Common shareholders' equity, excluding non-controlling interests and the impact of contingent capital instruments, decreased to USD 34.4 billion as of 30 June 2017 from USD 34.5 billion at the end of December 2016. The decline reflected a payment to shareholders of USD 2.0 billion for the 2016 regular dividends and the share buy-back completed in the first quarter of 2017, partially offset by net income and higher unrealised gains on fixed income securities for the first six months of 2017.

Annualised return on equity was 7.0% for the first half of 2017, compared to 10.9% (annualised) for the prior-year period and 10.6% for the full year 2016. Earnings per share for the 2017 period were CHF 3.75 or USD 3.76, compared to CHF 5.51 (USD 5.61) for the first half of 2016.

Book value per common share increased to USD 107.10 or CHF 102.57 at the end of June 2017, compared to USD 105.93 or CHF 107.64 at the end of December 2016. Book value per common share is based on common shareholders' equity and excludes non-controlling interests and the impact of contingent capital instruments.

Business performance

Premiums earned and fee income for the Group were USD 16.2 billion for the first six months of 2017, a slight increase from USD 16.1 billion in the same period of the previous year. At constant exchange rates, premiums and fees increased by 2.2%.

Premiums earned by Property & Casualty Reinsurance were USD 8.0 billion, a small drop from USD 8.1 billion for the same period of the previous year. The decline was driven by continued underwriting discipline and active portfolio management. The Property & Casualty Reinsurance combined ratio was 97.4% compared to 97.2% for the first half of 2016.

Life & Health Reinsurance premiums earned and fee income amounted to USD 5.8 billion in the first half of 2017, a slight increase from USD 5.7 billion year-on-year, driven by new business in the Americas and Asia. At constant exchange rates, premiums earned and fee income rose by 3.4%.

Corporate Solutions premiums earned remained stable at USD 1.7 billion. At constant exchange rates, premiums earned increased 0.5%. The Corporate Solutions combined ratio was 104.5% for the first half of 2017, up from 101.6% for the same period of the previous year, reflecting higher natural catastrophe losses.

Gross cash generation for Life Capital was strong at USD 532 million for the first six months of 2017, compared to USD 116 million for the same period of the previous year. The current year's result is driven by a strong underlying surplus and includes a benefit from the finalisation of the year-end statutory valuation. The prior year was impacted by declining interest rates.

Investment result and expenses

The Group's investment portfolio, excluding unit-linked and with-profit investments, increased to USD 132.9 billion as of 30 June 2017, compared to USD 130.5 billion at the end of 2016. The increase was partially driven by a positive impact from foreign exchange rate movements.

Income statement

For the six months ended 30 June

USD millions	2016	2017	Change in %
Revenues			
Gross premiums written	19 798	18 145	-8
Net premiums written	18 681	16 817	-10
Change in unearned premiums	-2 832	-867	-69
Premiums earned	15 849	15 950	1
Fee income from policyholders	269	254	-6
Net investment income – non-participating business	1 864	1 786	-4
Net realised investment gains/losses – non-participating business	1 153	574	-50
Net investment result – unit-linked and with-profit business	2 124	1 622	-24
Other revenues	17	19	12
Total revenues	21 276	20 205	-5
Expenses			
Claims and claim adjustment expenses	-6 208	-6 322	2
Life and health benefits	-5 395	-5 475	1
Return credited to policyholders	-1 922	-1 629	-15
Acquisition costs	-3 618	-3 387	-6
Operating expenses	-1 521	-1 550	2
Total expenses before interest expenses	-18 664	-18 363	-2
Income before interest and income tax expense	2 612	1 842	-29
Interest expenses	-314	-284	-10
Income before income tax expense	2 298	1 558	-32
Income tax expense	-396	-314	-21
Net income before attribution of non-controlling interests	1 902	1 244	-35
Income/loss attributable to non-controlling interests	-2	1	-
Net income after attribution of non-controlling interests	1 900	1 245	-34
Interest on contingent capital instruments	-34	-34	-
Net income attributable to common shareholders	1 866	1 211	-35

The return on investments was 3.5% for the first six months of 2017, compared to 3.7% for the same period of 2016.

The decrease reflected lower net realised gains from interest rate derivatives. The strong return on investments in the current yield environment reflected the high quality of the Group's investment portfolio and the ability to generate sustainable investment income over the longer term.

The Group's non-participating net investment income was USD 1.8 billion, compared to USD 1.9 billion for the first six months of 2016. The Group's fixed income running yield for the six month period was 2.9% in 2017, consistent with the full year 2016 figure. It was slightly below the 3.0% reported for the same period in 2016, reflecting the impact of lower overall yields.

The Group reported non-participating net realised gains of USD 0.6 billion for the first six months of 2017, compared to USD 1.2 billion for the same period in 2016. The decrease was primarily linked to a reduction in net realised gains from interest rate derivatives, as well as a lower impact from foreign exchange gains/losses.

Acquisition costs for the Group decreased to USD 3.4 billion for the first half of 2017, compared to USD 3.6 billion for the same period of the previous year, mainly reflecting lower underwriting volume.

Operating expenses of USD 1.6 billion for the first half of 2017 slightly increased compared to the previous year.

Interest expenses were USD 284 million, reduced from USD 314 million compared to the 2016 period.

The Group reported a tax charge of USD 314 million on a pre-tax income of USD 1.6 billion for the first six months of 2017, compared to a tax charge of USD 396 million on a pre-tax income of USD 2.3 billion for the same period in 2016. This translated into an effective tax rate in the current and prior-year reporting periods of 20.2% and 17.2%, respectively. Compared to the current year, the lower rate in the prior period was driven by more tax benefits from the effective settlement of tax audits in certain jurisdictions, the release of valuation allowance and adjustments to prior-year provisions.

Reinsurance

The Reinsurance Business Unit, which comprises the segments Property & Casualty Reinsurance and Life & Health Reinsurance, reported a solid performance in the first six months of 2017.

Property & Casualty Reinsurance

Net income for the first six months of 2017 was USD 546 million compared to USD 870 million in the same period of 2016, supported by solid underwriting performance in a challenging business environment. Last year's net income benefited from foreign exchange gains which did not repeat in 2017. The underwriting result included losses from Cyclone Debbie in Australia and floods in Peru, but also favourable prior-year development. The net operating margin was 10.0% in the current period, down from 13.6% for the same period of 2016.

The investment result was lower in the first six months of 2017 than in the same period in 2016, mainly due to lower realised gains on sales of fixed income, partially offset by additional net realised gains from sales of equity securities.

Premiums

Net premiums earned were USD 8.0 billion for the first six months of 2017, in line with the comparative period. The decline in gross premiums written by 15.5% to USD 9.4 billion in the first six months of 2017 was the result of a reduction in deployed capacity where prices did not meet Swiss Re's profitability expectations.

Combined ratio

Property & Casualty Reinsurance reported a combined ratio of 97.4% for the first half of 2017, compared to 97.2% in the prior-year period.

The favourable development of prior accident years improved the combined ratio by 2.0 percentage points in the first six months of 2017, compared to 1.1 percentage points in the same period of 2016.

Administrative expense ratio

The administrative expense ratio decreased to 6.9% in the first six months of 2017, compared to 7.1% in the same period of 2016, driven by a lower expense base.

Lines of business

The property combined ratio decreased to 88.7% in the first six months of 2017, compared to 94.1% in the first six months of last year. The decrease was primarily due to a lower man-made loss burden in 2017 compared to the first half of 2016.

The casualty combined ratio slightly increased to 106.2% in the first six months of 2017, compared to 105.6% in 2016, particularly due to an increased combined ratio in the Motor lines.

The specialty combined ratio remained low at 85.9% for the first six months of 2017, compared to 78.0% in the first six months of 2016, as overall good experience continued. Benign losses in credit in the first six months of 2017 were offset by increases in marine and aviation losses.

Investment result

The return on investments was 3.0% for the first six months of 2017, compared to 3.5% in the same period of 2016.

Net investment income decreased by USD 37 million to USD 424 million for the first six months of 2017, mainly due to a lower invested asset base.

Net realised gains were USD 217 million for the first six months of 2017, compared to USD 333 million for the prior period, with the decline stemming from a reduction in net realised gains from sales of fixed income securities, partially offset by additional net realised gains from sales of equity securities.

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

Shareholders' equity

Common shareholders' equity decreased to USD 11.3 billion as of 30 June 2017 from USD 12.7 billion as of 31 December 2016, primarily driven by dividends paid to the Group, lower unrealised gains and negative impact of foreign exchange rate movements, partly offset by net income for the period. The annualised return on equity for the first six months of 2017 was 9.1% compared to 13.7% in the same period of 2016. The decrease was due to lower net income in 2017.

Outlook

Catastrophe capacity deployment was further reduced where price levels fell below our return hurdles. We expect continued pressure on property catastrophe rates due to overall low loss occurrence and abundant capital in the markets, but to a much lesser extent than experienced in previous years. Notable differences by lines of business for specialty lines with overall ongoing rate pressure were observed. Casualty remains generally more stable with varying trends based on market and product. Rates have increased where we have experienced losses and adverse developments such as North America Motor.

We continue to execute our successful differentiation strategy while focusing on the bottom line in a softening market environment to seek to achieve above average rates and access the business that meets our profit expectations. We will continue to support our clients to reach their ambitions despite short-term pricing dynamics.

Life & Health Reinsurance

Net income was USD 432 million for the first six months of 2017, slightly improved from the same period a year earlier. The current result benefited from higher realised gains on sales of equity securities, partly offset by higher operating expenses. Despite the impact of few large claims in US Individual Life and an increase in incurred but not reported claims (IBNR) in the UK Critical Illness business in the current period, the underwriting performance remained stable compared to the prior-year period. This reflects Swiss Re's diversified product portfolio across markets. The annualised return on equity was 12.7%, slightly higher than the 12.6% reported for the same period of 2016.

Premiums

Net premiums earned and fee income increased by 1.3% to USD 5.8 billion, compared to USD 5.7 billion for the prior-year period. At constant foreign exchange rates the increase was 3.4%. Gross premiums written declined by 2.8% to USD 6.4 billion for the first six months of 2017, mainly due to changes in intra-group retrocession agreements and foreign exchange rate movements, partly offset by new business in the Americas and in Asia in the second half of 2016. The increase in net premiums earned versus a decline in gross premiums written was mainly due to changes in the unearned premium reserves.

Net operating margin

The net operating margin was 11.2% for the first six months of 2017, improving from 10.7% in the same period of 2016.

Management expense ratio

The management expense ratio was 5.8%, an increase over the ratio of 5.2% in the prior-year period, which was driven by higher administrative and IT development costs.

Lines of business

Income before interest and income tax expense (EBIT) for the life business increased to USD 357 million in the first six months of 2017, from USD 287 million in the prior-year period. Results in the half-year period of 2017 show improved volumes and underwriting performance on life products across markets, which offset the impact of few large claims in the US individual life business.

EBIT for the health business decreased to USD 148 million in the first six months of 2017, from USD 248 million in the prior-year period. The 2017 result was impacted by an increase in IBNR in the UK Critical Illness business.

Investment result

The return on investments was 4.2% in the first six months of 2017, compared to 3.8% in the same period of 2016, reflecting an increase in the investment result of USD 86 million.

Net investment income decreased by USD 11 million to USD 545 million for the first six months of 2017. The fixed income running yield was 3.4% in the reporting period.

Net realised gains were USD 212 million for the first six months of 2017, compared to net realised gains of USD 115 million for the prior-year period, reflecting additional net realised gains from sales of equity securities.

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

Shareholders' equity

Common shareholders' equity was broadly unchanged at USD 6.8 billion as of 30 June 2017, compared to 31 December 2016. The slight movement in equity of USD 47 million reflected the dividend paid to the Group, offset by net income and a change in net unrealised gains.

Return on equity was 12.7% for the first six months of 2017, compared to 12.6% for the same period of 2016.

Outlook

We expect life and health reinsurance business to be relatively flat in mature markets and to increase in high growth markets. In mature markets, the prolonged low interest rate environment continues to have an unfavourable impact on long-term life business. Cession rates in the US are generally expected to decline as primary insurers retain more risk. However, we see a strong focus on capital, risk and balance sheet optimisation in mature markets, leading to opportunities for large transactions. High growth markets are expected to see strong increases in primary life and health volumes and cession rates are expected to be stable.

We will continue to pursue growth opportunities in high growth markets and in large transactions, including longevity deals. We are responding to the expanding need for health protection driven by ageing societies and we will apply our risk knowledge experience to help reduce the protection gap in all regions.

Corporate Solutions

Corporate Solutions net income impacted by high natural catastrophe losses and continued pricing pressure; expansion into primary lead and further broadening of the footprint continued.

During the first six months of 2017, the Unit opened offices in Kuala Lumpur, Malaysia and Manchester, United Kingdom, focusing on servicing large and mid-sized companies.

In July 2017, Corporate Solutions began its joint venture with Bradesco Seguros S.A. following the finalisation of the transaction announced in October 2016. Bradesco S.A. contributed its commercial large-risk portfolio to Swiss Re Corporate Solutions Brazil (SRCSB) and took a 40% equity stake. Corporate Solutions retained the remaining 60%. SRCSB will have exclusive access to Bradesco S.A.'s distribution network and becomes a leading commercial large-risk insurer in Brazil.

Performance

Net income was USD 39 million in the first six months of 2017, compared to USD 55 million in the same period of 2016, with a net operating margin of 2.4%, down from 2.6%. The result was impacted by high large natural catastrophe losses, negative prior-year development and continued pricing pressure. The investment result was higher in the first six months of 2017 compared to the same period of 2016, driven by net realised gains from the sale of equity securities.

Premiums

Net premiums earned were USD 1.7 billion in the first six months of 2017, an increase of 0.5%. Gross premiums written and premiums for insurance in derivative form, net of internal fronting for the Reinsurance

Business Unit, decreased by 4.7% to USD 1.7 billion in the first six months of 2017 compared to USD 1.8 billion in the same period of 2016. The first six months of 2017 were impacted by cycle-related pricing pressure in most business segments.

Combined ratio

The combined ratio increased to 104.5% in the first six months of 2017 compared to 101.6% in the same period of 2016, impacted by unfavourable prior-year development, driven by large casualty losses with accident dates in 2015/2016, high natural catastrophe losses and continued pricing pressure.

Lines of business

The property combined ratio for the first six months of 2017 increased by 21.0 percentage points to 105.2%. The first six months of 2017 were impacted by large natural catastrophe events, whereas the first six months of 2016 benefited from an exceptionally benign natural catastrophe loss experience.

The casualty combined ratio decreased to 118.4% in the first six months of 2017 compared to 127.3% in the same period of 2016. Both periods experienced large liability losses in North America. The majority of the large losses reported in the current period occurred in 2015/2016. The magnitude and responsibility for these losses were only established in the first six months of 2017.

The specialty combined ratio for the first six months of 2017 improved by 4.7 percentage points to 87.3%, driven by lower credit loss activity, partially offset by a large aviation loss.

Investment result

The return on investments was 3.4% for the first six months of 2017, compared to 2.3% in the same period of 2016, driven by additional net realised gains.

Net investment income increased by USD 6 million to USD 86 million in the first six months of 2017, mainly due to additional income from government bonds.

Net realised gains were USD 60 million compared to USD 15 million in the first six months of 2016, reflecting additional gains from sales of 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 losses of USD 5 million in the first six months of 2017, compared to losses of USD 9 million in the same period of 2016, reflecting the impact of the unseasonably mild winter in both periods.

Shareholders' equity

Common shareholders' equity decreased to USD 2.1 billion since the end of 2016, with a USD 150 million dividend paid to the Group, partially offset by net income and unrealised gains for the period. The annualised return on equity was 3.6% in the first six months of 2017, compared to 4.8% in the same period of 2016.

Outlook

Prices for commercial insurance continue to be under significant pressure, with a majority of segments operating at unsustainable rate levels. Underwriting discipline remains a key focus for Corporate Solutions. Thanks to its value proposition, strong balance sheet and selective underwriting approach, we believe Corporate Solutions is positioned to successfully navigate the current market, but it is not insulated from the general market environment.

Life Capital

Life Capital's strategy is to create alternative access to attractive life and health risk pools. During the first half of 2017 the open book business saw growth in the number of policies sold. For the closed book business, Life Capital continues to pursue selective growth.

During the first six months of 2017 net income for Life Capital declined to USD 143 million from USD 569 million in 2016, with 2016 performance buoyed by large one-off realised gains on the investment portfolio that were not repeated. The underlying performance in 2017 was in line with expectations on both the open and closed book businesses.

The net operating margin in the first six months of 2017 was 13.9% compared to 41.4% in the prior year.

Life Capital generated gross cash of USD 532 million during the first six months of 2017, compared to USD 116 million in the prior-year period, which was impacted by declining interest rates in the UK. The strong gross cash generated in the current year was driven by the underlying surplus on the ReAssure business and the finalisation of the year-end statutory valuation.

Life Capital paid a dividend of USD 1.1 billion to the Group during June 2017. This substantial dividend was driven by the strong capital position of the ReAssure business.

Premiums

Gross premiums written increased by 5.2% to USD 0.9 billion during the first half of 2017, driven by the growth in the open life and health insurance businesses offsetting the run-off of the closed books and foreign exchange impacts. Net premiums earned increased from growth in the open life and health insurance businesses and changes to intragroup retrocessions.

Investment result

The return on investments was 3.4% in the first six months of 2017, compared to 4.4% in the same period of 2016, as the large one-off realised gains within the investment portfolio in the first six months of 2016 were not repeated.

Net investment income decreased by USD 44 million to USD 449 million in the first six months of 2017, mainly due to a negative impact from foreign exchange rate movements.

Net realised gains decreased by USD 88 million to USD 52 million in the first six months of 2017, as the prior period included additional net realised gains from the Guardian investment portfolio.

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

Operating expenses

Operating expenses were USD 224 million in the first six months of 2017 compared to USD 221 million in the same period last year.

Shareholders' equity

Common shareholders' equity decreased by USD 0.3 billion to USD 7.0 billion, compared to 31 December 2016. The decrease was mainly driven by a USD 1.1 billion dividend paid to the Group, partially offset by net income in 2017 and an increase of USD 0.3 billion from unrealised gains and currency translation. The annualised return on equity was 4.0% for the first six months of 2017, compared to 18.1% for 2016. The year-on-year decrease was mainly due to lower net income in the current period.

Outlook

Life Capital continues to pursue selective acquisition opportunities within the closed book market in the UK and is focused on growing its individual and group life and health business in Europe and the US. The ambition is to build a leading primary life and health business with attractive returns for shareholders through growth in both the open and closed books.

Life Capital seeks to optimise capital and asset management, to maximise cash generation and return on equity. In the closed book business, the focus remains on achieving operational efficiencies by leveraging our operating platform, while in the open book business, the aim is to grow via innovation and the use of digital technology.

Income statement

For the six months ended 30 June

USD millions	Note	2016	2017
Revenues			
Gross premiums written	4	19 798	18 145
Net premiums written	4	18 681	16 817
Change in unearned premium reserves		-2 832	-867
Premiums earned	3	15 849	15 950
Fee income from policyholders	3	269	254
Net investment income – non-participating business	7	1 864	1 786
Net realised investment gains/losses – non-participating business ¹	7	1 153	574
Net investment result – unit-linked and with-profit business	7	2 124	1 622
Other revenues		17	19
Total revenues		21 276	20 205
Expenses			
Claims and claim adjustment expenses	3	-6 208	-6 322
Life and health benefits	3	-5 395	-5 475
Return credited to policyholders		-1 922	-1 629
Acquisition costs	3	-3 618	-3 387
Operating expenses		-1 521	-1 550
Total expenses		-18 664	-18 363
Income before interest and income tax expense		2 612	1 842
Interest expenses		-314	-284
Income before income tax expense		2 298	1 558
Income tax expense		-396	-314
Net income before attribution of non-controlling interests		1 902	1 244
Income/loss attributable to non-controlling interests		-2	1
Net income after attribution of non-controlling interests		1 900	1 245
Interest on contingent capital instruments, net of tax		-34	-34
Net income attributable to common shareholders		1 866	1 211
Earnings per share in USD			
Basic	12	5.61	3.76
Diluted	12	5.13	3.47
Earnings per share in CHF²			
Basic	12	5.51	3.75
Diluted	12	5.04	3.46

¹ Total impairments for the six months ended 30 June of USD 60 million in 2016 and USD 41 million in 2017, respectively, were fully recognised in earnings.

² 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 six months ended 30 June

USD millions	2016	2017
Net income before attribution of non-controlling interests	1 902	1 244
Other comprehensive income, net of tax:		
Change in unrealised investment gains/losses	3 731	474
Change in other-than-temporary impairment	5	2
Change in cash flow hedges	-12	-5
Change in foreign currency translation	-89	225
Change in adjustment for pension benefits	33	13
Total comprehensive income before attribution of non-controlling interests	5 570	1 953
Interest on contingent capital instruments	-34	-34
Comprehensive income attributable to non-controlling interests	-2	1
Total comprehensive income attributable to common shareholders	5 534	1 920

Reclassification out of accumulated other comprehensive income

For the six months ended 30 June

2016 USD millions	Unrealised investment gains/losses ¹	Other-than-temporary impairment ¹	Cash flow hedges ¹	Foreign currency translation	Adjustment from pension benefits ²	Accumulated other comprehensive income
Balance as of 1 January	2 748	-11	0	-5 687	-1 016	-3 966
Change during the period	5 456	5	43	-112	13	5 405
Amounts reclassified out of accumulated other comprehensive income						
Tax	-506	2	-55		32	-527
Tax	-1 219	-2		23	-12	-1 210
Balance as of period end	6 479	-6	-12	-5 776	-983	-298

2017 USD millions	Unrealised investment gains/losses ¹	Other-than-temporary impairment ¹	Cash flow hedges ¹	Foreign currency translation	Adjustment from pension benefits ²	Accumulated other comprehensive income
Balance as of 1 January	4 459	-5	-7	-6 074	-1 135	-2 762
Change during the period	1 525	4	18	105	-30	1 622
Amounts reclassified out of accumulated other comprehensive income						
Tax	-911		-23		46	-888
Tax	-140	-2		120	-3	-25
Balance as of period end	4 933	-3	-12	-5 849	-1 122	-2 053

¹ Reclassification adjustment included in net income is presented in "Net realised investment gains/losses – non-participating business".

² Reclassification adjustment included in net income is presented in "Operating expenses".

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

Balance sheet

Assets

USD millions	Note	31.12.2016	30.06.2017
Investments	7,8,9		
Fixed income securities:			
Available-for-sale (including 10 036 in 2016 and 10 521 in 2017 subject to securities lending and repurchase agreements) (amortised cost: 2016: 85 171; 2017: 87 891)		90 581	93 940
Trading (including 1 871 in 2016 and 2 746 in 2017 subject to securities lending and repurchase agreements)		2 695	3 824
Equity securities:			
Available-for-sale (including 23 in 2016 and 159 in 2017 subject to securities lending and repurchase agreements) (cost: 2016: 2 897; 2017: 3 382)		3 375	3 831
Trading		60	2
Policy loans, mortgages and other loans		3 682	4 024
Investment real estate		1 925	1 952
Short-term investments (including 2 960 in 2016 and 1 387 in 2017 subject to securities lending and repurchase agreements)		10 909	8 336
Other invested assets		9 611	11 426
Investments for unit-linked and with-profit business (including fixed income securities trading: 5 153 in 2016 and 5 077 in 2017, equity securities trading: 25 807 in 2016 and 27 321 in 2017)		32 178	33 606
Total investments		155 016	160 941
Cash and cash equivalents (including 1 169 in 2016 and 621 in 2017 subject to securities lending)		9 011	7 381
Accrued investment income		1 108	1 064
Premiums and other receivables		13 270	15 041
Reinsurance recoverable on unpaid claims and policy benefits		7 461	7 544
Funds held by ceding companies		8 184	9 025
Deferred acquisition costs	6	6 200	6 100
Acquired present value of future profits	6	2 003	2 005
Goodwill		3 965	4 063
Income taxes recoverable		291	259
Deferred tax assets		5 902	6 171
Other assets		2 654	4 038
Total assets		215 065	223 632

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

Liabilities and equity

USD millions	Note	31.12.2016	30.06.2017
Liabilities			
Unpaid claims and claim adjustment expenses	5	57 355	60 407
Liabilities for life and health policy benefits	8	41 176	41 520
Policyholder account balances		34 354	36 077
Unearned premiums		11 629	13 467
Funds held under reinsurance treaties		2 544	2 913
Reinsurance balances payable		1 913	2 369
Income taxes payable		633	369
Deferred and other non-current tax liabilities		8 583	8 844
Short-term debt	11	1 564	1 084
Accrued expenses and other liabilities		9 811	11 049
Long-term debt	11	9 787	10 000
Total liabilities		179 349	188 099
Equity			
Contingent capital instruments		1 102	1 102
Common shares, CHF 0.10 par value			
2016: 360 072 561; 2017: 360 072 561 shares authorised and issued		34	34
Additional paid-in capital		341	309
Treasury shares, net of tax		-1 763	-2 251
Accumulated other comprehensive income:			
Net unrealised investment gains/losses, net of tax		4 459	4 933
Other-than-temporary impairment, net of tax		-5	-3
Cash flow hedges, net of tax		-7	-12
Foreign currency translation, net of tax		-6 074	-5 849
Adjustment for pension and other post-retirement benefits, net of tax		-1 135	-1 122
Total accumulated other comprehensive income		-2 762	-2 053
Retained earnings		38 682	38 334
Shareholders' equity		35 634	35 475
Non-controlling interests		82	58
Total equity		35 716	35 533
Total liabilities and equity		215 065	223 632

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

Statement of shareholders' equity

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

USD millions	2016	2017
Contingent capital instruments		
Balance as of 1 January	1 102	1 102
Issued		
Balance as of period end	1 102	1 102
Common shares		
Balance as of 1 January	35	34
Issue of common shares		
Cancellation of shares bought back	-1	
Balance as of period end	34	34
Additional paid-in capital		
Balance as of 1 January	482	341
Cancellation of shares bought back	-176	
Share-based compensation	2	-30
Realised gains/losses on treasury shares	33	-2
Balance as of period end	341	309
Treasury shares, net of tax		
Balance as of 1 January	-1 662	-1 763
Purchase of treasury shares	-1 190	-560
Cancellation of shares bought back	1 018	
Issuance of treasury shares, including share-based compensation to employees	71	72
Balance as of period end	-1 763	-2 251
Net unrealised investment gains/losses, net of tax		
Balance as of 1 January	2 748	4 459
Changes during the period	1 711	474
Balance as of period end	4 459	4 933
Other-than-temporary impairment, net of tax		
Balance as of 1 January	-11	-5
Changes during the period	6	2
Balance as of period end	-5	-3
Cash flow hedges, net of tax		
Balance as of 1 January	0	-7
Changes during the period	-7	-5
Balance as of period end	-7	-12
Foreign currency translation, net of tax		
Balance as of 1 January	-5 687	-6 074
Changes during the period	-387	225
Balance as of period end	-6 074	-5 849
Adjustment for pension and other post-retirement benefits, net of tax		
Balance as of 1 January	-1 016	-1 135
Changes during the period	-119	13
Balance as of period end	-1 135	-1 122
Retained earnings		
Balance as of 1 January	37 526	38 682
Net income after attribution of non-controlling interests	3 626	1 245
Interest on contingent capital instruments, net of tax	-68	-34
Dividends on common shares	-1 561	-1 559
Cancellation of shares bought back	-841	
Balance as of period end	38 682	38 334
Shareholders' equity	35 634	35 475

USD millions	2016	2017
Non-controlling interests		
Balance as of 1 January	89	82
Changes during the period	-4	-23
Income attributable to non-controlling interests	-3	-1
Balance as of period end	82	58
Total equity	35 716	35 533

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

Statement of cash flows

For the six months ended 30 June

USD millions	2016	2017
Cash flows from operating activities		
Net income attributable to common shareholders	1 866	1 211
Add net income attributable to non-controlling interests	2	-1
Adjustments to reconcile net income to net cash provided/used by operating activities:		
Depreciation, amortisation and other non-cash items	353	252
Net realised investment gains/losses	-2 696	-1 685
Income from equity-accounted investees, net of dividends received	89	50
Change in:		
Technical provisions and other reinsurance assets and liabilities, net	2 642	2 088
Funds held by ceding companies and under reinsurance treaties	1 131	-422
Reinsurance recoverable on unpaid claims and policy benefits	214	101
Other assets and liabilities, net	-171	-392
Income taxes payable/recoverable	-130	-205
Trading positions, net	742	309
Net cash provided/used by operating activities	4 042	1 306
Cash flows from investing activities		
Fixed income securities:		
Sales	21 529	24 399
Maturities	1 710	2 635
Purchases	-25 597	-28 418
Net purchases/sales/maturities of short-term investments	-1 805	2 965
Equity securities:		
Sales	1 311	2 127
Purchases	-658	-2 247
Securities purchased/sold under agreement to resell/repurchase, net	1 240	-2 161
Cash paid/received for acquisitions/disposals and reinsurance transactions, net	319	0
Net purchases/sales/maturities of other investments	669	156
Net purchases/sales/maturities of investments held for unit-linked and with-profit business	1 302	1 312
Net cash provided/used by investing activities	20	768
Cash flows from financing activities		
Policyholder account balances, unit-linked and with-profit business:		
Deposits	354	296
Withdrawals	-1 940	-1 470
Issuance/repayment of long-term debt	811	-152
Issuance/repayment of short-term debt	-1 326	-561
Purchase/sale of treasury shares	-631	-542
Dividends paid to shareholders	-1 561	-1 559
Net cash provided/used by financing activities	-4 293	-3 988
Total net cash provided/used	-231	-1 914
Effect of foreign currency translation	-133	284
Change in cash and cash equivalents	-364	-1 630
Cash and cash equivalents as of 1 January	8 204	9 011
Cash and cash equivalents as of 30 June	7 840	7 381

Interest paid was USD 226 million and USD 201 million (thereof USD 26 million and USD 25 million for letter of credit fees) for the six months ended 30 June 2016 and 2017, respectively.

Tax paid was USD 517 million and USD 510 million for the six months ended 30 June 2016 and 2017, respectively. The accompanying notes are an integral part of the Group financial statements.

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Notes to the Group financial statements

1 Organisation and summary of significant accounting policies

Nature of operations

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

Basis of presentation

The accompanying consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (US GAAP). All significant intra-group transactions and balances have been eliminated on consolidation. The year-end balance sheet data presented was derived from audited financial statements. These interim financial statements do not include all disclosures that US GAAP requires on an annual basis and therefore they should be read in conjunction with the Swiss Re Group’s audited financial statements for the year ended 31 December 2016.

Use of estimates in the preparation of financial statements

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

Valuation of financial assets

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

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

For assets or derivative structures at fair value, the Group uses market prices or inputs derived from market prices. A separate internal price verification process, independent of the trading function, provides an additional control over the market prices or market input used to determine the fair values of such assets. Although management considers that appropriate values have been ascribed to such assets, there is always a level of uncertainty and judgement over these valuations. Subsequent valuations could differ significantly from the results of the process described above. The Group may become aware of counterparty valuations, either directly through the exchange of information or indirectly, for example, through collateral demands. Any implied differences are considered in the independent price verification process and may result in adjustments to initially indicated valuations. As of 30 June 2017, the Group has not provided any collateral on financial instruments in excess of its own market value estimates.

Subsequent events

Subsequent events for the current reporting period have been evaluated up to 3 August 2017. This is the date on which the financial statements are available to be issued.

Recent accounting guidance

In May 2014, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2014-09, "Revenue from Contracts with Customers", which creates topic 606, "Revenue from Contracts with Customers". ASU 2014-09 outlines the principles that an entity should follow to provide useful information about the amount, timing and uncertainty of revenue and cash flows arising from contracts with its customers. The standard requires an entity to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. Insurance contracts and financial instruments are not in the scope of the new standard. The new requirements are effective for annual and interim periods beginning after 15 December 2017, and may be applied retrospectively to each prior period presented or with a cumulative effect adjustment to retained earnings as of the date of initial application. The Group is currently assessing the impact of the new requirements.

In May 2015, the FASB issued ASU 2015-09, "Disclosures about Short-Duration Contracts", an update to topic 944, "Financial Services – Insurance". ASU 2015-09 requires an insurance entity to provide additional information about insurance liabilities, including information on the nature, amount, timing, and uncertainty of future cash flows related to insurance liabilities and the effect of those cash flows on the statement of comprehensive income. Requirements include disaggregated incurred and paid claims development information by accident year, on a net basis after risk mitigation, for at least the most recent 10 years with the periods preceding the current period considered required supplementary information. In addition, for each accident year presented in the claims development tables, an insurer has to provide disaggregated information about claim frequency (unless impracticable) and the amounts of incurred but not reported (IBNR) liabilities plus the expected development on reported claims. Required disclosures also include a description of the methods for determining both IBNR and expected development on reported claims as well as information about any significant changes in methods and assumptions used in the computation of the liability for unpaid claims and claim adjustment expenses, including reasons for the changes and the impact of the changes on the most recent reporting period in the financial statements. All aforementioned disclosures have to be provided on an annual basis. In addition, insurance entities must disclose the roll-forward of the liability for unpaid claims and claims adjustment expenses in both interim and annual periods. The Group adopted the annual disclosure requirements as of 31 December 2016. The Group adopted the interim disclosure requirements for the half-year ending on 30 June 2017. The disclosures are provided in Note 5 Unpaid claims and claim adjustment expenses.

In January 2016, the FASB issued ASU 2016-01, "Recognition and Measurement of Financial Assets and Financial Liabilities", an update to subtopic 825-10, "Financial Instruments – Overall". The ASU requires an entity to carry investments in equity securities, including other ownership interests and limited liability companies at fair value through net income, with the exception of equity method investments, investments that result in consolidation or investments for which the entity has elected the practicability exception to fair value measurement. The practicability exception can only be applied by certain entities and only to equity investments without a readily determinable fair value. Investments under the practicability exception will be subject to an indicator-based impairment test. For financial liabilities to which the fair value option has been applied, the ASU also requires an entity to separately present the change in fair value attributable to instrument-specific credit risk in other comprehensive income rather than in net income. Specific exceptions apply to this requirement. In addition, the ASU requires an entity to assess whether a valuation allowance is needed on a deferred tax asset (DTA) related to fixed income securities AFS in combination with the entity's other DTAs rather than separately from other DTAs. The ASU also introduces changes to disclosure requirements for financial instruments not measured at fair value and introduces new requirements for equity instruments where the practicability exception to fair value measurement is applied. The new requirements are effective for annual and interim periods beginning after 15 December 2017 with early adoption permitted for requirements relating to the presentation of the impact of instrument-specific credit risk on qualifying financial liabilities in other comprehensive income. The Group is currently assessing the impact of the new requirements.

In February 2016, the FASB issued ASU 2016-02 "Leases", which creates topic 842, "Leases". The core principle of topic 842 is that a lessee should recognise the assets and liabilities that arise from leases. A lessee should recognise in the statement of financial position a liability to make lease payments (the lease liability) and a right-of-use asset representing the right to use the underlying asset for the lease term. This accounting treatment applies to finance leases and operating leases. The accounting applied by a lessor is largely unchanged from that applied under the current guidance. The new requirements are effective for annual and interim periods beginning after 15 December 2018. Early application of the ASU is permitted. The Group is currently assessing the impact of the new requirements.

In March 2016, the FASB issued ASU 2016-05, "Effect of Derivative Contract Novations on Existing Hedge Accounting Relationships", an update to topic 815, "Derivatives and Hedging". The amendments in this ASU clarify that a change in the counterparty to a derivative instrument that has been designated as the hedging instrument under topic 815 does not require dedesignation of that hedging relationship provided that all other hedge accounting criteria continue to be met. The Group adopted ASU 2016-05 on 1 January 2017. The adoption did not have an impact on the Group's financial statements.

In March 2016, the FASB issued ASU 2016-06, "Contingent Put and Call Options in Debt Instruments", an update to topic 815, "Derivatives and Hedging". This ASU clarifies the requirements for assessing whether contingent call or put options that can accelerate the payment of principal on debt instruments are clearly and closely related to their debt hosts. An entity performing the assessment under the amendments in this update is required to assess the embedded call or put options solely in accordance with the four-step decision sequence as defined in the implementation guidance issued by the Derivatives Implementation Group (DIG). The Group adopted ASU 2016-06 on 1 January 2017. The adoption did not have an impact on the Group's financial statements.

In March 2016, the FASB issued ASU 2016-07, "Simplifying the Transition to the Equity Method of Accounting", an update to topic 323, "Investments – Equity Method and Joint Ventures". The amendments in this update eliminate the requirement to retroactively adopt the equity method of accounting when an investment qualifies for use of the equity method as a result of an increase in the level of ownership interest or degree of influence. Instead, the amendments require that the equity method investor adds the cost of acquiring the additional interest in the investee to the current basis of the investor's previously held interest and adopts the equity method of accounting as of the date the investment qualifies for equity method accounting. The Group adopted ASU 2016-07 on 1 January 2017. The adoption did not have an impact on the Group's financial statements.

In March 2016, the FASB issued ASU 2016-09, "Improvements to Employee Share-Based Payment Accounting", an update to topic 718, "Compensation – Stock Compensation". This ASU is part of the Board's Simplification Initiative and the areas for simplification in this update involve several aspects of accounting for share-based payment transactions, including income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. The Group adopted ASU 2016-09 on 1 January 2017. The adoption did not have a material effect on the Group's financial statements.

In June 2016, the FASB issued ASU 2016-13, "Measurement of Credit Losses", an update to topic 326, "Financial Instruments – Credit Losses". ASU 2016-13 replaces the incurred loss impairment methodology in current US GAAP with a methodology that reflects expected credit losses. For financial instruments that are measured at amortised cost and available-for-sale debt securities, the standard requires that an entity recognises its estimate of expected credit losses as an allowance. The ASU is effective for annual and interim periods beginning after 15 December 2020. Early adoption for interim and annual periods after 15 December 2018 is permitted. The Group is currently assessing the impact of the new requirements.

In October 2016, the FASB issued ASU 2016-16, "Intra-Entity Transfers of Assets Other Than Inventory", an update to topic 740, "Income Taxes". This ASU amends the current guidance which prohibits the recognition of current and deferred income taxes for an intra-entity asset transfer until the asset has been sold to an outside party. This new standard requires that an entity should recognise the income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs. The new requirements are effective for annual and interim periods beginning after 15 December 2017. The Group is currently assessing the impact of the new requirements.

In October 2016, the FASB issued ASU 2016-17, "Interests Held through Related Parties That Are under Common Control", an update to topic 810, "Consolidation". This ASU amends the consolidation guidance on how a reporting entity that is the single decision maker of a variable interest entity (VIE) should treat indirect interests in the entity held through related parties that are under common control with the reporting entity when determining whether it is the primary beneficiary of that VIE. Under the amendments, a single decision maker is not required to consider indirect interests held through related parties that are under common control with the single decision maker to be the equivalent of direct interests in their entirety. Instead, a single decision maker is required to include those interests on a proportionate basis consistent with indirect interests held through other related parties. The Group adopted ASU 2016-17 on 1 January 2017. The adoption did not have an impact on the Group's financial statements.

In January 2017, the FASB issued ASU 2017-04, "Simplifying the Test for Goodwill Impairment", an update to topic 350, "Intangibles – Goodwill and Other". This ASU simplifies the subsequent measurement of goodwill and eliminates Step 2 from the goodwill impairment test. In computing the implied fair value of goodwill under Step 2, an entity has to perform procedures to determine the fair value at the impairment testing date of its assets and liabilities (including unrecognized assets and liabilities) following the procedure that would be required in determining the fair value of assets acquired and liabilities assumed in a

business combination. Instead, under the amendments in this update, an entity should perform its regular goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. An entity should recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value; however, the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. The new requirements are effective for goodwill impairment tests in annual and interim periods beginning after 15 December 2020. Early application of the ASU is permitted. The Group is currently assessing the impact of the new requirements.

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 ("B2B") model. The iptiQ business, primarily the individual life and health business, partners with distributors and enables individuals to address their protection needs on a white labelled basis.

Group items

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

Consolidation

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

a) Business segments – income statement

For the six months ended 30 June

2016 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Group items	Consolidation	Total
Revenues							
Gross premiums written	11 124	6 586	1 813	886		-611	19 798
Net premiums written	10 883	5 895	1 513	390			18 681
Change in unearned premiums	-2 791	-224	227	-44			-2 832
Premiums earned	8 092	5 671	1 740	346			15 849
Fee income from policyholders		24		245			269
Net investment income – non-participating business	515	662	69	648		-30	1 864
Net realised investment gains/losses – non-participating business	482	197	3	491	-20		1 153
Net investment result – unit-linked and with-profit business		-137		2 261			2 124
Other revenues	21	5	3		175	-187	17
Total revenues	9 110	6 422	1 815	3 991	155	-217	21 276
Expenses							
Claims and claim adjustment expenses	-5 037		-1 171				-6 208
Life and health benefits		-4 381		-1 014			-5 395
Return credited to policyholders		129		-2 051			-1 922
Acquisition costs	-2 257	-1 134	-239	12			-3 618
Operating expenses	-575	-332	-358	-221	-209	174	-1 521
Total expenses before interest expenses	-7 869	-5 718	-1 768	-3 274	-209	174	-18 664
Income/loss before interest and income tax expense							
	1 241	704	47	717	-54	-43	2 612
Interest expenses	-146	-154	-12	-14	-31	43	-314
Income/loss before income tax expense/benefit	1 095	550	35	703	-85	0	2 298
Income tax expense/benefit	-215	-108	21	-134	40		-396
Net income/loss before attribution of non-controlling interests	880	442	56	569	-45	0	1 902
Income attributable to non-controlling interests	-1		-1				-2
Net income/loss after attribution of non-controlling interests	879	442	55	569	-45	0	1 900
Interest on contingent capital instruments, net of tax	-9	-25					-34
Net income/loss attributable to common shareholders	870	417	55	569	-45	0	1 866
Claims ratio in %	62.2		67.3				63.1
Expense ratio in %	35.0		34.3				34.9
Combined ratio in %	97.2		101.6				98.0
Management expense ratio in %		5.2					
Net operating margin in %	13.6	10.7	2.6	41.4	-34.8		13.6

Business segments – income statement

For the six months ended 30 June

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Group items	Consolidation	Total
Revenues							
Gross premiums written	9 404	6 399	1 745	932		-335	18 145
Net premiums written	9 076	5 732	1 382	627			16 817
Change in unearned premiums	-1 098	4	366	-139			-867
Premiums earned	7 978	5 736	1 748	488			15 950
Fee income from policyholders		33		221			254
Net investment income – non-participating business	463	625	75	605	92	-74	1 786
Net realised investment gains – non-participating business	170	252	44	77	31		574
Net investment result – unit-linked and with-profit business		37		1 585			1 622
Other revenues	18	1	5	3	177	-185	19
Total revenues	8 629	6 684	1 872	2 979	300	-259	20 205
Expenses							
Claims and claim adjustment expenses	-5 102		-1 220				-6 322
Life and health benefits		-4 540		-935			-5 475
Return credited to policyholders		-54		-1 575			-1 629
Acquisition costs	-2 113	-973	-250	-51			-3 387
Operating expenses	-552	-374	-357	-224	-218	175	-1 550
Total expenses before interest expenses	-7 767	-5 941	-1 827	-2 785	-218	175	-18 363
Income before interest and income tax expense	862	743	45	194	82	-84	1 842
Interest expenses	-142	-151	-12	-17	-46	84	-284
Income before income tax expense/benefit	720	592	33	177	36	0	1 558
Income tax expense/benefit	-165	-135	5	-34	15		-314
Net income before attribution of non-controlling interests	555	457	38	143	51	0	1 244
Income/loss attributable to non-controlling interests			1				1
Net income after attribution of non-controlling interests	555	457	39	143	51	0	1 245
Interest on contingent capital instruments, net of tax	-9	-25					-34
Net income attributable to common shareholders	546	432	39	143	51	0	1 211
Claims ratio in %	64.0		69.8				65.0
Expense ratio in %	33.4		34.7				33.6
Combined ratio in %	97.4		104.5				98.6
Management expense ratio in %		5.8					
Net operating margin in %	10.0	11.2	2.4	13.9	27.3		9.9

Business segments – balance sheet

As of 31 December

2016 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Group items	Consolidation	Total
Assets							
Fixed income securities	31 574	29 980	6 361	25 350	11		93 276
Equity securities	1 292	867	539		737		3 435
Other investments	11 962	3 355	141	2 421	4 785	-7 446	15 218
Short-term investments	4 672	2 558	1 272	1 456	951		10 909
Investments for unit-linked and with-profit business		548		31 630			32 178
Cash and cash equivalents	4 922	410	472	2 636	571		9 011
Deferred acquisition costs	2 280	3 465	444	11			6 200
Acquired present value of future profits		966		1 037			2 003
Reinsurance recoverable	2 449	1 580	5 698	2 210		-4 476	7 461
Other reinsurance assets	9 620	6 369	2 616	3 949	4	-1 104	21 454
Goodwill	1 852	1 810	173	130			3 965
Other	8 640	4 049	1 279	1 470	1 181	-6 664	9 955
Total assets	79 263	55 957	18 995	72 300	8 240	-19 690	215 065
Liabilities							
Unpaid claims and claim adjustment expenses	39 753	10 288	10 271	1 498		-4 455	57 355
Liabilities for life and health policy benefits		15 431	268	25 499		-22	41 176
Policyholder account balances		1 566		32 788			34 354
Other reinsurance liabilities	10 816	1 709	4 310	684	2	-1 435	16 086
Short-term debt	1 202	5 221		80	431	-5 370	1 564
Long-term debt	3 307	5 074	497	1 465	80	-636	9 787
Other	11 124	9 106	1 370	3 014	2 183	-7 770	19 027
Total liabilities	66 202	48 395	16 716	65 028	2 696	-19 688	179 349
Shareholders' equity	13 040	7 562	2 218	7 272	5 544	-2	35 634
Non-controlling interests	21		61				82
Total equity	13 061	7 562	2 279	7 272	5 544	-2	35 716
Total liabilities and equity	79 263	55 957	18 995	72 300	8 240	-19 690	215 065

Business segments – balance sheet

As of 30 June

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Group items	Consolidation	Total
Assets							
Fixed income securities	33 760	31 479	7 080	25 359	86		97 764
Equity securities	1 614	868	515	20	816		3 833
Other investments	15 427	3 092	99	2 436	6 330	-9 982	17 402
Short-term investments	3 153	1 663	660	2 012	848		8 336
Investments for unit-linked and with-profit business		585		33 021			33 606
Cash and cash equivalents	2 484	768	555	2 789	785		7 381
Deferred acquisition costs	2 251	3 415	396	38			6 100
Acquired present value of future profits		944		1 061			2 005
Reinsurance recoverable	2 362	1 565	5 733	2 093		-4 209	7 544
Other reinsurance assets	11 713	6 743	2 336	4 224	2	-952	24 066
Goodwill	1 907	1 848	172	136			4 063
Other	9 631	4 571	1 396	1 909	951	-6 926	11 532
Total assets	84 302	57 541	18 942	75 098	9 818	-22 069	223 632
Liabilities							
Unpaid claims and claim adjustment expenses	41 362	10 914	10 512	1 812		-4 193	60 407
Liabilities for life and health policy benefits		15 047	270	26 225		-22	41 520
Policyholder account balances		1 615		34 462			36 077
Other reinsurance liabilities	12 817	2 027	4 136	1 009	3	-1 243	18 749
Short-term debt	1 900	4 292		260	518	-5 886	1 084
Long-term debt	3 449	6 822	497	1 466	21	-2 255	10 000
Other	13 121	9 309	1 321	2 851	2 130	-8 470	20 262
Total liabilities	72 649	50 026	16 736	68 085	2 672	-22 069	188 099
Shareholders' equity							
	11 652	7 515	2 149	7 013	7 146	0	35 475
Non-controlling interests	1		57				58
Total equity	11 653	7 515	2 206	7 013	7 146	0	35 533
Total liabilities and equity	84 302	57 541	18 942	75 098	9 818	-22 069	223 632

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

For the six months ended 30 June

2016 USD millions	Property	Casualty	Specialty	Unallocated	Total
Revenues					
Gross premiums written	4 363	5 230	1 531		11 124
Net premiums written	4 151	5 215	1 517		10 883
Change in unearned premiums	-1 065	-1 384	-342		-2 791
Premiums earned	3 086	3 831	1 175		8 092
Net investment income				515	515
Net realised investment gains/losses				482	482
Other revenues				21	21
Total revenues	3 086	3 831	1 175	1 018	9 110
Expenses					
Claims and claim adjustment expenses	-1 872	-2 639	-526		-5 037
Acquisition costs	-709	-1 229	-319		-2 257
Operating expenses	-324	-179	-72		-575
Total expenses before interest expenses	-2 905	-4 047	-917	0	-7 869
Income/loss before interest and income tax expense	181	-216	258	1 018	1 241
Interest expenses				-146	-146
Income/loss before income tax expense	181	-216	258	872	1 095
Claims ratio in %	60.6	68.8	44.7		62.2
Expense ratio in %	33.5	36.8	33.3		35.0
Combined ratio in %	94.1	105.6	78.0		97.2

Property & Casualty Reinsurance business segment – by line of business

For the six months ended 30 June

2017 USD millions	Property	Casualty	Specialty	Unallocated	Total
Revenues					
Gross premiums written	3 863	4 104	1 437		9 404
Net premiums written	3 598	4 080	1 398		9 076
Change in unearned premiums	-894	49	-253		-1 098
Premiums earned	2 704	4 129	1 145		7 978
Net investment income				463	463
Net realised investment gains/losses				170	170
Other revenues				18	18
Total revenues	2 704	4 129	1 145	651	8 629
Expenses					
Claims and claim adjustment expenses	-1 531	-2 973	-598		-5 102
Acquisition costs	-568	-1 244	-301		-2 113
Operating expenses	-299	-168	-85		-552
Total expenses before interest expenses	-2 398	-4 385	-984	0	-7 767
Income/loss before interest and income tax expense	306	-256	161	651	862
Interest expenses				-142	-142
Income/loss before income tax expense	306	-256	161	509	720
Claims ratio in %	56.6	72.0	52.2		64.0
Expense ratio in %	32.1	34.2	33.7		33.4
Combined ratio in %	88.7	106.2	85.9		97.4

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

For the six months ended 30 June

2016 USD millions	Life	Health	Unallocated	Total
Revenues				
Gross premiums written	4 454	2 132		6 586
Net premiums written	3 809	2 086		5 895
Change in unearned premiums	-44	-180		-224
Premiums earned	3 765	1 906		5 671
Fee income from policyholders	24			24
Net investment income – non-participating business	425	237		662
Net realised investment gains/losses – non-participating business	30	-2	169	197
Net investment result – unit-linked and with-profit business	-137			-137
Other revenues	5			5
Total revenues	4 112	2 141	169	6 422
Expenses				
Life and health benefits	-2 949	-1 432		-4 381
Return credited to policyholders	129			129
Acquisition costs	-770	-364		-1 134
Operating expenses	-235	-97		-332
Total expenses before interest expenses	-3 825	-1 893	0	-5 718
Income before interest and income tax expense	287	248	169	704
Interest expenses			-154	-154
Income before income tax expense	287	248	15	550
Management expense ratio in %	5.6	4.5		5.2
Net operating margin ¹ in %	6.8	11.6		10.7

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

Life & Health Reinsurance business segment – by line of business

For the six months ended 30 June

2017 USD millions	Life	Health	Unallocated	Total
Revenues				
Gross premiums written	4 607	1 792		6 399
Net premiums written	3 985	1 747		5 732
Change in unearned premiums	44	-40		4
Premiums earned	4 029	1 707		5 736
Fee income from policyholders	33			33
Net investment income – non-participating business	442	183		625
Net realised investment gains/losses – non-participating business	16	-2	238	252
Net investment result – unit-linked and with-profit business	37			37
Other revenues	1			1
Total revenues	4 558	1 888	238	6 684
Expenses				
Life and health benefits	-3 214	-1 326		-4 540
Return credited to policyholders	-54			-54
Acquisition costs	-669	-304		-973
Operating expenses	-264	-110		-374
Total expenses before interest expenses	-4 201	-1 740	0	-5 941
Income before interest and income tax expense	357	148	238	743
Interest expenses			-151	-151
Income before income tax expense	357	148	87	592
Management expense ratio in %	5.9	5.8		5.8
Net operating margin ¹ in %	7.9	7.8		11.2

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".

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3 Insurance information

Premiums earned and fees assessed against policyholders

For the six months ended 30 June

2016 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Premiums earned, thereof:					
Direct		21	1 371	671	2 063
Reinsurance	8 136	6 023	486	67	14 712
Intra-group transactions (assumed and ceded)	32	321	-32	-321	0
Premiums earned before retrocession to external parties					
	8 168	6 365	1 825	417	16 775
Retrocession to external parties	-76	-694	-85	-71	-926
Net premiums earned	8 092	5 671	1 740	346	15 849
Fee income from policyholders, thereof:					
Direct				200	200
Reinsurance		24		45	69
Gross fee income before retrocession to external parties					
		24		245	269
Retrocession to external parties					0
Net fee income	0	24	0	245	269

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Premiums earned, thereof:					
Direct		25	1 499	686	2 210
Reinsurance	8 031	6 269	403	62	14 765
Intra-group transactions (assumed and ceded)	53	110	-53	-110	0
Premiums earned before retrocession to external parties					
	8 084	6 404	1 849	638	16 975
Retrocession to external parties	-106	-668	-101	-150	-1 025
Net premiums earned	7 978	5 736	1 748	488	15 950
Fee income from policyholders, thereof:					
Direct				173	173
Reinsurance		33		48	81
Gross fee income before retrocession to external parties					
		33		221	254
Retrocession to external parties					0
Net fee income	0	33	0	221	254

Claims and claim adjustment expenses

For the six months ended 30 June

2016 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Claims paid, thereof:					
Gross claims paid to external parties	-4 354	-5 420	-1 160	-1 758	-12 692
Intra-group transactions (assumed and ceded)	-306	-246	306	246	0
Claims before receivables from retrocession to external parties					
Retrocession to external parties	183	656	89	104	1 032
Net claims paid	-4 477	-5 010	-765	-1 408	-11 660
Change in unpaid claims and claim adjustment expenses; life and health benefits, thereof:					
Gross – with external parties	-788	622	9	410	253
Intra-group transactions (assumed and ceded)	410	-24	-410	24	0
Unpaid claims and claim adjustment expenses; life and health benefits before impact of retrocession to external parties					
Retrocession to external parties	-182	31	-5	-40	-196
Net unpaid claims and claim adjustment expenses; life and health benefits	-560	629	-406	394	57
Claims and claim adjustment expenses; life and health benefits	-5 037	-4 381	-1 171	-1 014	-11 603

Acquisition costs

For the six months ended 30 June

2016 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Acquisition costs, thereof:					
Gross acquisition costs with external parties	-2 266	-1 215	-272	-27	-3 780
Intra-group transactions (assumed and ceded)	-8	-34	8	34	0
Acquisition costs before impact of retrocession to external parties					
Retrocession to external parties	17	115	25	5	162
Net acquisition costs	-2 257	-1 134	-239	12	-3 618

Claims and claim adjustment expenses

For the six months ended 30 June

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Claims paid, thereof:					
Gross claims paid to external parties	-4 594	-4 684	-1 221	-1 537	-12 036
Intra-group transactions (assumed and ceded)	-94	-95	94	95	0
Claims before receivables from retrocession to external parties					
Retrocession to external parties	131	579	71	177	958
Net claims paid	-4 557	-4 200	-1 056	-1 265	-11 078
Change in unpaid claims and claim adjustment expenses; life and health benefits, thereof:					
Gross – with external parties	-597	-336	-41	368	-606
Intra-group transactions (assumed and ceded)	207	-1	-207	1	0
Unpaid claims and claim adjustment expenses; life and health benefits before impact of retrocession to external parties					
Retrocession to external parties	-155	-3	84	-39	-113
Net unpaid claims and claim adjustment expenses; life and health benefits	-545	-340	-164	330	-719
Claims and claim adjustment expenses; life and health benefits	-5 102	-4 540	-1 220	-935	-11 797

Acquisition costs

For the six months ended 30 June

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Acquisition costs, thereof:					
Gross acquisition costs with external parties	-2 129	-1 078	-271	-67	-3 545
Intra-group transactions (assumed and ceded)	-8	-1	8	1	0
Acquisition costs before impact of retrocession to external parties					
Retrocession to external parties	24	106	13	15	158
Net acquisition costs	-2 113	-973	-250	-51	-3 387

Reinsurance receivables

Reinsurance receivables as of 31 December 2016 and 30 June 2017 were as follows:

USD millions	2016	2017
Premium receivables invoiced	1 717	1 893
Receivables invoiced from ceded re/insurance business	177	219
Assets arising from the application of the deposit method of accounting and meeting the definition of financing receivables	141	124
Recognised allowance	-60	-64

Policyholder dividends

Policyholder dividends are recognised as an element of policyholder benefits. In the six months ended 30 June 2016 and 2017, the relative percentage of participating insurance of the life and health policy benefits was 10% and 10%, respectively. The amount of policyholder dividend expense for the six months ended 30 June 2016 and 2017 was USD 136 million and USD 93 million, respectively.

4 Premiums written

For the six months ended 30 June

2016 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Consolidation	Total
Gross premiums written, thereof:						
Direct		21	1 278	820		2 119
Reinsurance	10 934	6 206	473	66		17 679
Intra-group transactions (assumed)	190	359	62		-611	0
Gross premiums written	11 124	6 586	1 813	886	-611	19 798
Intra-group transactions (ceded)	-62		-190	-359	611	0
Gross premiums written before retrocession to external parties						
	11 062	6 586	1 623	527		19 798
Retrocession to external parties	-179	-691	-110	-137		-1 117
Net premiums written	10 883	5 895	1 513	390	0	18 681

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Consolidation	Total
Gross premiums written, thereof:						
Direct		25	1 380	870		2 275
Reinsurance	9 235	6 263	310	62		15 870
Intra-group transactions (assumed)	169	111	55		-335	0
Gross premiums written	9 404	6 399	1 745	932	-335	18 145
Intra-group transactions (ceded)	-55		-169	-111	335	0
Gross premiums written before retrocession to external parties						
	9 349	6 399	1 576	821		18 145
Retrocession to external parties	-273	-667	-194	-194		-1 328
Net premiums written	9 076	5 732	1 382	627	0	16 817

5 Unpaid claims and claim adjustment expenses

A reconciliation of the opening and closing reserve balances for unpaid claims and claim adjustment expenses as of 31 December 2016 and 30 June 2017 is presented as follows:

USD millions	2016	2017
Balance as of 1 January	55 518	57 355
Reinsurance recoverable	-4 265	-4 044
Deferred expense on retroactive reinsurance	-340	-211
Net balance as of 1 January	50 913	53 100
Incurred related to:		
Current year	25 825	12 177
Prior year	-810	-120
Amortisation of deferred expense on retroactive reinsurance and impact of commutations	-26	-27
Total incurred	24 989	12 030
Paid related to:		
Current year	-9 720	-3 283
Prior year	-12 808	-7 795
Total paid	-22 528	-11 078
Foreign exchange	-1 317	1 598
Effect of acquisitions, disposals, new retroactive reinsurance and other items	1 043	413
Net balance as of period end	53 100	56 063
Reinsurance recoverable	4 044	4 092
Deferred expense on retroactive reinsurance	211	252
Closing balance	57 355	60 407

Prior-year development

Non-life claims development in the first six months of 2017 on prior years continued to be driven by favourable experience on most lines of business. Property includes favourable development driven by favourable claims experience. Casualty prior year claims development is favourable on all lines of business, except for an adverse development in motor, which is offset by favourable development in liability and accident & health lines of business. Specialty is driven by favourable reported claims experience.

For life and health lines of business, claims development on prior year business is adverse. Small positive claims development in Continental Europe was offset by UK Critical Illness and minor adverse developments in other markets. Claims development related to prior years also includes an element of interest accretion for unpaid claims reported at the estimated present value.

A summary of prior-year net claims and claim adjustment expenses development by lines of business as of 31 December 2016 and 30 June 2017 is shown below:

USD millions	2016	2017
Line of business:		
Property	-335	-167
Casualty	-249	-37
Specialty	-357	-52
Life and health	131	136
Total	-810	-120

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

As of 31 December 2016 and 30 June 2017, the DAC were as follows:

2016 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Opening balance as of 1 January	2 051	3 020	387	13	5 471
Deferred	4 629	893	571	34	6 127
Amortisation	-4 379	-312	-513	-36	-5 240
Effect of foreign currency translation	-21	-136	-1		-158
Closing balance	2 280	3 465	444	11	6 200

2017 USD millions	Property & Casualty Reinsurance	Life & Health Reinsurance	Corporate Solutions	Life Capital	Total
Opening balance as of 1 January	2 280	3 465	444	11	6 200
Deferred	2 046	226	197	48	2 517
Amortisation	-2 113	-170	-247	-37	-2 567
Effect of foreign currency translation and other changes	38	-106	2	16	-50
Closing balance	2 251	3 415	396	38	6 100

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 2016 and 30 June 2017, the PVFP was as follows:

2016 USD millions	Life & Health Reinsurance	Life Capital		Total	
		Positive PVFP	Negative PVFP		Total
Opening balance as of 1 January	1 134	1 830	0	1 830	2 964
Effect of acquisitions/disposals and retrocessions			-603	-603	-603
Amortisation	-132	-198	51	-147	-279
Interest accrued on unamortised PVFP	36	130	-19	111	147
Effect of change in unrealised gains/losses		1		1	1
Effect of foreign currency translation	-72	-205	50	-155	-227
Closing balance	966	1 558	-521	1 037	2 003

2017 USD millions	Life & Health Reinsurance	Life Capital		Total	
		Positive PVFP	Negative PVFP		Total
Opening balance as of 1 January	966	1 558	-521	1 037	2 003
Amortisation	-57	-56	22	-34	-91
Interest accrued on unamortised PVFP	15	45	-9	36	51
Effect of change in unrealised gains/losses		-3		-3	-3
Effect of foreign currency translation	20	53	-28	25	45
Closing balance	944	1 597	-536	1 061	2 005

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.

In 2016, the Group's Business Unit Life Capital acquired Guardian Holdings Europe Limited, the holding company for operations trading under the name Guardian Financial Services ("Guardian"), and recognised negative PVFP. Upon acquisition, PVFP is calculated as the difference between the estimated fair value and established reserves, which is in line with US GAAP accounting policies and assumptions of the Group. The product mix of Guardian is weighted towards annuity business, for which the fair value of insurance and investment contract liabilities significantly exceeds the established US GAAP reserves. This excess is mainly due to differences in discount rates and risk weightings between fair value and US GAAP estimates. Overall, the excess on the annuity business outweighs the estimated future gross profits of other business and synergy expectations included in the fair value of insurance and investment contract liabilities for the business as a whole, resulting in a negative PVFP.

The subsequent measurement of negative PVFP is in alignment with the existing measurement of positive PVFP assets (please refer to Note 1 of the 2016 Annual Report).

7 Investments

Investment income

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

USD millions	2016	2017
Fixed income securities	1 419	1 364
Equity securities	48	35
Policy loans, mortgages and other loans	89	74
Investment real estate	89	96
Short-term investments	31	33
Other current investments	85	23
Share in earnings of equity-accounted investees	-9	56
Cash and cash equivalents	15	11
Net result from deposit-accounted contracts	70	43
Deposits with ceding companies	229	227
Gross investment income	2 066	1 962
Investment expenses	-194	-174
Interest charged for funds held	-8	-2
Net investment income – non-participating business	1 864	1 786

Dividends received from investments accounted for using the equity method were USD 80 million and USD 106 million for the six months ended 30 June 2016 and 2017, respectively.

Share in earnings of equity-accounted investees included impairments of the carrying amount of equity-accounted investees of USD 11 million for the six months ended 30 June 2017.

Realised gains and losses

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

USD millions	2016	2017
Fixed income securities available-for-sale:		
Gross realised gains	531	291
Gross realised losses	-161	-86
Equity securities available-for-sale:		
Gross realised gains	146	357
Gross realised losses	-74	-15
Other-than-temporary impairments	-60	-30
Net realised investment gains/losses on trading securities	104	8
Change in net unrealised investment gains/losses on trading securities	99	-32
Net realised/unrealised gains/losses on other investments	25	49
Net realised/unrealised gains/losses on insurance-related activities	404	31
Foreign exchange gains/losses	139	1
Net realised investment gains/losses – non-participating business	1 153	574

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 down-side 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 for the six months ended 30 June was as follows:

USD millions	2016		2017	
	Unit-linked	With-profit	Unit-linked	With-profit
Investment income – fixed income securities	53	72	36	59
Investment income – equity securities	405	34	373	31
Investment income – other	11	6	8	4
Total investment income – unit-linked and with-profit business	469	112	417	94
Realised gains/losses – fixed income securities	174	178	-14	4
Realised gains/losses – equity securities	1 054	108	1 025	103
Realised gains/losses – other	33	-4	-8	1
Total realised gains/losses – unit-linked and with-profit business	1 261	282	1 003	108
Total net investment result – unit-linked and with-profit business	1 730	394	1 420	202

Impairment on fixed income securities related to credit losses

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

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

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

USD millions	2016	2017
Balance as of 1 January	136	97
Credit losses for which an other-than-temporary impairment was not previously recognised	13	10
Reductions for securities sold during the period	-33	-9
Increase of credit losses for which an other-than-temporary impairment has been recognised previously, when the Group does not intend to sell, or more likely than not will not be required to sell before recovery	8	1
Impact of increase in cash flows expected to be collected	-4	-3
Impact of foreign exchange movements	-2	2
Balance as of 30 June	118	98

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 2016 and 30 June 2017 were as follows:

2016 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	13 162	481	-179		13 464
US Agency securitised products	3 415	22	-53		3 384
States of the United States and political subdivisions of the states	1 411	59	-20		1 450
United Kingdom	8 005	1 293	-97		9 201
Canada	3 916	517	-35		4 398
Germany	2 906	325	-15		3 216
France	1 931	277	-10		2 198
Australia	1 967	17	-5		1 979
Other	6 355	287	-96		6 546
Total	43 068	3 278	-510		45 836
Corporate debt securities	37 203	2 733	-181		39 755
Mortgage- and asset-backed securities	4 900	125	-30	-5	4 990
Fixed income securities available-for-sale	85 171	6 136	-721	-5	90 581
Equity securities available-for-sale	2 897	561	-83		3 375

2017 USD millions	Amortised cost or cost	Gross unrealised gains	Gross unrealised losses	Other-than-temporary impairments recognised in other comprehensive income	Estimated fair value
Debt securities issued by governments and government agencies:					
US Treasury and other US government corporations and agencies	13 878	540	-108		14 310
US Agency securitised products	3 802	23	-37		3 788
States of the United States and political subdivisions of the states	1 506	83	-12		1 577
United Kingdom	7 827	1 228	-72		8 983
Canada	4 169	608	-19		4 758
Germany	2 933	267	-25		3 175
France	1 762	252	-9		2 005
Australia	1 879	19	-3		1 895
Other	7 205	285	-73		7 417
Total	44 961	3 305	-358		47 908
Corporate debt securities	38 694	3 061	-106		41 649
Mortgage- and asset-backed securities	4 236	161	-13	-1	4 383
Fixed income securities available-for-sale	87 891	6 527	-477	-1	93 940
Equity securities available-for-sale	3 382	490	-41		3 831

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

Investments trading

The carrying amounts of fixed income securities and equity securities classified as trading (excluding unit-linked and with-profit business) as of 31 December 2016 and 30 June 2017 were as follows:

USD millions	2016	2017
Debt securities issued by governments and government agencies	2 538	3 683
Corporate debt securities	45	43
Mortgage- and asset-backed securities	112	98
Fixed income securities trading – non-participating business	2 695	3 824
Equity securities trading – non-participating business	60	2

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 2016 and 30 June 2017 were as follows:

USD millions	2016		2017	
	Unit-linked	With-profit	Unit-linked	With-profit
Fixed income securities trading	2 379	2 774	2 119	2 958
Equity securities trading	23 859	1 948	25 251	2 070
Investment real estate	580	298	571	296
Other	265	75	222	119
Total investments for unit-linked and with-profit business	27 083	5 095	28 163	5 443

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 2016 and 30 June 2017, USD 14 640 million and USD 15 353 million, respectively, of fixed income securities available-for-sale were callable.

USD millions	2016		2017	
	Amortised cost or cost	Estimated fair value	Amortised cost or cost	Estimated fair value
Due in one year or less	6 607	6 650	6 447	6 467
Due after one year through five years	19 180	19 623	23 022	23 468
Due after five years through ten years	19 240	20 079	18 879	19 875
Due after ten years	35 564	39 562	35 624	40 065
Mortgage- and asset-backed securities with no fixed maturity	4 580	4 667	3 919	4 065
Total fixed-income securities available-for-sale	85 171	90 581	87 891	93 940

Assets pledged

As of 30 June 2017, investments with a carrying value of USD 7 664 million were on deposit with regulatory agencies in accordance with local requirements, and investments with a carrying value of USD 12 206 million were placed on deposit or pledged to secure certain reinsurance liabilities, including pledged investments in subsidiaries.

As of 31 December 2016 and 30 June 2017, securities of USD 16 059 million and USD 15 434 million, respectively, were transferred to third parties under securities lending transactions and repurchase agreements on a fully collateralised basis. Corresponding liabilities of USD 1 010 million and USD 1 144 million, respectively, were recognised in accrued expenses and other liabilities for the obligation to return collateral that the Group has the right to sell or repledge.

As of 30 June 2017, a real estate portfolio with a carrying value of USD 228 million serves as collateral for a credit facility allowing the Group to withdraw funds up to CHF 650 million.

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

As of 31 December 2016 and 30 June 2017, the fair value of the equity securities, government and corporate debt securities received as collateral was USD 7 666 million and USD 9 107 million, respectively. Of this, the amount that was sold or repledged as of 31 December 2016 and 30 June 2017 was USD 3 469 million and USD 4 196 million, respectively. The sources of the collateral are securities borrowing, reverse repurchase agreements and derivative transactions.

Offsetting of derivatives, financial assets and financial liabilities

Offsetting of derivatives, financial assets and financial liabilities as of 31 December 2016 and 30 June 2017 was as follows:

2016 USD millions	Gross amounts of recognised financial assets	Collateral set-off in the balance sheet	Net amounts of financial assets presented in the balance sheet	Related financial instruments not set-off in the balance sheet	Net amount
Derivative financial instruments – assets	2 801	–1 580	1 221		1 221
Reverse repurchase agreements	7 040	–3 986	3 054	–3 054	0
Securities borrowing	483	–314	169	–169	0
Total	10 324	–5 880	4 444	–3 223	1 221

2016 USD millions	Gross amounts of recognised financial liabilities	Collateral set-off in the balance sheet	Net amounts of financial liabilities presented in the balance sheet	Related financial instruments not set-off in the balance sheet	Net amount
Derivative financial instruments – liabilities	–2 610	1 568	–1 042	8	–1 034
Repurchase agreements	–3 991	3 461	–530	527	–3
Securities lending	–1 319	839	–480	454	–26
Total	–7 920	5 868	–2 052	989	–1 063

2017 USD millions	Gross amounts of recognised financial assets	Collateral set-off in the balance sheet	Net amounts of financial assets presented in the balance sheet	Related financial instruments not set-off in the balance sheet	Net amount
Derivative financial instruments – assets	2 277	–1 645	632		632
Reverse repurchase agreements	7 422	–2 904	4 518	–4 512	6
Securities borrowing	1 661	–925	736	–736	0
Total	11 360	–5 474	5 886	–5 248	638

2017 USD millions	Gross amounts of recognised financial liabilities	Collateral set-off in the balance sheet	Net amounts of financial liabilities presented in the balance sheet	Related financial instruments not set-off in the balance sheet	Net amount
Derivative financial instruments – liabilities	–2 337	1 598	–739	65	–674
Repurchase agreements	–2 656	2 379	–277	275	–2
Securities lending	–2 317	1 450	–867	821	–46
Total	–7 310	5 427	–1 883	1 161	–722

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

Recognised gross liability for the obligation to return collateral that the Group has the right to sell or repledge

As of 31 December 2016 and 30 June 2017, the gross amounts of liabilities related to repurchase agreements and securities lending by the class of securities transferred to third parties and by the remaining maturity are shown below. The liabilities are recognised for the obligation to return collateral that the Group has the right to sell or repledge.

2016 USD millions	Remaining contractual maturity of the agreements				Total
	Overnight and continuous	Up to 30 days	30–90 days	Greater than 90 days	
Repurchase agreements					
Debt securities issued by governments and government agencies	219	3 023	415	334	3 991
Total repurchase agreements	219	3 023	415	334	3 991
Securities lending					
Debt securities issued by governments and government agencies	237	367	258	426	1 288
Corporate debt securities	13				13
Equity securities	18				18
Total securities lending	268	367	258	426	1 319
Gross amount of recognised liabilities for repurchase agreements and securities lending					5 310

2017 USD millions	Remaining contractual maturity of the agreements				Total
	Overnight and continuous	Up to 30 days	30–90 days	Greater than 90 days	
Repurchase agreements					
Debt securities issued by governments and government agencies	8	1 916	179	534	2 637
Corporate debt securities	19				19
Total repurchase agreements	27	1 916	179	534	2 656
Securities lending					
Debt securities issued by governments and government agencies	449	925	345	431	2 150
Corporate debt securities	5				5
Equity securities	162				162
Total securities lending	616	925	345	431	2 317
Gross amount of recognised liabilities for repurchase agreements and securities lending					4 973

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

Unrealised losses on securities available-for-sale

The following table shows the fair value and unrealised losses of the Group's fixed income securities, aggregated by investment category and length of time that individual securities were in a continuous unrealised loss position as of 31 December 2016 and 30 June 2017. As of 31 December 2016 and 30 June 2017, USD 62 million and USD 34 million, respectively, of the gross unrealised loss on equity securities available-for-sale relates to declines in value for less than 12 months and USD 21 million and USD 7 million, respectively, to declines in value for more than 12 months.

2016 USD millions	Less than 12 months		12 months or more		Total	
	Fair value	Unrealised losses	Fair value	Unrealised losses	Fair value	Unrealised losses
Debt securities issued by governments and government agencies:						
US Treasury and other US government corporations and agencies	6 709	179			6 709	179
US Agency securitised products	2 594	53	14	0	2 608	53
States of the United States and political subdivisions of the states	494	18	8	2	502	20
United Kingdom	1 762	87	56	10	1 818	97
Canada	1 759	26	40	9	1 799	35
Germany	1 337	15	100	0	1 437	15
France	703	10			703	10
Australia	461	2	132	3	593	5
Other	2 554	78	247	18	2 801	96
Total	18 373	468	597	42	18 970	510
Corporate debt securities	6 859	172	143	9	7 002	181
Mortgage- and asset-backed securities	1 599	26	147	9	1 746	35
Total	26 831	666	887	60	27 718	726

2017 USD millions	Less than 12 months		12 months or more		Total	
	Fair value	Unrealised losses	Fair value	Unrealised losses	Fair value	Unrealised losses
Debt securities issued by governments and government agencies:						
US Treasury and other US government corporations and agencies	8 369	108			8 369	108
US Agency securitised products	2 694	37			2 694	37
States of the United States and political subdivisions of the states	388	12			388	12
United Kingdom	1 751	64	59	8	1 810	72
Canada	1 870	17	91	2	1 961	19
Germany	687	25			687	25
France	164	8	10	1	174	9
Australia	288	2	9	1	297	3
Other	2 934	64	150	9	3 084	73
Total	19 145	337	319	21	19 464	358
Corporate debt securities	5 692	102	72	4	5 764	106
Mortgage- and asset-backed securities	1 267	12	62	2	1 329	14
Total	26 104	451	453	27	26 557	478

Mortgages, loans and real estate

As of 31 December 2016 and 30 June 2017, the carrying values of investments in mortgages, policy and other loans, and real estate (excluding unit-linked and with-profit business) were as follows:

USD millions	2016	2017
Policy loans	95	95
Mortgage loans	2 401	2 670
Other loans	1 186	1 259
Investment real estate	1 925	1 952

The fair value of mortgage loans as of 31 December 2016 and 30 June 2017 was USD 2 411 million and USD 2 692 million, respectively. The fair value of other loans as of 31 December 2016 and 30 June 2017 was USD 1 202 million and USD 1 273 million, respectively. The fair value of the real estate as of 31 December 2016 and 30 June 2017 was USD 3 576 million and USD 3 748 million, respectively. The carrying value of policy loans approximates fair value.

Depreciation expense related to income-producing properties was USD 20 million and USD 23 million for the six months ended 30 June 2016 and 2017, respectively. Accumulated depreciation on investment real estate totalled USD 525 million and USD 581 million as of 31 December 2016 and 30 June 2017, respectively.

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

8 Fair value disclosures

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

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

Level 1 inputs are quoted prices in active markets for identical assets or liabilities that the Group has the ability to access. Level 1 inputs are the most persuasive evidence of fair value and are to be used whenever possible.

Level 2 inputs are market-based inputs that are directly or indirectly observable, but not considered level 1 quoted prices. Level 2 inputs consist of (i) quoted prices for similar assets or liabilities in active markets; (ii) quoted prices for identical assets or liabilities in non-active markets (e.g. 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 (e.g. interest rates, yield curves, volatilities, prepayment speeds, credit risks and default rates); and (iv) inputs derived from, or corroborated by, observable market data.

Level 3 inputs are unobservable inputs. These inputs reflect the Group's own assumptions about market pricing using the best internal and external information available.

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

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

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

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

The fair values of assets are adjusted to incorporate the counterparty risk of non-performance. Similarly, the fair values of liabilities reflect the risk of non-performance of the Group, captured by the Group's credit spread. These valuation adjustments from assets and liabilities measured at fair value using significant unobservable inputs are recognised in net realised gains and losses. For the six months ended 30 June 2017, 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 asset-backed securities (ABS) for which there are no significant observable inputs are developed using benchmarks to similar transactions or indices. For both residential mortgage-backed securities (RMBS) and commercial mortgage-backed securities (CMBS), cash flows are derived based on the transaction-specific information, which incorporates priority in the capital structure, and are generally adjusted to reflect benchmark yields, market prepayment data, collateral performance (default rates and loss severity) for specific vintage and geography, credit enhancements, and ratings. For certain RMBS and CMBS with low levels of market liquidity, judgements may be required to determine comparable securities based on the loan type and deal-specific performance. CMBS terms may also incorporate lock-out periods that restrict borrowers from prepaying the loans or provide disincentives to prepay and therefore reduce prepayment risk of these securities, compared to RMBS. The factors specifically considered in valuation of CMBS include borrower-specific statistics in a specific region, such as debt service coverage and loan-to-value ratios, as well as the type of commercial property. Mortgage- and asset-backed securities also includes debt securitised by credit card, student loan and auto loan receivables. Pricing inputs for these securities also focus on capturing, where relevant, collateral quality and performance, payment patterns, and delinquencies.

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

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

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

The Group holds both exchange-traded and OTC interest rate, foreign exchange 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, as well as more complex structured credit derivatives. Plain vanilla credit derivatives, such as index and single-name credit default swaps, are valued by the Group based on the models consistent with the industry valuation standards for these credit contracts, and primarily utilise observable inputs published by market data sources, such as credit spreads and recovery rates. These valuation techniques warrant classification of plain vanilla OTC derivatives as level 2 financial instruments in the fair value hierarchy.

Governance around level 3 fair valuation

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

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

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

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

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Assets and liabilities measured at fair value on a recurring basis

As of 31 December 2016 and 30 June 2017, the fair values of assets and liabilities measured on a recurring basis by level of input were as follows:

2016 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	13 078	79 016	1 182			93 276
Debt securities issued by US government and government agencies	13 078	2 076				15 154
US Agency securitised products		3 423				3 423
Debt securities issued by non-US governments and government agencies		29 797				29 797
Corporate debt securities		38 625	1 175			39 800
Mortgage and asset-backed securities		5 095	7			5 102
Fixed income securities backing unit-linked and with-profit business		5 153				5 153
Equity securities held for proprietary investment purposes	3 426	5	4			3 435
Equity securities backing unit-linked and with-profit business	25 807					25 807
Short-term investments held for proprietary investment purposes	5 409	5 500				10 909
Short-term investments backing unit-linked and with-profit business		6				6
Derivative financial instruments	30	2 310	461	-1 580		1 221
Interest rate contracts	14	1 044				1 058
Foreign exchange contracts		765				765
Equity contracts	4	433	341			778
Other contracts		5	120			125
Contracts backing unit-linked and with-profit business	12	63				75
Investment real estate			209			209
Other invested assets	266	183	496		937	1 882
Other investments backing unit-linked and with-profit business		42				42
Funds held by ceding companies		225				225
Total assets at fair value	48 016	92 440	2 352	-1 580	937	142 165
Liabilities						
Derivative financial instruments	-5	-1 941	-664	1 568		-1 042
Interest rate contracts	-3	-709				-712
Foreign exchange contracts		-591				-591
Equity contracts	-1	-569	-39			-609
Other contracts		-5	-625			-630
Contracts backing unit-linked and with-profit business	-1	-67				-68
Liabilities for life and health policy benefits			-144			-144
Accrued expenses and other liabilities	-384	-4 084				-4 468
Total liabilities at fair value	-389	-6 025	-808	1 568		-5 654

¹The 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.

2017 USD millions	Quoted prices in active markets for identical assets and liabilities (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Impact of netting ¹	Investments measured at net asset value as practical expedient	Total
Assets						
Fixed income securities held for proprietary investment purposes	14 741	81 700	1 323			97 764
Debt securities issued by US government and government agencies	14 741	2 171				16 912
US Agency securitised products		3 908				3 908
Debt securities issued by non-US governments and government agencies		30 771				30 771
Corporate debt securities		40 385	1 307			41 692
Mortgage and asset-backed securities		4 465	16			4 481
Fixed income securities backing unit-linked and with-profit business		5 077				5 077
Equity securities held for proprietary investment purposes	3 824	6	3			3 833
Equity securities backing unit-linked and with-profit business	27 318	3				27 321
Short-term investments held for proprietary investment purposes	2 607	5 729				8 336
Short-term investments backing unit-linked and with-profit business		52				52
Derivative financial instruments	35	1 877	365	-1 645		632
Interest rate contracts	2	724				726
Foreign exchange contracts		697				697
Equity contracts	33	413	311			757
Other contracts			54			54
Contracts backing unit-linked and with-profit business		43				43
Investment real estate			202			202
Other invested assets	748	100	529		952	2 329
Funds held by ceding companies		223				223
Total assets at fair value	49 273	94 767	2 422	-1 645	952	145 769
Liabilities						
Derivative financial instruments	-17	-1 799	-521	1 598		-739
Interest rate contracts	-1	-524				-525
Foreign exchange contracts		-622				-622
Equity contracts	-14	-573	-34			-621
Credit contracts		-15				-15
Other contracts			-487			-487
Contracts backing unit-linked and with-profit business	-2	-65				-67
Liabilities for life and health policy benefits			-129			-129
Accrued expenses and other liabilities	-764	-4 191				-4 955
Total liabilities at fair value	-781	-5 990	-650	1 598		-5 823

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 2016 and 30 June 2017, the reconciliation of the fair values of assets and liabilities measured on a recurring basis using significant unobservable inputs was as follows:

2016 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	393	34	447		1 595	2 469	-581	-165	-746
Impact of Accounting Standards Updates ¹				274	-1 120	-846	-207		-207
Realised/unrealised gains/losses:									
Included in net income	3		58	32	-20	73	188	20	208
Included in other comprehensive income	24	1			6	31			0
Purchases	577		2		43	622	4		4
Issuances						0	-141		-141
Sales	-37		-13	-59	-3	-112	101		101
Settlements	-59		-39			-98	-52		-52
Transfers into level 3 ²	302		6		12	320	-5		-5
Transfers out of level 3 ²	-6	-29				-35			0
Impact of foreign exchange movements	-15	-2		-38	-17	-72	29	1	30
Closing balance as of period end	1 182	4	461	209	496	2 352	-664	-144	-808

¹ Impact of ASU 2015-02 (Investment real estate and Derivative liabilities) and ASU 2015-07 (Other invested assets).

² Transfers are recognised at the date of the event or change in circumstances that caused the transfer.

2017 USD millions	Fixed income securities	Equity securities	Derivative assets	Investment real estate	Other invested assets	Total assets	Derivative liabilities	Liabilities for life and health policy benefits	Total liabilities
Assets and liabilities									
Balance as of 1 January	1 182	4	461	209	496	2 352	-664	-144	-808
Realised/unrealised gains/losses:									
Included in net income	-7	-2	-3	10	13	11	110	15	125
Included in other comprehensive income	13	2			19	34			0
Purchases	109		1			110			0
Issuances						0	-24		-24
Sales	-7			-27		-34	34		34
Settlements	-13		-93		-6	-112	31		31
Transfers into level 3 ¹						0			0
Transfers out of level 3 ¹	-2	-1				-3			0
Impact of foreign exchange movements	48		-1	10	7	64	-8		-8
Closing balance as of period end	1 323	3	365	202	529	2 422	-521	-129	-650

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

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

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

USD millions	2016	2017
Gains/losses included in net income for the period	-144	136
Whereof change in unrealised gains/losses relating to assets and liabilities still held at the reporting date	-208	114

Quantitative information about level 3 fair value measurements

Unobservable inputs for major level 3 assets and liabilities as of 31 December 2016 and 30 June 2017 were as follows:

USD millions	2016	2017		Unobservable input	Range (weighted average)
	Fair value	Fair value	Valuation technique		
Assets					
Corporate debt securities	1 175	1 307			
Private placement corporate debt	506	439	Corporate Spread Matrix	Credit spread	46 bps–452 bps (170 bps)
Infrastructure loans	486	591	Discounted Cash Flow Model	Valuation spread	89 bps–236 bps (173 bps)
Private placement credit tenant leases	48	48	Discounted Cash Flow Model	Illiquidity premium	75 bps–175 bps (133 bps)
Derivative equity contracts	341	311			
OTC equity option referencing correlated equity indices	341	311	Proprietary Option Model	Correlation	–45%–100% (27.5%) ¹
Investment real estate	209	202	Discounted Cash Flow Model	Discount rate	5% per annum
Liabilities					
Derivative equity contracts	–39	–34			
OTC equity option referencing correlated equity indices	–39	–34	Proprietary Option Model	Correlation	–45%–100% (27.5%) ¹
Other derivative contracts and liabilities for life and health policy benefits	–769	–616			
Variable annuity and fair valued GMDB contracts	–500	–398	Discounted Cash Flow Model	Risk margin Volatility Lapse Mortality adjustment Withdrawal rate	4% (n.a.) 4%–42% 0.5%–33% –10%–0% 0%–90%
Swap liability referencing real estate investments	–161	–152	Discounted Cash Flow Model	Discount rate	5% per annum
Weather contracts	–41	–15	Proprietary Option Model	Risk margin Correlation Volatility (power/gas) Volatility (temperature) Index value (temperature)	8%–11% (10.4%) –31%–60% (–16.5%) 20%–82% (45.7%) 27–500 (225) HDD/CAT ² 31–3886 (1417) 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 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 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 OTC equity option referencing correlated equity indices is correlation. Where the Group is long correlation risk, a significant increase (decrease) in this input in isolation would result in a significantly higher (lower) fair value measurement. Where the Group is short correlation risk, a significant increase (decrease) in this input in isolation would result in a significantly lower (higher) fair value measurement.

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

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

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

Other invested assets measured at net asset value

Other invested assets measured at net asset value as of 31 December 2016 and 30 June 2017, respectively, were as follows:

USD millions	2016 Fair value	2017 Fair value	Unfunded commitments	Redemption frequency (if currently eligible)	Redemption notice period
Private equity funds	562	559	108	non-redeemable	n.a.
Hedge funds	106	109		redeemable ¹	45–95 days ²
Private equity direct	80	102		non-redeemable	n.a.
Real estate funds	189	182	45	non-redeemable	n.a.
Total	937	952	153		

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 global macro, relative value, event-driven and long/short equity 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.

Other investments backing unit-linked and with-profit business

For operational efficiencies, the Group elected the fair value option for equity-linked deposits from one of its unit-linked businesses. The assets are carried at fair value and changes in fair value are reported as a component of earnings. In the balance sheet and the following fair value disclosures, this item is included under "Investments for unit-linked and with-profit business".

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.

Other derivative liabilities

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

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

Pursuant to the election of the fair value option for the items described, the balances as of 31 December 2016 and 30 June 2017 were as follows:

USD millions	2016	2017
Assets		
Other invested assets	9 611	11 426
of which at fair value pursuant to the fair value option	442	463
Funds held by ceding companies	8 184	9 025
of which at fair value pursuant to the fair value option	225	223
Investments for unit-linked and with-profit business	32 178	33 606
of which at fair value pursuant to the fair value option	42	
Liabilities		
Liabilities for life and health policy benefits	-41 176	-41 520
of which at fair value pursuant to the fair value option	-144	-129
Accrued expenses and other liabilities	-9 811	-11 049
of which at fair value pursuant to the fair value option	-161	-152

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

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

USD millions	2016	2017
Other invested assets	-43	15
Funds held by ceding companies	3	-2
Investments for unit-linked and with-profit business	5	
Liabilities for life and health policy benefits	-12	15
Accrued expenses and other liabilities	8	17
Total	-39	45

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 investments for unit-linked and with-profit business are reported in "Net investment result – unit-linked and with-profit business". Fair value changes from accrued expenses and other liabilities are reported in "Net realised investment gains/losses – non-participating business". Fair value changes from the GMD reserves are shown in "Life and health benefits".

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

Assets and liabilities not measured at fair value but for which the fair value is disclosed as of 31 December 2016 and 30 June 2017 were as follows:

2016 USD millions	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Total
Assets			
Policy loans		95	95
Mortgage loans		2 411	2 411
Other loans		1 202	1 202
Investment real estate		3 367	3 367
Total assets	0	7 075	7 075
Liabilities			
Debt	-8 201	-4 938	-13 139
Total liabilities	-8 201	-4 938	-13 139

2017 USD millions	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Total
Assets			
Policy loans		95	95
Mortgage loans		2 692	2 692
Other loans		1 273	1 273
Investment real estate		3 546	3 546
Total assets	0	7 606	7 606
Liabilities			
Debt	-8 111	-4 904	-13 015
Total liabilities	-8 111	-4 904	-13 015

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

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

Debt positions, which are fair valued based on executable broker quotes or based on 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 2016 and 30 June 2017, the fair values and notional amounts of the derivatives outstanding were as follows:

2016 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	42 622	1 120	-780	340
Foreign exchange contracts	19 138	350	-574	-224
Equity contracts	12 512	788	-609	179
Credit contracts				0
Other contracts	16 226	125	-630	-505
Total	90 498	2 383	-2 593	-210
Derivatives designated as hedging instruments				
Foreign exchange contracts	9 303	418	-17	401
Total	9 303	418	-17	401
Total derivative financial instruments	99 801	2 801	-2 610	191
Amount offset				
Where a right of set-off exists		-1 122	1 122	
Due to cash collateral		-458	446	
Total net amount of derivative financial instruments		1 221	-1 042	179

2017 USD millions	Notional amount assets/liabilities	Fair value assets	Fair value liabilities	Carrying value assets/liabilities
Derivatives not designated as hedging instruments				
Interest rate contracts	71 657	767	-591	176
Foreign exchange contracts	23 703	575	-274	301
Equity contracts	15 480	759	-621	138
Credit contracts	800		-15	-15
Other contracts	13 315	54	-488	-434
Total	124 955	2 155	-1 989	166
Derivatives designated as hedging instruments				
Foreign exchange contracts	10 092	122	-348	-226
Total	10 092	122	-348	-226
Total derivative financial instruments	135 047	2 277	-2 337	-60
Amount offset				
Where a right of set-off exists		-1 154	1 154	
Due to cash collateral		-491	444	
Total net amount of derivative financial instruments		632	-739	-107

The notional amounts of derivative financial instruments give an indication of the Group's volume of derivative activity. The fair value assets are included in "Other invested assets" and "Investments for unit-linked and with-profit business", and the fair value liabilities are included in "Accrued expenses and other liabilities". The fair value amounts that were not offset were nil as of 31 December 2016 and 30 June 2017.

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 six months ended 30 June, the gains and losses of derivative financial instruments not designated as hedging instruments were as follows:

USD millions	2016	2017
Derivatives not designated as hedging instruments		
Interest rate contracts	733	67
Foreign exchange contracts	22	376
Equity contracts	-71	-129
Credit contracts	1	-1
Other contracts	-222	125
Total gains/losses recognised in income	463	438

Hedging activities

The Group designates certain derivative financial instruments as hedging instruments. The designation of derivative financial instruments is primarily used for overall portfolio and risk management strategies. As of 30 June 2016 and 2017, the following hedging relationships were outstanding:

Fair value hedges

The Group enters into foreign exchange swaps to reduce the exposure to foreign exchange volatility for certain fixed income securities. These derivative instruments are designated as hedging instruments in qualifying fair value hedges. Gains and losses on derivative financial instruments designated as fair value hedging instruments are recorded in "Net realised investment gains/losses – non-participating business" in the income statement. For the six months ended 30 June, the gains and losses attributable to the hedged risks were as follows:

USD millions	Gains/losses on derivatives	2016 Gains/losses on hedged items	Gains/losses on derivatives	2017 Gains/losses on hedged items
Fair value hedging relationships				
Foreign exchange contracts	46	-46	-325	325
Total gains/losses recognised in income	46	-46	-325	325

Cash flow hedges

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

For the six months ended 30 June 2017, the Group recorded a gain of USD 18 million on derivatives in accumulated other comprehensive income. For the six months ended 30 June 2017, the Group reclassified a gain of USD 23 million from accumulated other comprehensive income into income.

As of 30 June 2017, 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 8 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 year ended 31 December 2016 and the six months ended 30 June 2017, the Group recorded an accumulated net unrealised foreign currency remeasurement gain of USD 2 448 million and a gain of USD 1 922 million, respectively, in shareholders' equity. These offset translation gains and losses on the hedged net investment.

Maximum potential loss

In consideration of the rights of set-off and the qualifying master netting arrangements with various counterparties, the maximum potential loss as of 31 December 2016 and 30 June 2017 was approximately USD 1 679 million and USD 1 123 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 107 million and USD 110 million as of 31 December 2016 and 30 June 2017, respectively. For derivative financial instruments containing credit risk-related contingent features, the Group posted collateral of nil as of 31 December 2016 and 30 June 2017. In the event of a reduction of the Group's credit rating to below investment grade, a fair value of USD 110 million additional collateral would have had to be posted as of 30 June 2017. The total equals the amount needed to settle the instruments immediately as of 30 June 2017.

10 Acquisitions

Bradesco Seguros, S.A.

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

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

Bradesco's financial statements are prepared in accordance with Brazilian GAAP. Given the unavailability of US GAAP financial information prior to the issuance of this report, pro forma financial statements and other US GAAP financial information are not presented in the Group financial statements and related notes for the second quarter of 2017. The purchase GAAP process is in progress and is expected to be completed in the third quarter and will be reflected in the full year 2017 financial statements.

IHC Risk Solutions, LLC

On 31 March 2016, the Group acquired IHC Risk Solutions, LLC (IHC), a leading US employer stop loss company and the direct employer stop loss business of Independence Holding Company. The cost of the acquisition was USD 153 million. The transaction includes IHC's operations, its team of experts and business portfolio, including in-force, new and renewal business and is reflected in the Corporate Solutions Business Unit results. This acquisition broadens the Group's current employer stop loss capabilities in the small- and middle-market self-funded healthcare benefits segment.

Guardian Holdings Europe Limited

On 6 January 2016, the Group acquired 100% of the shares of Guardian Holdings Europe Limited, the holding company for operations trading under the name Guardian Financial Services ("Guardian") from private equity company Cinven. Guardian provided insurance solutions to financial institutions and insurance companies, either through the acquisition of closed books of business or through entering reinsurance agreements with its customers. The total cost of acquisition as of 6 January 2016 was USD 2.3 billion in cash.

Please refer to Note 10 of the 2016 Annual Report for further details on the Guardian Holdings Europe Ltd.'s acquisition.

11 Debt and contingent capital instruments

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

The Group's debt as of 31 December 2016 and 30 June 2017 was as follows:

USD millions	2016	2017
Senior financial debt	590	626
Senior operational debt	431	458
Subordinated financial debt	543	
Short-term debt – financial and operational debt	1 564	1 084
Senior financial debt	3 734	3 753
Senior operational debt	423	428
Subordinated financial debt	3 381	3 518
Subordinated operational debt	2 249	2 301
Long-term debt – financial and operational debt	9 787	10 000
Total carrying value	11 351	11 084
Total fair value	13 139	13 015

As of 31 December 2016 and 30 June 2017, operational debt, i.e. debt related to operational leverage, amounted to USD 3.1 billion (thereof USD 2.2 billion limited- or non-recourse) and USD 3.2 billion (thereof USD 2.3 billion limited- or non-recourse), respectively. Operational leverage is subject to asset/liability matching and is excluded from rating agency financial leverage calculations.

Interest expense on long-term debt and contingent capital instruments

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

USD millions	2016	2017
Senior financial debt	60	58
Senior operational debt	5	6
Subordinated financial debt	97	81
Subordinated operational debt	64	55
Total	226	200

In addition to the above, interest expense on contingent capital instruments classified as equity was USD 34 million and USD 34 million for the six months ended 30 June 2016 and 2017, respectively.

Long-term debt issued in 2017

No long-term debt was issued in the first half of 2017.

12 Earnings per share

Earnings per share for the six months ended 30 June were as follows:

USD millions (except share data)	2016	2017
Basic earnings per share		
Net income	1 902	1 244
Non-controlling interests	-2	1
Interest on contingent capital instruments ¹	-34	-34
Net income attributable to common shareholders	1 866	1 211
Weighted average common shares outstanding	332 816 650	321 651 373
Net income per share in USD	5.61	3.76
Net income per share in CHF²	5.51	3.75
Effect of dilutive securities		
Change in income available to common shares due to contingent capital instruments ¹	34	34
Change in average number of shares due to contingent capital instruments	35 745 192	35 745 192
Change in average number of shares due to employee options	1 976 320	892 848
Diluted earnings per share		
Net income assuming debt conversion and exercise of options	1 900	1 245
Weighted average common shares outstanding	370 538 162	358 289 413
Net income per share in USD	5.13	3.47
Net income per share in CHF²	5.04	3.46

¹ Please refer to Note 11 "Debt and contingent capital instruments".

² The translation from USD to CHF is shown for informational purposes only and has been calculated using the Group's average exchange rates.

Dividends are declared in Swiss francs. During the twelve months ended 31 December 2016 and the six months ended 30 June 2017, the Group paid dividends per share of CHF 4.60 and CHF 4.85, respectively.

At the 152nd Annual General Meeting held on 22 April 2016, 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 prior to the 2017 Annual General Meeting through a buy-back programme for cancellation purposes. The share buy-back programme was completed as of 9 February 2017. The total number of shares repurchased amounted to 10.6 million, of which 5.5 million and 5.1 million shares were repurchased as of 31 December 2016 and between 1 January and 9 February 2017, respectively.

On 21 April 2017, the 153rd Annual General Meeting resolved the cancellation of the repurchased 10.6 million shares by way of share capital reduction. The share capital reduction was registered in the Commercial Register of the Canton of Zurich on 20 July 2017 and publication in the Swiss Commercial Gazette occurred on 25 July 2017.

13 Benefit plans

Net periodic benefit cost

Pension and post-retirement cost for the six months ended 30 June 2016 and 2017 were USD 53 million and USD 75 million, respectively.

Employer's contribution for 2017

For the six months ended 30 June 2017, the Group contributed USD 93 million to its defined benefit pension plans and USD 9 million to other post-retirement plans, compared to USD 99 million and USD 8 million, respectively, in the same period of 2016.

The expected 2017 contributions to the defined benefit pension plans and to the post-retirement benefit plans, revised as of 30 June 2017 for the latest information, amount to USD 155 million and USD 18 million, respectively.

14 Variable interest entities

The Group enters into arrangements with 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 of the following:

- 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 reassesses regularly the primary beneficiary determination.

Insurance-linked securitisations

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

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

Life and health funding vehicles

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

Swaps in trusts

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

Debt financing vehicles

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

The Group consolidates a debt-financing vehicle created to borrow locally part of the funding for a strategic investment. The Group established and capitalised the entity, decided terms of its debt and provides debt guarantee to the lender, thereby satisfying both criteria for a controlling financial interest: power over activities most significant to the vehicle's economic performance and potentially significant economic interest.

As part of a broader run-off transaction, the Group holds equity in and borrows funds from a VIE. The assets held by the VIE consist primarily of investment grade securities and the majority of their returns is absorbed by a third party, minimising the Group's maximum exposure. The Group is not a primary beneficiary of the VIE, because it does not have power over most significant activities of the VIE and its interests are not potentially significant.

Investment vehicles

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

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

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

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

Investment vehicles for unit-linked business

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

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

Senior commercial mortgage and infrastructure loans

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

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

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

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

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

Other

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

The Group did not provide financial or other support to any VIEs during 2017 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 2016 and 30 June 2017:

USD millions	2016	2017
Fixed-income securities available-for-sale	3 715	3 827
Investment real estate	209	202
Short-term investments	128	38
Cash and cash equivalents	42	28
Accrued investment income	33	34
Premiums and other receivables	33	32
Deferred acquisition costs	9	10
Deferred tax assets	94	101
Other assets	12	11
Total assets	4 275	4 283
Unpaid claims and claim adjustment expenses	65	73
Unearned premiums	25	27
Reinsurance balances payable	6	11
Income taxes payable		1
Deferred and other non-current tax liabilities	213	225
Accrued expenses and other liabilities	178	171
Long-term debt	2 270	2 322
Total liabilities	2 757	2 830

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 2016 and 30 June 2017:

USD millions	2016	2017
Fixed income securities available-for-sale	525	531
Equity securities available-for-sale	492	545
Policy loans, mortgages and other loans	876	938
Other invested assets	2 387	2 303
Investments for unit-linked and with-profit business	8 770	9 615
Premiums and other receivables	3	5
Total assets	13 053	13 937
Accrued expenses and other liabilities	78	87
Total liabilities	78	87

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 2016 and 30 June 2017:

USD millions	Total assets	Total liabilities	2016 Maximum exposure to loss ¹	Total assets	Total liabilities	2017 Maximum exposure to loss ¹
Insurance-linked securitisations	336		331	318		316
Life and health funding vehicles	2	1	1 948	2	1	1 978
Swaps in trusts	164	77	- ²	73	86	- ²
Debt financing vehicles	302		22	323		23
Investment vehicles	2 423		2 424	2 469		2 470
Investment vehicles for unit-linked business	8 770		-	9 615		-
Senior commercial mortgage and infrastructure loans	1 053		1 053	1 132		1 132
Other	3		3	5		5
Total	13 053	78	-²	13 937	87	-²

¹ Maximum exposure to loss is the loss the Group would absorb from a variable interest in a VIE in the event that all of the assets of the VIE are deemed worthless.

² The maximum exposure to loss for swaps in trusts cannot be meaningfully quantified due to their derivative character.

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

Cautionary note on forward-looking statements

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

Forward-looking statements typically are identified by words or phrases such as “anticipate”, “assume”, “believe”, “continue”, “estimate”, “expect”, “foresee”, “intend”, “may increase”, “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:

- further instability affecting the global financial system and developments related thereto;
- further deterioration in global economic conditions;
- the Group’s ability to maintain sufficient liquidity and access to capital markets, including sufficient liquidity to cover potential recapture of reinsurance agreements, early calls of debt or debt-like arrangements and collateral calls due to actual or perceived deterioration of the Group’s financial strength or otherwise;
- the effect of market conditions, including the global equity and credit markets, and the level and volatility of equity prices, interest rates, credit spreads, currency values and other market indices, on the Group’s investment assets;
- changes in the Group’s investment result as a result of changes in its investment policy or the changed composition of its investment assets, and the impact of the timing of any such changes relative to changes in market conditions;
- uncertainties in valuing credit default swaps and other credit-related instruments;
- possible inability to realise amounts on sales of securities on the Group’s balance sheet equivalent to their mark-to-market values recorded for accounting purposes;
- 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;
- the possibility that the Group’s hedging arrangements may not be effective;
- the lowering or loss of one of the financial strength or other ratings of one or more Swiss Re companies, and developments adversely affecting the Group’s ability to achieve improved ratings;
- the cyclical nature of the reinsurance industry;
- uncertainties in estimating reserves;
- uncertainties in estimating future claims for purposes of financial reporting, particularly with respect to large natural catastrophes, 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;

- the frequency, severity and development of insured claim events;
- acts of terrorism and acts of war;
- mortality, morbidity and longevity experience;
- policy renewal and lapse rates;
- extraordinary events affecting the Group's clients and other counterparties, such as bankruptcies, liquidations and other credit-related events;
- current, pending and future legislation and regulation affecting the Group or its ceding companies and the interpretation of legislation or regulations;
- legal actions or regulatory investigations or actions, including those in respect of industry requirements or business conduct rules of general applicability;
- changes in accounting standards;
- significant investments, acquisitions or dispositions, and any delays, unexpected costs or other issues experienced in connection with any such transactions;
- changing levels of competition; and
- operational factors, including the efficacy of risk management and other internal procedures in 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 macro-economic factors, which are outside of the Group's control and are often inter-related.

Market sentiment is dominated in large part by concerns over the trends exemplified by the outcome of the US presidential election and the UK referendum on European Union (EU) membership. Growth forecasts among the principal global economies remain uneven and uncertain in an environment of elevated political uncertainty. Stable, but uneven growth, in the Eurozone could suffer as a result of the potential impact of populism and anti-globalisation sentiments on upcoming elections in Germany, and potentially Italy, during 2017. The planned withdrawal of the United Kingdom from the EU has created uncertainty not only for the United Kingdom but for the rest of the EU, and negotiations over withdrawal will likely continue to contribute to volatility and pose significant challenges for the EU and the United Kingdom, while also calling into question the ability of the EU to address significant ongoing structural challenges. The long-term effects of a withdrawal of the United Kingdom from the EU will depend in part on any agreements the United Kingdom makes to retain access to the single market within the European Economic Area (EEA) following such withdrawal, the scope and nature of which currently remain highly uncertain. As China's economy undergoes structural changes, recent near-term growth stabilisation may be reversed. Growth in China remains heavily dependent on government stimulus and credit expansion; it continues to face significant capital outflows, reflecting concerns over foreign currency, and its banking sector could be adversely impacted by rising interest rates. The foregoing may be exacerbated by geopolitical tensions, fears over security and migration, and uncertainty created generally by the policy pronouncements that have been, and may in the coming months be, announced by the new US administration on a range of trade, security, foreign policy, environmental protection and other issues having global implications, as well as by the consequences of the implementation of such policy pronouncements.

With fewer options available to policymakers and concerns generally over the absence of realistic confidence-building measures, and with heightened risk that volatility or depressed conditions in one sector, one market, one country or one region could have far broader implications, volatility can be expected to continue. Further adverse developments or the continuation of adverse trends that, in turn, have a negative impact on financial markets and economic conditions could limit the Group's ability to access the capital markets and bank funding markets, could adversely affect the ability of counterparties to meet their obligations to the Group and could adversely affect the confidence of the ultimate buyers of 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 and soft insurance cycle could have a material adverse effect on the Group's overall results, make it difficult to determine the value of certain assets in the Group's portfolio, make it more difficult to acquire suitable investments to meet its risk and return criteria and otherwise have a material adverse effect on its business and operations.

Regulatory changes

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

While some regulation is national in scope, the global nature of the Group's business means that its operations are subject in effect to a patchwork of global, national and regional standards. Swiss Re and its subsidiaries are subject to 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.

There is an evolving focus on classifying certain insurance companies as systemically important as well. 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 non-bank financial company by the Financial Stability Oversight Council ("FSOC") in the United States. Separately, 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") and also published a framework for supervision of internationally active insurance groups. If and when reinsurers are included in the list of G-SIIs, the Group could be so designated. Were the Group to be designated as a G-SII, it could be subject to one or both of the resulting regimes, once implemented, including capital standards under both regimes (the basic capital requirement for G-SIIs and the insurance capital standard for internationally active insurance groups), which would have various implications for the Group, including additional compliance costs and reporting obligations 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 triggered by the outcome of the UK referendum on EU membership could also impact the legislative and/or regulatory regimes to which the Group is subject, both in the United Kingdom and in the European Union.

In addition, regulatory changes could occur in areas of broader application, such as competition policy and tax laws. Changes in tax laws, for example, could increase the taxes the Group pays, the attractiveness of products offered by the Group, the Group's investment activities and the value of deferred tax assets. Any number of these changes could apply to the Group and its operations. These changes, or inconsistencies between the various regimes that apply to the Group, could increase the costs of doing business, 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. Economic weakness, fiscal tightening and monetary policies are keeping government yields low, which impacts investment yields and affects the profitability of life savings products with interest rate guarantees. 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 risks, basis risk and correlation risk. 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 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. In addition, changes to the process or methodology of issuing ratings, or the occurrence of events or developments affecting the Group, could make it more difficult for the Group to achieve improved ratings which it would otherwise have expected.

As claims paying and financial strength ratings are key factors in establishing the competitive position of reinsurers, a decline in ratings alone could make reinsurance provided by the Group less attractive to clients relative to reinsurance from competitors with similar or stronger ratings. A decline in ratings could also cause the loss of clients who are required by policy or regulation to purchase reinsurance only from reinsurers with certain ratings. Certain larger reinsurance contracts contain terms that would allow the ceding companies to cancel the contract if the Group's ratings or those of its subsidiaries are downgraded beyond a certain threshold. Moreover, a decline in ratings could impact the availability and terms of unsecured financing and obligate the Group to provide collateral or other guarantees in the course of its business or trigger early termination of funding arrangements, potentially resulting in a need for additional liquidity. As a ratings decline could also have a material adverse impact on the Group's costs of borrowing or ability to access the capital markets, the adverse implications of a downgrade could be more severe. 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 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 judgements, 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 antitrust, 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 hurricanes, windstorms, floods, earthquakes, acts of terrorism, man-made disasters such as industrial accidents, explosions, and fires, and pandemics) 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); cyclicalities of the industry; risks related to emerging claims and coverage issues (including, for example, trends to establish stricter building standards (which can lead to higher industry losses for earthquake cover based on higher replacement values) and the UK Ministry of Justice's decision on whether to change the personal injury discount rate (based on the so-called Ogden tables) in the United Kingdom (which could have a significant impact on claims payouts and reserving)); macro developments giving rise to emerging risks, such as climate change and technological developments (including greater exposure to cyber risks, 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. 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, for example, as part of its risk models as well as those that affect the reported amounts of assets, liabilities, revenues and expenses in the Group's financial statements, 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 also publishes, on an annual basis, a report of its results, including financial statements and an accompanying independent assurance report, 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 lifetime 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, and while to date all of the Group's principal operations remain wholly owned, in the future it may elect 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.

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