2018 Global Reinsurance Peer Review

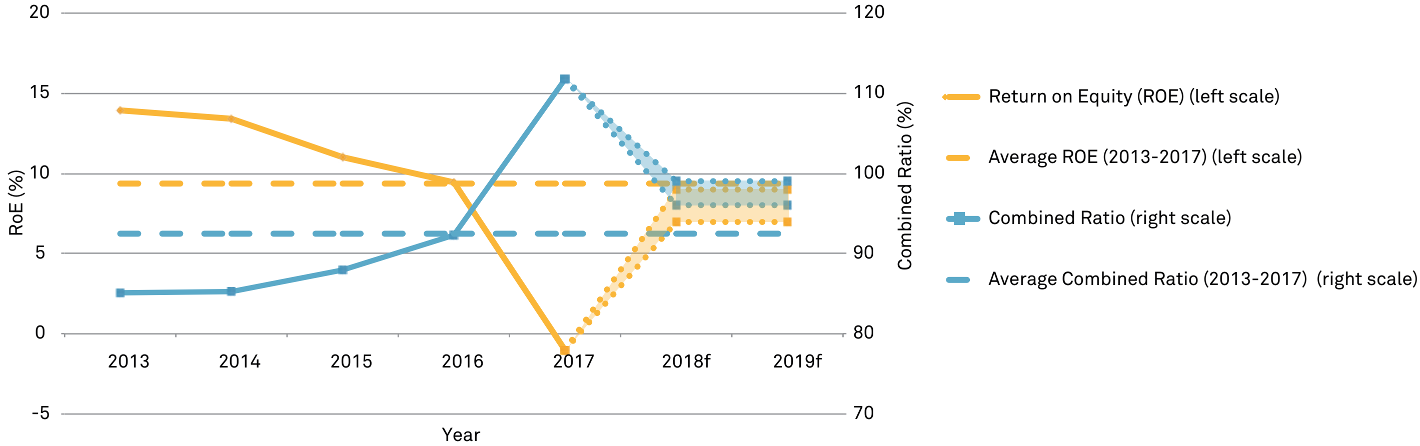
For the past several years, the global reinsurance sector has weathered unfavorable and continuously changing business conditions. The challenges have included a prolonged soft reinsurance pricing cycle, heightened competition, limited organic growth opportunities, a record influx of alternative capital, low interest rates, mergers and acquisitions, and large catastrophe losses in 2017. Against this backdrop, reinsurers are trying to pull whatever levers they can to not only remain relevant but sustain profitability. However, S&P Global Ratings is maintaining its stable outlook on the global reinsurance sector and on the majority of the reinsurers it rates. This is mostly because of reinsurers' still-robust capital adequacy and because underwriting has remained relatively disciplined, at least so far, supported by overall strong enterprise risk management. At the same time, we continue to believe the global reinsurance sector is facing weak business conditions because the fundamental challenges of the sector have not abated, even after 2017's heavy natural catastrophe losses.

Unless otherwise stated, the following peer review includes data from our top-20 global reinsurance cohort, including: Swiss Re, Munich Re, Hannover Re, SCOR, Lloyd's, Everest Re, PartnerRe, TransRe, XL, AXIS, RenaissanceRe, Validus, Qatar, Aspen, Arch, Sirius, Allied World, Lancashire, MS Amlin, and Hiscox.

S&P Global
Ratings

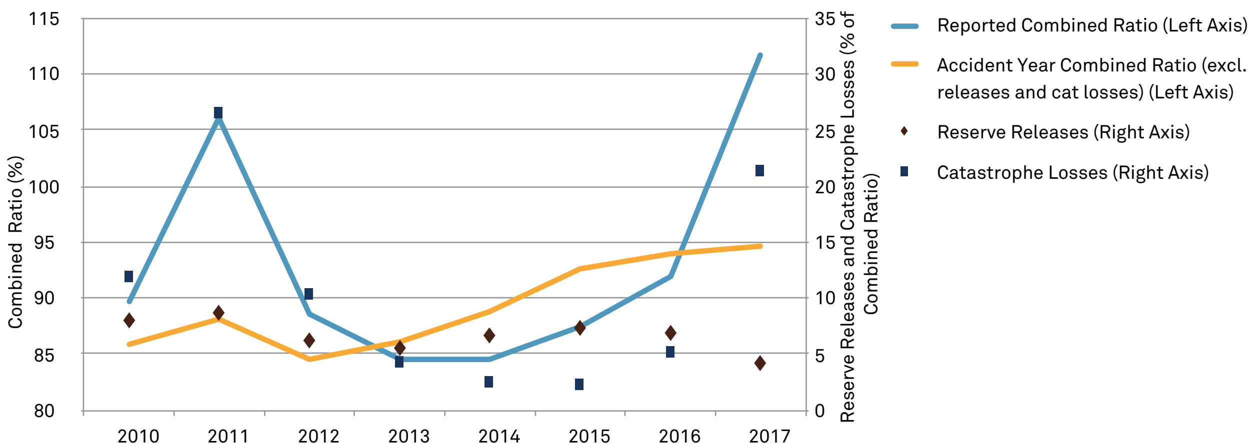
Competitive Position

Top-20 Global Reinsurers' Combined Ratio and RoE Performance



The global reinsurance industry has found itself walking a tightrope as combined ratios have ticked up in recent years, even before the impact of the 2017 catastrophe losses. Weak business conditions have dampened performance, making for a difficult industry landscape. The question remains whether reinsurers can maintain their underwriting discipline while generating adequate returns.

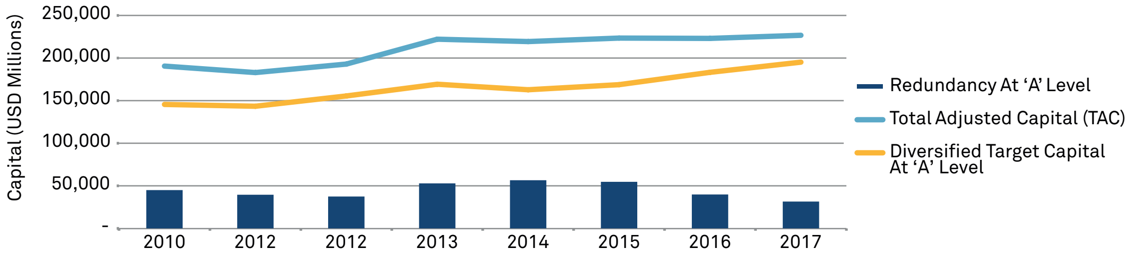
Top-20 Global Reinsurers' Underwriting Performance



The global reinsurance industry has benefitted from favorable reserve releases and benign catastrophe experience from 2012 to 2016. However, underlying combined ratios have been trending upwards since 2012, with the deterioration in 2017 accident year combined ratios exacerbated by the 2017 catastrophe losses. Furthermore, prior year releases continue to occur, albeit at a declining rate.

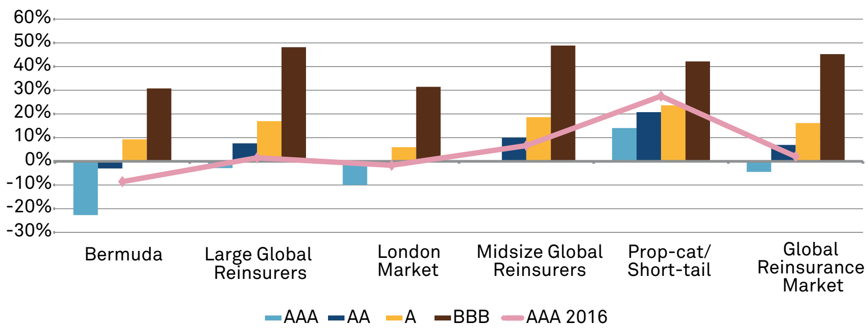
Capital Adequacy

Evolution Of Total Adjusted Capital (TAC) Versus Target Capital

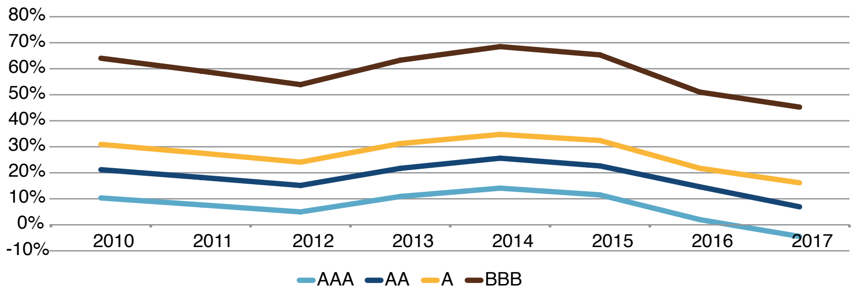


Capital adequacy strength has been reducing but the sector remains capitalised above the 'A' level. At the 'A' level, we estimate that capital redundancies of the Top-20 global reinsurers at the end of 2017 were about $31.5 billion, down from $39.8 billion as of the end of 2016, and $54.7 billion in 2015. The recent drop in capital adequacy is mostly due to the 2017 catastrophe losses, adjustments to the large global reinsurers' asset liability management and/or longevity risk capital charges, and continued buybacks and special dividends.

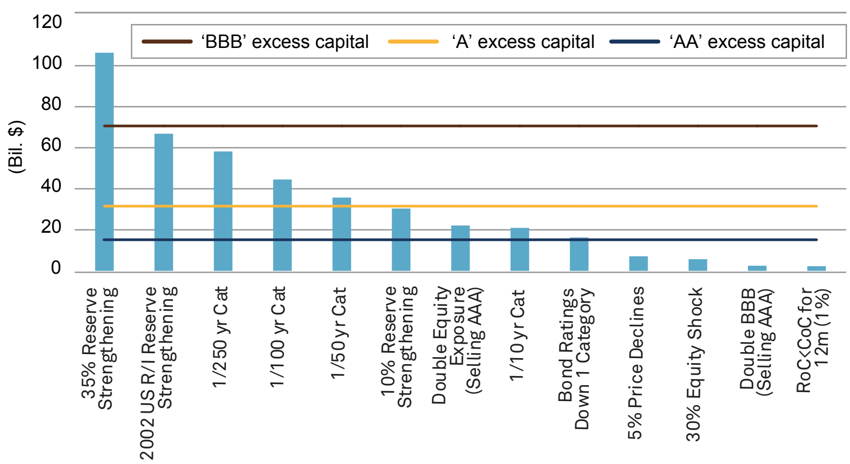
2017 Average Capital Adequacy By Peer Group



Historical Sector Capital Adequacy By Rating Level



2017 Global Reinsurance Capital Stress Tests

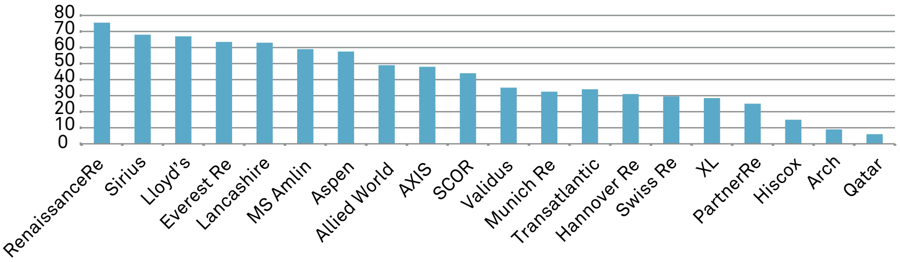


After a 10% reserve strengthening, capital adequacy would deteriorate into the 'A' range.

If the sector's total return on capital is one percentage point below its cost of capital for 12 months, capital adequacy would remain in the 'AA' range.

Catastrophe Risk

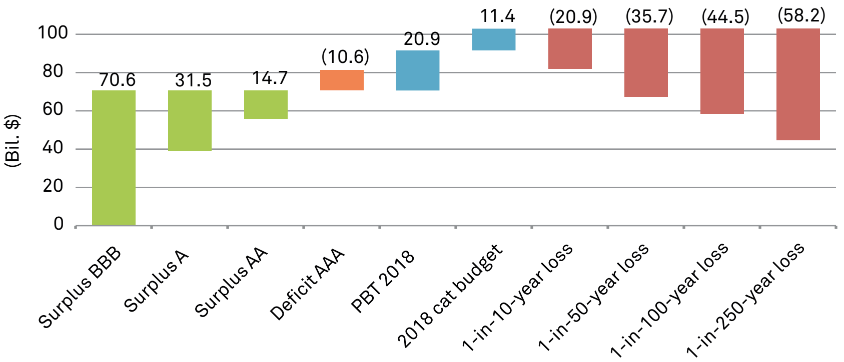
Cat Exposure: Cumulative Riskiness Scoring Jan. 1, 2018



We consider that, on average, reinsurers' property-catastrophe risk appetite at a 1-in-250-year return period rose only slightly, to 31% of shareholder equity, but we have seen increases or reductions by up to 10 percentage points for some reinsurers. Despite some capital depletion, the sector remains resilient to extreme events. Albeit fewer than last year, 12 out of 20 global reinsurers are likely to maintain at least 'AA' capital adequacy following a 1-in-250-year event.

This chart provides a ranking of reinsurers' relative exposure to catastrophe risk against one another. It is based on blended ranking of cat risk metrics developed by S&P (some of the risk metrics used include earnings at risk, capital at risk, post events capital adequacy and historical experience).

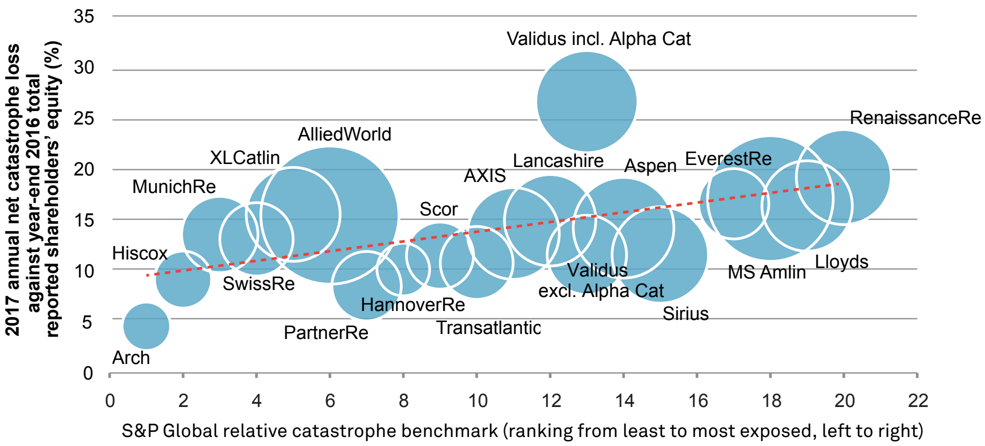
Top-20 Global Reinsurers' Aggregate Capital Surplus Resilience To Stress At Year-End 2017



PBT: Profit before tax. Source: S&P Global Ratings estimates.

An aggregated 1-in-10-year loss experience, which we assume to be about $21 billion, would exceed the annual natural catastrophe budget and hit the sector's earnings, but would not hit its capital on aggregate. This chart takes into account the natural catastrophe budget the sector incorporates in a normalized year and the projected earnings that may be achieved in a normalized year.

S&P Global Ratings' Relative Catastrophe Benchmark Performed Well In 2017



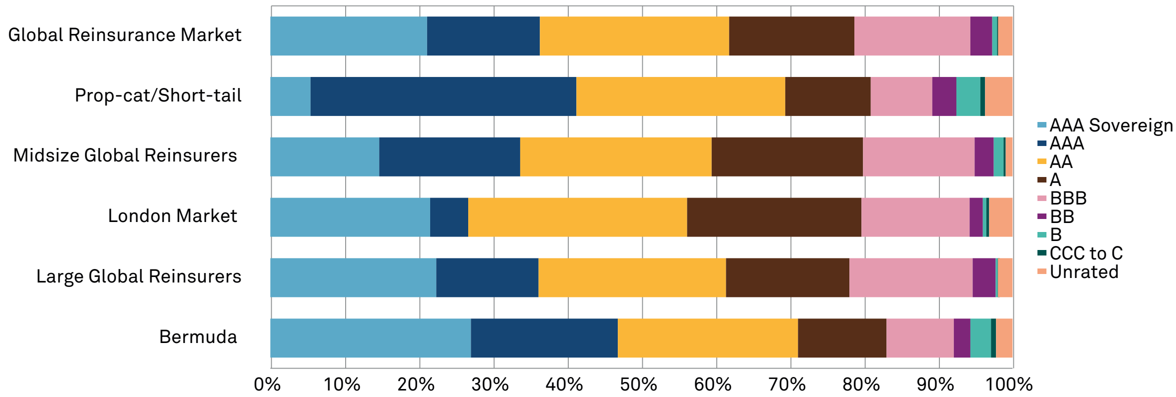
Bubble size shows 2017 annual net catastrophe loss against two-year average profit before tax (excluding cat).

Source: S&P Global Ratings.

Nat cat losses in 2017 wiped out earnings for nine out the top 20 reinsurers. Losses averaged about 1.3x their annual 'normalized' earnings and affected about 12% of their shareholders' equity at year end 2016.

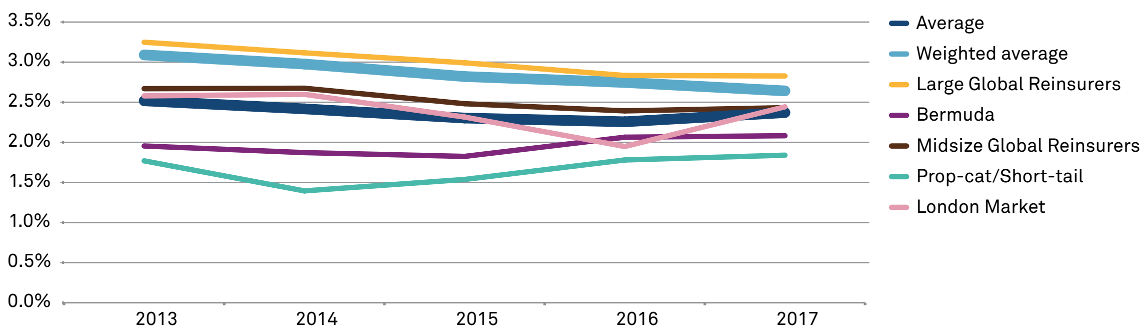
Investment Risk

2017 Credit Risk Profile



Investment strategies for the sector remain relatively conservative. However the sector continues to respond to the low interest rate environment with an increase in credit risk. Average credit quality remains strong but BBB bonds have gradually increased, to about 16% at year-end 2017 compared to 12% in 2013. There is also a modest increase in equity risk while property risk remained largely stable in 2017. In anticipation of rising interest rates (in some markets), asset duration has slightly decreased in 2017 to around 3.4 years.

Net Investment Yield



Net investment income bottomed out in 2016 and a 10 bps increase in 2017 on a simple average basis was driven by moderate interest rate increases in particular in the US. The highest increase in net investment yield is visible at the London Market and Prop-cat/Short tail writers (on a simple average basis) due to their shorter duration and thus more rapid benefits from increased interest rates. For the Large Global Reinsurers, the net investment yield is still flat in 2017 (simple average basis), reflecting their longer duration than the other cohorts in the peer group.

S&P Global Economic Forecasts*

	2015	2016	2017	2018f	2019f
			Real GDP growth (%)		
Eurozone	2.0	1.8	2.6	2.1	1.7
Asia Pacific	5.5	5.5	5.5	5.6	5.6
UK	2.3	1.9	1.8	1.2	1.4
US	2.9	1.5	2.3	3.0	2.5
			CPI Inflation (%)		
Eurozone	0.0	0.2	1.5	1.7	1.6
Asia Pacific	1.8	1.8	1.8	2.4	2.3
UK	0.1	0.6	2.7	2.5	1.9
US	0.1	1.3	2.1	2.4	2.1
			Long-Term (10-Year) Interest Rates (%)		
Eurozone	1.2	0.9	1.0	1.5	2.2
Asia Pacific	2.9	2.6	3.1	3.3	3.5
UK	1.9	1.3	1.3	1.8	2.7
US	2.2	2.1	2.4	3.2	3.4

* as per 26.July 2018
f: Forecast

Ratings Score Snapshots*

Company Name	Financial Strength Rating***	Outlook	Anchor	Business Risk Profile	IICRA	Competitive Position	Financial Risk Profile
Bermuda							
Allied World Assurance Company Holdings GmbH	A-	Positive	a-	Strong	Intermediate Risk	Strong	Moderately Strong
Arch Capital Group Ltd.	A+	Stable	a	Strong	Intermediate Risk	Strong	Strong
AXIS Capital Holdings Ltd.	A+	Negative	a	Strong	Intermediate Risk	Strong	Strong
Sirius International Group Ltd.	A-	Stable	a-	Strong	Intermediate Risk	Strong	Strong
Large Global Reinsurers							
Hannover Rück SE	AA-	Stable	aa-	Very Strong	Intermediate Risk	Very Strong	Strong
Lloyd's	A+	Negative	a+	Very Strong	Intermediate Risk	Very Strong	Moderately Strong
Munich Reinsurance Co.	AA-	Stable	aa-	Very Strong	Intermediate Risk	Extremely Strong	Strong
SCOR SE	AA-	Stable	aa-	Very Strong	Low Risk	Very Strong	Strong
Swiss Reinsurance Co. Ltd.	AA-	Stable	aa-	Very Strong	Intermediate Risk	Extremely Strong	Very Strong
London Market							
Aspen Insurance Holdings Ltd.	A	Negative	a-	Strong	Intermediate Risk	Strong	Moderately Strong
Hiscox Insurance Co. Ltd.	A	Stable	a-	Strong	Intermediate Risk	Strong	Moderately Strong
Qatar Insurance Co. S.A.Q.	A	Stable	a	Strong	Intermediate Risk	Strong	Strong
MS Amlin AG**	A	Stable	NA	NA	NA	NA	NA
Midsize Global reinsurers							
Everest Re Group Ltd.	A+	Stable	a+	Very Strong	Intermediate Risk	Very Strong	Strong
PartnerRe Ltd.	A+	Stable	a+	Very Strong	Intermediate Risk	Very Strong	Strong
Transatlantic Holdings Inc.	A+	Stable	a	Strong	Intermediate Risk	Strong	Strong
XL Group Ltd.	A+	Stable	a+	Very Strong	Intermediate Risk	Very Strong	Moderately Strong
Property-catastrophe / short-tail specialists							
Lancashire Holdings Ltd.	A-	Stable	a-	Strong	Intermediate Risk	Strong	Upper Adequate
RenaissanceRe Holdings Ltd.	A+	Stable	a	Strong	Intermediate Risk	Strong	Strong
Validus Holdings Ltd.	A	Stable	a	Strong	Intermediate Risk	Strong	Strong

* As of July 27, 2018

** MS Amlin AG rating is derived from its parent MS&AD Insurance Group

*** Ratings of core operating entities of the groups

Ratings Score Snapshots (Continued)*

Company Name	Capital & Earnings	Risk Position	Financial Flexibility	ERM	Management & Governance	Holistic Analysis	Liquidity
Bermuda							
Allied World Assurance Company Holdings GmbH	Very Strong	High Risk	Adequate	Strong	Satisfactory	0	Strong
Arch Capital Group Ltd.	Very Strong	Moderate Risk	Strong	Strong	Satisfactory	0	Strong
AXIS Capital Holdings Ltd.	Extremely Strong	High Risk	Strong	Strong	Satisfactory	0	Adequate
Sirius International Group Ltd.	Extremely Strong	High Risk	Adequate	Adq, Strong Risk Controls	Satisfactory	0	Exceptional
Large Global Reinsurers							
Hannover Rück SE	Very Strong	Moderate Risk	Adequate	Very Strong	Strong	0	Exceptional
Lloyd's	Very Strong	High Risk	Strong	Adq, Strong Risk Controls	Strong	0	Strong
Munich Reinsurance Co.	Very Strong	Moderate Risk	Strong	Very Strong	Strong	0	Exceptional
SCOR SE	Very Strong	Moderate Risk	Strong	Very Strong	Strong	0	Exceptional
Swiss Reinsurance Co. Ltd.	Extremely Strong	Moderate Risk	Strong	Very Strong	Strong	0	Exceptional
London Market							
Aspen Insurance Holdings Ltd.	Very Strong	High Risk	Strong	Adq, Strong Risk Controls	Satisfactory	+1	Strong
Hiscox Insurance Co. Ltd.	Moderately Strong	Moderate Risk	Strong	Strong	Strong	0	Exceptional
Qatar Insurance Co. S.A.Q.	Strong	Intermediate Risk	Adequate	Adequate	Satisfactory	0	Strong
MS Amlin PLC**	NA	NA	NA	NA	NA	NA	NA
Midsize Global reinsurers							
Everest Re Group Ltd.	Extremely Strong	High Risk	Strong	Strong	Strong	0	Adequate
PartnerRe Ltd.	Extremely Strong	High Risk	Adequate	Strong	Satisfactory	0	Strong
Transatlantic Holdings Inc.	Extremely Strong	High Risk	Adequate	Strong	Satisfactory	0	Exceptional
XL Group Ltd.	Very Strong	High Risk	Adequate	Strong	Satisfactory	0	Exceptional
Property-catastrophe / short-tail specialists							
Lancashire Holdings Ltd.	Very Strong	Very High Risk	Adequate	Strong	Satisfactory	-1	Strong
RenaissanceRe Holdings Ltd.	Extremely Strong	High Risk	Strong	Very Strong	Strong	0	Strong
Validus Holdings Ltd.	Extremely Strong	High Risk	Strong	Strong	Satisfactory	-1	Adequate

* As of July 27, 2018

** MS Amlin AG rating is derived from its parent MS&AD Insurance Group

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