ILS Annual Report 2019

Alternative Capital: Strength Through Disruption

Empower Results®

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Foreword

It is my pleasure to bring to you the twelfth edition of Aon Securities' annual Insurance-Linked Securities (ILS) report. The study aims to offer an authoritative review and analysis of the ILS asset class and related developments in the market.

This report is intended to be an important and useful reference document, both for ILS market participants and those with an active interest in the sector. Unless otherwise stated, its analyses cover the 12-month period ending June 30, 2019, during which time the market was uniquely tested.

The period under review has been educational for market participants, as well as reassuring due to impaired bonds responding as designed. In the wake of 2017 and 2018, the suite of ILS transactions (i.e. cat bonds, sidecars, collateralized reinsurance and industry loss warranties), and the mechanisms by which they respond, have been under the spotlight to a degree not seen before in the ILS market.

USD5.4 billion of catastrophe bond issuance was secured in this period, and ILS capital in place has contracted from USD98 billion to USD93 billion. By June 30, 2019, catastrophe bonds on-risk had reached USD30 billion, close to flat from June 30, 2018, owing to the light maturity year in the market.

Deal structures and recovery mechanisms have been tested on a scale never before seen, as the market is significantly bigger than it was at the time of previous major loss years (e.g. 2001, 2005, 2008, 2010, and 2011). Prior to 2017 only seven cat bond classes of notes had been impaired by the natural catastrophes they were designed to cover, totalling just over USD900 million. Following the hurricanes, earthquakes, wildfires, typhoons and winter storm events of 2017, 2018 and 2019 the market has endured anticipated impairments of 25 notes, leading to anticipated bond losses totalling USD1.25 billion.

This concentrated level of loss has been digested by the market during the year under review in this publication and has had a dramatic impact on the market dynamics of capacity, collateral treatment, pricing, and investor sentiment.

The 2019 edition of this annual ILS report covers a wide range of topics in the ILS market, including:

- Aon Securities' comprehensive review of the catastrophe bond market and its key drivers;
- A review of ILS investor activity;
- Our exclusive Aon ILS Indices;
- An overview of ILS-related markets, including trends in ILW, sidecars, private placements, and debt offerings;
- A review of North America, Europe, and Asia Pacific activity;
- A dedicated section on catastrophe bond collateral solutions;
- An overview of the credit class; and
- 2019 Aon Securities market participant questionnaire

We hope you will find this report useful and informative, and if you have any questions relating to the data herein, or any queries regarding any aspect of the ILS sector, please contact me or my colleagues.

Paul Schultz,
Chief Executive Officer, Aon Securities LLC

Aon Securities' Annual Review of the Catastrophe Bond Market

Overview

The catastrophe events at the end of 2017 and throughout 2018 brought increased attention and concern over ILS-related trapped collateral, ILS managers' ability to support renewals, and the pricing environment. Catastrophe bond issuance in the 12 months to June 30, 2019 totalled USD5.4 billion, including Life/Health issuance. This represents an issuance volume decrease of USD4.3 billion relative to the preceding 12-month period.

The driving characteristics of the ILS market over the period in review were i) influence of 2017 and 2018 losses on available capital, ii) schedule maturities of existing catastrophe bonds, and iii) generally, how each of the factors interact with collateral.

Earlier in 2019, the market was showing some signs of fatigue from the series of catastrophic events. Half of the 20 property catastrophe related tranches of notes that came to market were priced at the wide end or above their price guidance, compared to the second half of 2018, in which seven of the 10 tranches that came to market priced at the midpoint of their guidance or better.

This movement of prices to the wide end from 2018 to 2019 shows how prices have hardened marginally, most likely as a response to the loss events that occurred in the second half of 2018.

Nonetheless, the ILS market has proven to be resilient in 2019 with continued support for new issuance. In total, USD5.1 billion of property catastrophe deals came to market during the 12 months under review, while USD4.2 billion of property catastrophe bonds matured.

As noted, 2017 and 2018 were costly years, with losses accumulating from U.S. named storms, Mexico earthquakes, Japan typhoons and California wildfires. The resulting trapped collateral and loss development from these events created a more cautious investor base that shifted some capital to more liquid investments, such as catastrophe bonds. We have also seen investors return to a focus on simplicity. They are now expecting more premium for higher-frequency transactions whilst also shifting preference towards per-occurrence structures. During the period in question, 15 transactions were aggregate, 10 were per occurrence, and five were cascading. Of the 10 per occurrence deals, six priced at the midpoint of guidance or better, and five of those six upsized, reinforcing the fact that markets have increased desire for per-occurrence structured deals.

Interest within the space has increased, but investors have been deliberate and taken more considered time to place orders during marketing than we have seen historically. Orderbooks have also generally filled at their marketed sizes, as 83.3 percent of the deals that came to market over the past year have issued at their marketed sizes or better, but we have seen a handful of Florida-specific deals downsize or collapse tranches this year.

Exhibit 1: Catastrophe bond issuance by year, 2010 to 2019 (years ending June 30)

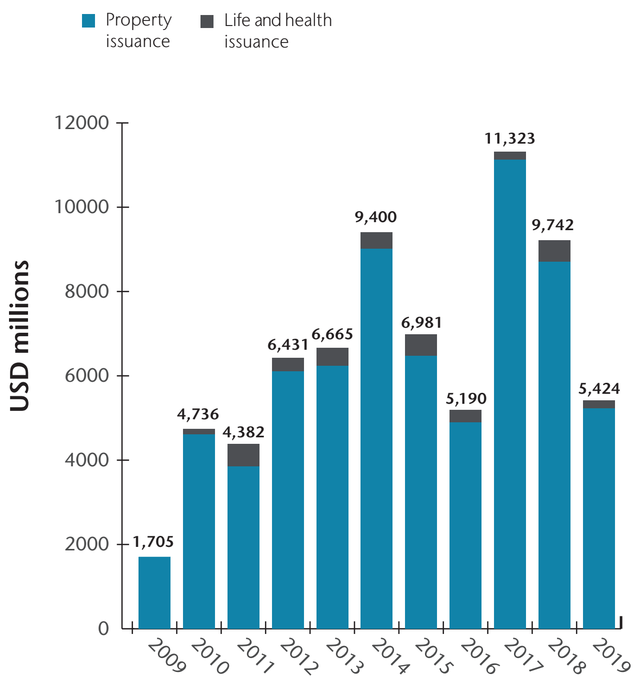
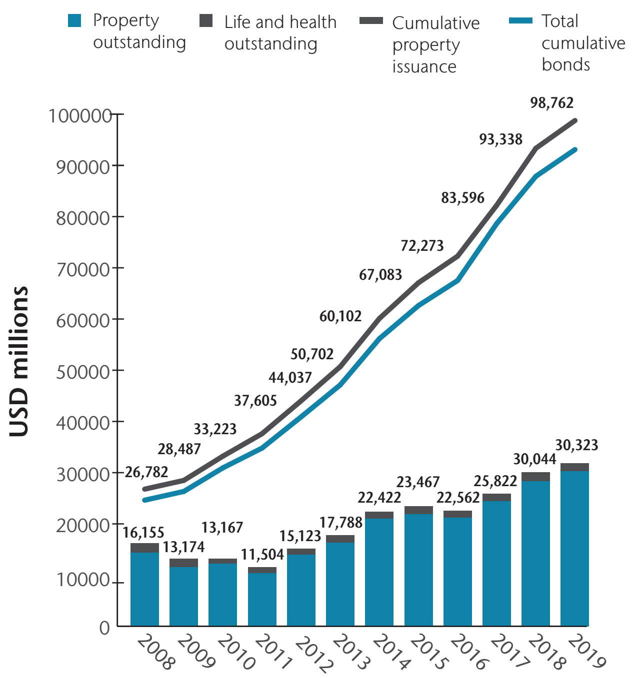


Exhibit 2: Outstanding and cumulative catastrophe bond volume, 2010 to 2019 (years ending June 30)



There were 11 tranches that upsized from their marketed size while only five deals downsized or collapsed a tranche. The five deals that downsized priced at their wide ends or worse and a majority of those that downsized were heavily focused in Florida. The struggle within the Florida market was consistent to that seen in the traditional reinsurance market. Another similarity between traditional and capital markets was an increase in the minimum absolute return. This increase in the minimum return is also a large factor that has led to the extended amount of time needed for the investors to analyse transactions.

Although capital inflows seemed to be coming in at a slower overall pace over the 12 months than we have seen historically, there has been an increased emphasis on Environmental, Social, and Governance (ESG) style investing from ILS participants. Due to ILS's eligibility as an ESG investment, we have seen the allowance of more capital to be allocated to the ILS space from select investors. Although this has not increased the inflow pace to match the levels we are used to seeing, it has allowed large global asset managers to take interest in the ILS space. We have noticed that pensions, endowments and family offices continue to observe the ILS market and we expect to see growth continue from some of these participants.

Special Purpose Insurer Summary

Bermuda continued to be the Special Purpose Insurer (SPI) preferred domicile for the 12-month period as 19 issuances used the jurisdiction, with the Cayman Islands only accounting for five and Ireland two of the 29 new issues. However, new legislation passed in the United Kingdom helped two ILS transactions come to market in the jurisdiction, and three catastrophe bonds were issued out of Singapore using the ILS grant scheme introduced by The Monetary Authority of Singapore (MAS) in February 2018, to help fund upfront ILS bond issuance costs. Overall, as was the case in the prior year review, the expertise in Bermuda continued to attract SPI domiciliation, suggesting a favourable outlook for Bermuda service providers, banks, and the Bermuda Stock Exchange.

Global catastrophic loss activity in 2018 and 1H 2019

(Source: Impact Forecasting)

2018

Insured losses from natural disasters in 2018 were considerably less than that paid by the industry in 2017. However, the USD90 billion total marked the fourth-costliest year on record for public and private insurance entities, based on actual insured totals trended to today's dollars. 2018's total only trailed 2017 (USD147 billion), 2011 (USD148 billion), and 2005 (USD135 billion). In terms of insured losses spawned solely from natural disasters, the global total was USD88 billion. This was a notable reduction from the record-setting tally set in 2017 (USD146 billion).

The most impactful driver for catastrophes in 2018 was the tropical cyclone peril following several significant landfalling storms. As previously noted, the largest cyclone events included Hurricane Michael, Hurricane Florence, Typhoon Jebi, Typhoon Trami, and Typhoon Mangkhut.

The costliest individual insured loss, however, was Northern California's Camp Fire. That blaze was expected to cost insurers more than USD12 billion. This is the first time in the modern record that a wildfire has been the most expensive industry event in a year. Two other California wildfires – the Woolsey Fire and the Carr Fire – also cost the industry billions of dollars. Other major insured loss events included Windstorm Friederike in Western and Central Europe (USD2.1 billion), a series of significant hail and straight-line wind events across the United States (highlighted by a June Colorado hail event that led to USD1.8 billion in payouts), and the Japan floods in July (USD2.7 billion).

The costliest peril for public and private insurance entities in 2018 was tropical cyclone. Despite being the lowest year since 2015, the severe weather peril was the second-costliest. Much of those losses occurred in the United States. For the second consecutive year, wildfire losses were substantially higher than historical norms as the aggregate tally topped USD18 billion. Winter weather-related losses were at their highest levels since 2014 for the industry.

H1 2019

Global natural disaster losses during the first half of 2019 were below average when compared against a 10-year (2009-2018) and 21st century (2000-2018) baseline, but higher versus a longer-term view (1980-2018). Economic losses were estimated at USD73 billion; or 40 percent lower compared to the previous decade (USD121 billion), 22 percent lower since 2000 (USD94 billion), but similar to the average since 1980 (USD74 billion).

Insured losses were preliminarily estimated at USD20 billion; down 45 percent from the 10-year average (USD36 billion), down 26 percent from the 21st century average (USD27 billion), but six percent higher since 1980 (USD19 billion). These numbers are preliminary and subject to change as losses continue to develop.

The first six months of 2019 were marked by many small and medium-scale disasters which were impactful to many communities around the world, but not historically significant from a financial loss view. This was the case in Europe, Middle East & Africa (EMEA) with 50 recorded notable disasters, and Asia-Pacific (APAC) with 45. There were 37 such events in the United States and 20 in the Americas (Non-U.S.). Of note, APAC recorded the second lowest number of 1H disasters since 2000, largely driven by fewer events in Asia, and the United States having its second-highest tally during the timeframe.

Catastrophe Bond Transaction Review by Quarter

Q3 2018

While issuance volume in Q3 2018 was relatively modest compared to the third quarters of recent years, total issuance reached a record USD1.55 billion. The period saw five sponsors, of which the Federal Emergency Management Agency (FEMA) and the Pacific Gas and Electric Company (PG&E) sponsored their first issuances. Interestingly, PG&E set a different record, being the first catastrophe bond to provide standalone protection against wildfire risk. Repeat sponsor AXIS Specialty Limited sponsored its fourth catastrophe bond, while Kaiser Permanente and the California Earthquake Authority (CEA) sponsored their second and ninth catastrophe bonds respectively.

A selection of transactions issued in the third quarter of 2018 include:

Cal Phoenix Re Ltd. 2018-1

Pacific Gas and Electric Company (PG&E) came to market in Q3 2018 with its first ever issuance, Cal Phoenix Re Ltd. Series 2018-1, becoming the first catastrophe bond to solely cover wildfire risk. The three-year deal provides coverage for third-party wildfire liability from fires originating from a transmission or distribution system. This is aimed at covering the liability that California electricity companies face if they are deemed the cause of any wildfire. The deal launched and eventually settled at USD200 million.

FloodSmart Re Ltd. 2018-1

In July, the U.S. Federal Emergency Management Agency (FEMA) came to market with its first ever catastrophe bond issuance, FloodSmart Re Ltd. 2018-1. The catastrophe bond consists of two classes of notes, which provide protection for the National Flood Insurance Program (NFIP) in the U.S. as well as Puerto Rico, the Virgin Islands and the District of Columbia. The capacity provides coverage for flood risk resulting from named storm. The two classes of notes initially set out to raise USD275 million of capacity but were later upsized to USD500 million. Hannover Re has the role of transformer on this catastrophe bond. The bond provides three years of coverage and is structured on a per occurrence basis with an indemnity trigger.

Exhibit 3: Q3 2018 catastrophe bond issuance

Beneficiary	Issuer	Series	Class	Size (millions)	Covered perils	Trigger	Recovery	Collateral
AXIS Specialty Limited	Northshore Re II Limited	2018-1	Class A	USD 200.00	US NS, US/CAN EQ, EU WS	Industry Index	Annual Aggregate	IBRD
Kaiser Permanente	Acorn Re Ltd.	2018-1	Class A	USD 400.00	Westcoast EQ	Parametric	Occurrence	IBRD
Federal Emergency Management Agency	FloodSmart Re Ltd.	2018-1	Class A Class B	USD 325.00 USD 175.00	US, DC, PR, VI: FL	Indemnity	Occurrence	MMF
Pacific Gas and Electric Company	Cal Phoenix Re Ltd.	2018-1	Class A	USD 200.00	CAL WF	Indemnity	Annual Aggregate	IBRD
California Earthquake Authority	Ursa Re Ltd.	2018-1	Class D	USD 250.00	CAL EQ	Indemnity	Annual Aggregate	MMF
Total				**USD 1,550.00**				

Q4 2018

Three transactions were issued during Q4 2018, totalling USD535 million. Two of the sponsors, USAA and State Compensation were renewals, while Sempra energy followed PG&E in its issuance of a standalone wildfire-exposed bond for fires resulting from electrical transmission lines.

A selection of transactions issued in the fourth quarter of 2018 include:

SD Re Ltd Series 2018-1
In October 2018 Sempra Energy came to market with its first catastrophe bond, SD Re Ltd. Series 2018-1. This is the second catastrophe bond to cover Californian Wildfire risk after PG&E issued Cal Phoenix Re Ltd. 2018-1 in August, two months prior. The bond provides coverage against losses suffered due to wildfires caused by their own infrastructure. SD Re Ltd. issued an extra USD125MM worth of notes and is structured as a three-year indemnity deal where losses are aggregated annually.

Golden State Re II Ltd. 2018-1
In its third issuance to date, the State Compensation Insurance Fund sought coverage for worker's compensation losses as a result of an earthquake. The Golden State 2018-1 notes were downsized USD15 million from initial target to settle at USD210 million, and the bond continues to be structured with a modelled loss trigger.

Exhibit 4: Q4 2018 catastrophe bond issuance

Beneficiary	Issuer	Series	Class	Size (millions)	Covered perils	Trigger	Recovery	Collateral
Sempra Energy	SD Re Ltd.	2018-1	Class A	USD 125.00	CAL WF	Indemnity	Annual Aggregate	IBRD
United Services Automobile Association	Residential Reinsurance 2018 Limited	2018-II	Class 1 Class 2	USD 50.00 USD 150.00	US TC, EQ, WS, ST, WF, VE, MI, OP	Indemnity	Occurrence	MMF
State Compensation Insurance Fund	Golden State Re II Ltd.	2018-1	Class A	USD 210.00	US EQ	Modeled Loss	Occurrence	EBRD
Total				**USD 535.00**				

Q1 2019

The first quarter of 2019 saw five repeat sponsors return to the market and one new sponsor covering solely terror risk, making it the first of its kind.

A selection of transactions issued in the first quarter of 2019 include:

Baltic PCC Limited 2019
Pool Reinsurance Company, the UK government-backed mutual terrorism reinsurance facility, came to market for the first time in February 2019 seeking protection from the capital markets. The protected cell company, Baltic PCC Limited 2019, is domiciled in the UK, making it the second SPV to be to be registered under UK regulations. The bond provides coverage against terrorism risk, making it the first of its kind in the catastrophe bond market. The target capacity on launch was set at GBP75 million, which was achieved on a three-year term. The bond is structured as a private 4(a)(2) placement and is triggered on an indemnity basis where any qualifying losses will aggregate annually.

Bowline Re Ltd. 2019-1
Transatlantic Reinsurance Company came to market for the second time in March with Bowline Re Ltd. Series 2019-1. The bond provides retrocessional protection spanning a term of four years and covering a range of territories in North America including the US, Puerto Rico, the Virgin Islands, the District of Columbia and Canada. The covered perils consist of named storm, earthquake and severe convective storm. The payout from this bond will be determined by an industry index and any qualifying perils causing losses will aggregate annually. The bonds issued USD250 million across two classes.

Exhibit 5: Q1 2019 catastrophe bond issuance

Beneficiary	Issuer	Series	Class	Size (millions)	Covered perils	Trigger	Recovery	Collateral
Aetna Life Insurance Company	Vitality Re X Limited	2019	Class A Class B	USD 140.00 USD 60.00	US MBR	Indemnity	Annual Aggregate	MMF
UnipolSai Assicurazioni S.p.A	Atmos Re DAC	-	Class A	USD 50.85	Italy Atmospheric Phenomenon, Snow Pressure and Flood	Indemnity	Aggregate	EBRD
Pool Reinsurance Company Limited	Baltic PCC Limited	2019	Class A	USD 98.25	TR	Indemnity	Annual Aggregate	MMF
North Carolina Insurance Underwriting Association	Cape Lookout Re Ltd.	2019-1	Class A	USD 450.00	NC NC, ST	Indemnity	Annual Aggregate	MMF
Transatlantic Reinsurance Company	Bowline Re Ltd.	2019-1	Class A Class B	USD 100.00 USD 150.00	US, PR, VI, DC, CAN NS, EQ, ST	Industry Index	Annual Aggregate	MMF
Allstate Insurance Company	Sanders Re II Ltd.	2019-1	Class B	USD 300.00	DC and US (ex. FL) NS, EQ, SW, Fire, OP	Indemnity	Occurrence & Aggregate	IBRD
State Farm Fire and Casualty Company	Merna Re II Ltd.	2019-1	Class A	USD 300.00	AL, AR, IL, KY, MI, MO, OH, OK, WI, IN, LA, MS, TN EQ and Fire Following	Indemnity	Occurrence	MMF
Total				**USD 1,649.10**				

Q2 2019

Catastrophe bond issuance in Q2 2019 totalled approximately USD1.7 billion. On the heels of a relatively quiet first quarter, the period posted a similar notional issuance to the preceding quarter, mainly due to the replacement of capacity that had rolled-off.

A selection of transactions issued in the second quarter of 2019 include:

First Coast Re II Pte. 2019-1
In the second quarter of 2019, Security First returned to the alternative markets to cover the perils of Named Storm and Severe Thunderstorm in Florida. This transaction looked to place USD75 million of limit to add to the USD690 million XS USD15 million layer placed in its 2017-1 issuance. This transaction was one of the few Florida transactions that was able to upsize during the marketing process, indicating an acceptable structure and good market timing. This transaction is notable given that it is the first 144A transaction to have used the new Singapore framework for creation of the SPV. The grant program, currently available in Singapore, led to a number of small transactions, that would normally have been priced out of the 144A market due to costs, to issue in 2019.

Atlas Capital UK 2019 plc
In its 14th transaction to date, SCOR continued its strong relationship with the capital markets and sponsored one of the more successful catastrophe bond transactions of 2019. This transaction covered U.S. named storm, U.S. and Canada earthquake and Europe windstorm on an annual aggregate, industry index basis. The bond upsized by around 43 percent during the marketing process and was able to secure a coupon in the mid-range of guidance, demonstrating strong investor desire to offer support, despite this being an aggregate rather than occurrence deal.

Exhibit 6: Q2 2019 catastrophe bond issuance

Beneficiary	Issuer	Series	Class	Size (millions)	Covered perils	Trigger	Recovery	Collateral
Federal Emergency Management Agency	FloodSmart Re Ltd.	2019-1	Class A Class B	USD 250.00 USD 50.00	US, DC, PR, VI: FL	Indemnity	Occurrence	MMF
American Coastal Insurance Company	Armor Re II Ltd.	2019-1	Class A	USD 100.00	US NS, EQ	Indemnity	Occurrence	MMF
United Services Automobile Association	Residential Reinsurance 2019 Limited	2019-I 2019-I	Class 12 Class 13	USD 60.00 USD 75.00	US TC, EQ, WS, ST, WF, VE, MI, OP	Indemnity	Annual Aggregate	MMF
Security First Insurance Company	First Coast Re II Pte. Ltd.	2019-1	Class A	USD 100.00	FL NS, ST	Indemnity	Occurrence - Cascading	MMF
Texas Windstorm Insurance Association	Alamo Re Ltd.	2019-1	Class A	USD 200.00	TX NS, ST	Indemnity	Annual Aggregate	MMF
American Integrity Insurance Company of Florida	Integrity Re Ltd.	2019-1	Class A	USD 50.00	FL NS, ST	Indemnity	Occurrence - Cascading	IBRD
Safepoint Insurance Company	Manatee Re III Pte. Ltd.	2019-1	Class A Class B	USD 20.00 USD 20.00	FL, LOU, NJ, TX NS, ST	Indemnity	Occurrence - Cascading	MMF
SCOR Global P&C SE	Atlas Capital UK 2019 PLC	2019-1	-	USD 250.00	NS & EQ: US, DC, PR, VI, Can. EU WS: AU, BG, DN, FR, GE, IR, LU, HO, NW, UK, SW, SZ	Industry Index	Annual Aggregate	EBRD
North Carolina Insurance Underwriting Association	Cape Lookout Re Ltd.	2019-2	Class A	USD 100.00	NC NS, ST	Indemnity	Annual Aggregate	MMF
Swiss Reinsurance Company Ltd.	Matterhorn Re Ltd.	2019-1	Class A	USD 250.00	CT, DE, DC, ME, MA, NH, NJ, NY, PA, RI, VT, VA, WV NS	Industry Index	Occurrence	MMF
AXIS Specialty Limited	Northshore Re II Ltd.	2019-1	Class A	USD 165.00	NS: US, DC, PR USVI; EQ: US, DC, Canada; WS: EU	Industry Index	Annual aggregate	MMF
Total				**USD 1,690.00**				

Secondary Market Overview

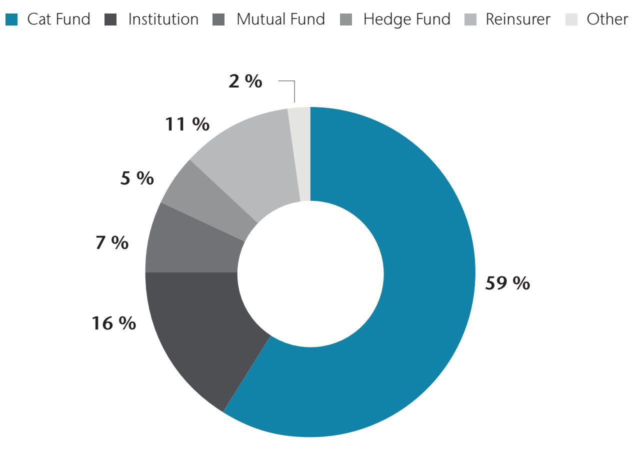
Turning to the secondary market, catastrophe bonds spreads were volatile at the start of the year. Post 6/1 renewals spreads began to tighten as issuance slowed and investors looked to put unencumbered cash to work. Most bonds traded below par but we have seen a slow rise in prices, including the prices of U.S. wind bonds, which is in opposition to the effects of seasonality.

ILS Investor Activity

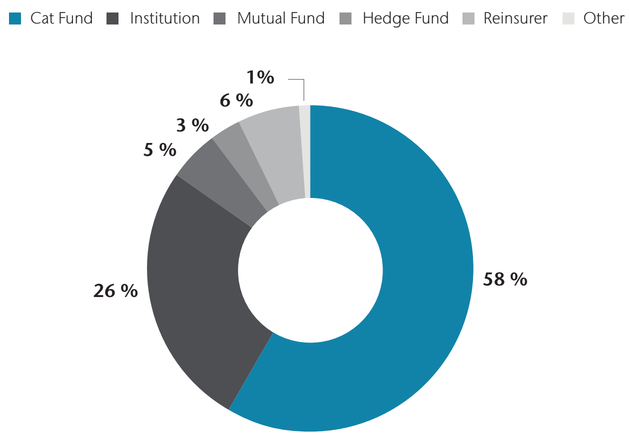
Capacity Providers

During the 12 months ending June 30, 2019, although institutional investors saw their level of participation decrease year-over-year, they were still the second largest contributor. Combined with catastrophe funds, the two investor types provided 75 percent of total capacity for 2019. The drop in participation from institutional investors is inconsistent with what we are used to seeing from this group, who have steadily grown their position within the ILS market over the past three years. Other than institutional, every other group of investors saw year-over-year growth in provided capital from 2018 to 2019. In a period significantly impacted by catastrophic events, it was refreshing to see an increase in participation within the ILS market from a wider range of investor profiles.

Exhibit 7a and 7b: Investor by category (years ending June 30)



2019

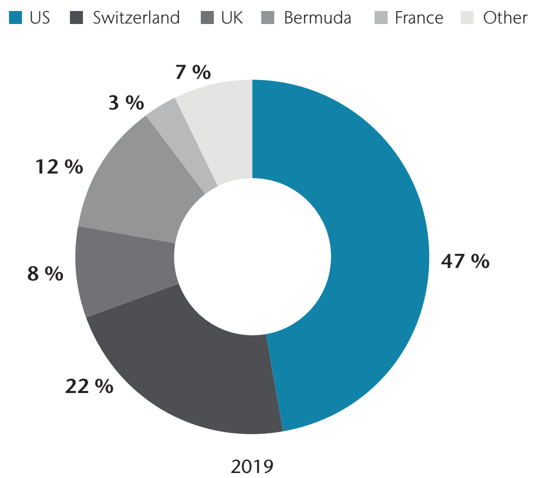


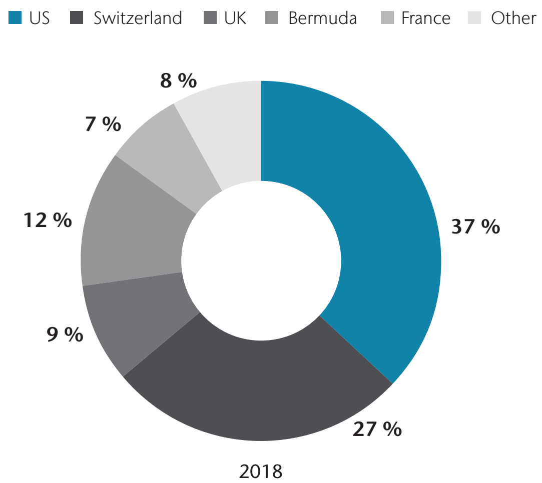
2018

Capital Origins

The overall geographic mix of catastrophe bond investors varied marginally year-over-year, as the U.S. continued to be the main source of capital for the ILS market, returning to proportional levels that we are used to seeing in past years. The U.S. increased its participation from 37 to 47 percent year-over-year as some European countries saw small decreases in their own participation. The catch-all "Other" category saw a small increase to eight percent of total provided capital as the ILS market sparked an increase in interest within various smaller countries such as Canada, Germany, Japan and Sweden.

Exhibit 8a and 8b: Investor by country/region (years ending June 30)





Investor Activity by Quarter (not including life and health)

Q3 2018

Catastrophe bond issuances in the year commencing July 1, 2018 began with a total of six issuances for USD1.55 billion. Two of these issuances were from new sponsors, PG&E & FEMA, and they introduced wildfire-only risk and flood-only risk bonds to the ILS market.

FEMA came to market with FloodSmart Re Ltd., bringing a new beneficiary to market, in FEMA, and introducing a new standalone covered peril and modelling agent, in KatRisk LLC. This also expanded FEMA/NFIP's footprint in the ILS market, helping to educate the private market on flood risk. FloodSmart Re 2018-1 came to market with two tranches with a combined USD500 million of multi-year coverage across all 50 U.S. states.

Just over one month after the issuances from the two new sponsors, Typhoon Jebi, the largest typhoon to hit Japan in 25 years, impacted western Japan. The severe winds and torrential rainfall caused approximately USD3.4 billion in total estimated losses. Less than two weeks later, Hurricane Florence, a Category 4 hurricane, made landfall in North Carolina, causing approximately USD4.55 billion in total estimated losses.

Trading in Q3 2018 was relatively light as has come to be expected over the summer months, with light pipelines and investors watching the waters. There was a slight uptick in activity as Hurricane Florence approached the coast. However, these trades were small and orderly and mostly consisted of non-exposed bonds. This was done to shore up cash positions if Florence took a turn for the worst. Despite the presence of Typhoon Jebi and Hurricane Florence, spreads held firm through the quarter widening slightly towards the end of September.

Q4 2018

There were a total of four issuances in Q4 2018 for USD535 million with one issuance from a new sponsor, Sempra Energy, which came to market with the second ever wildfire-only catastrophe bond, offering USD125 million of protection to the sponsor. This deal was issued less than a month before the camp wildfire in California on November 8, 2018. The camp fire began only 98 days after the issuance of Cal Phoenix by PG&E, which was later deemed liable for the fire due to faulty electrical equipment. The Cal Phoenix Re Ltd. 2018-1 bonds are expected to make a full pay-out to the sponsor. The Camp Fire was the most destructive wildfire in Californian history causing approximately USD9.2 billion in total estimated losses.

Q4 2018 saw spreads widen moderately at the start due to increased investor skittishness following numerous events in the previous months. By November there was a significant uptick in trading volume and spread widening.

A number of factors influenced this trend, including but not limited to the below:

i. Dislocation of trapped collateral in the retro market leaked into the bond market as investors sought liquidity from bonds;

ii. Rumours, some verified and many unsubstantiated, about a few funds possibly facing significant redemptions;

iii. Large California wildfires led to further deterioration of some aggregate bonds and increased scepticism of wildfire models.

December proved to be one of the busiest trading months on record with high volumes and further spread widening. There was significant selling pressure in the market as some investors had to address redemptions, while others had to hold capital aside due to the uncertainty of possible redemptions. The small handful of investors that had unencumbered cash were able to take advantage of the market dynamics, often buying bonds at a healthy liquidity premium charge.

Q1 2019

There was a total of seven issuances in Q1 2019 for USD1.45 billion, two of which were new issuances, Baltic PCC Limited (issued as 4(a)(2) private placement) and Cape Lookout.

Baltic PCC Limited was the first standalone terrorism risk catastrophe bond to be introduced to the catastrophe bond market. Baltic PCC Limited was issued by Pool Re, a United Kingdom terror reinsurance facility, for GBP75 million in one class of notes. The notes protect against cyber risk, property risks, and business interruption throughout the United Kingdom, with the Greater London area accounting for approximately 32 percent of overall exposure. Although the transaction priced at the wide end of guidance, the bond upsized, showing investors' and the general ILS market's support for the new peril and sponsor.

State Farm came back to market with another issuance of its Merna bond, which protects against earthquake around the New Madrid fault line. This was State Farm's 15th issuance since 2010 and the notes provided an additional USD300 million of coverage to a total of USD900 million outstanding.

By mid-February news from Japan provided another shock to the ILS market as losses from Typhoon Jebi continued to mount. Though the bond market has limited exposure to Japanese Typhoon, it did feel the knock-on effects of the increased losses and trapped collateral in the retro and collateralized markets. At this point the market once again saw significant selling pressures as some investors offloaded bonds to address collateral constraints brought on by redemptions and to free-up capital to put to use in the primary market.

This widening of spreads did not last the entire quarter as trading activity in Q1 2019 continued to be slow; however, spreads reversed course and began to tighten back in from the wides at the end of the previous year. This was largely driven by the desire to replace maturing bonds, as well as further clarity for the many funds that were holding dry powder at year end to address potential redemptions which did not materialize as they had feared.

Q2 2019

There were 14 issuances in Q2 2019 totalling USD1.69 billion. There were no new issuances, but both FEMA and North Carolina Insurance Underwriting Association (NCIUA) come back to the ILS market with their second issuances of FloodSmart Re and Cape Lookout Re Ltd., respectively.

Overall, Nine deals that came to market priced above the midpoint of their price guidance. As the last issuance of the year ending June 30, 2019, Northshore Re II Ltd. 2019-1 came to market with favourable pricing, achieving a price below the announced price guidance. It was also able to upsize upon issuance to USD165 million in multi-peril coverage. This was Northshore Re II Ltd.'s third time coming to market, increasing its overall outstanding principal to USD715 million. This annual aggregate deal triggers on an Industry Index basis and covers perils in the U.S., Canada, and Europe.

On May 26, 2019, Peru experienced a Magnitude 8.0 earthquake, which caused the IBRD CAR 120 notes to pay-out 30 percent of their principal (an amount equal to USD60 million).

Increased trading volumes were seen at the start of 2Q19, as spreads widened back towards the levels of 4Q18. June saw trading volumes lighten slightly, though remaining higher than usual. June also once again saw spreads reverse course and tighten, as more buyers emerged in the secondary market, and the primary issuance market eased back slightly in anticipation of the wind season towards quarter end.

Aon ILS Indices

The Aon ILS Indices are calculated by Bloomberg using month-end price data provided by Aon Securities. In a year that was marked by very few significant catastrophic losses, the All Bond Index was able to post a 4.30 percent return during the 12 months ending June 30, 2018, while the U.S. Hurricane index posted a return of 2.74 percent. The return of the U.S. Hurricane Index shows a dramatic turnaround from the return posted in June of 2018, in which there was a 1.13 percent loss. This is due to the slow start to the wind season and a lack of any major hurricanes as compared to last year. Although the Aon All Bond Index did not outperform comparable fixed income benchmarks for the 12-month period, the returns from the index grew over 100 basis points more than last year's returns. U.S. equities posted strong results for the 12 months ending June 30, 2019, as economic data remained positive and unemployment continued to trend toward historically low levels.

As mentioned, the annual returns for all Aon ILS Indices were higher than the prior year's annual returns due to catastrophic events in 2017 and 2018 and the lack major insurable any so far in 2019. The 5- and 10-year average annual return of the Aon All Bond Index (4.41 and 6.90 percent respectively) compare well to other fixed income benchmarks. On our list of comparables, the 3-5 Year BB U.S. High Yield Index and S&P 500 were the only two indices that outperformed both Aon ILS Indices. We continue to believe that there is a strong benefit to adding a diversified book of pure insurance risks to an investors' portfolio over the long term.

Both the equity and fixed income markets experienced growth and volatility during the 12 months ending June 30, 2019 to varying degrees. After initial slow-and-steady growth in nearly every comparable benchmark, the two most historically volatile benchmarks from our list of comparable indices, the S&P 500 Index and the 3-5 Year BB U.S. High Yield Index, achieved the most significant recoveries, ending the year with returns of 8.22 percent and 8.03 percent, respectively. This year, economic growth in the U.S. allowed for a large amount of volume to enter into the equities market. If political uncertainty and the current trade war between the United States and China continues to heat up, there is more likely to be a chance that we can see volume move back into the less-volatile markets such as the fixed income and the ILS markets

Exhibit 9a: Historical performance of Aon ILS Indices

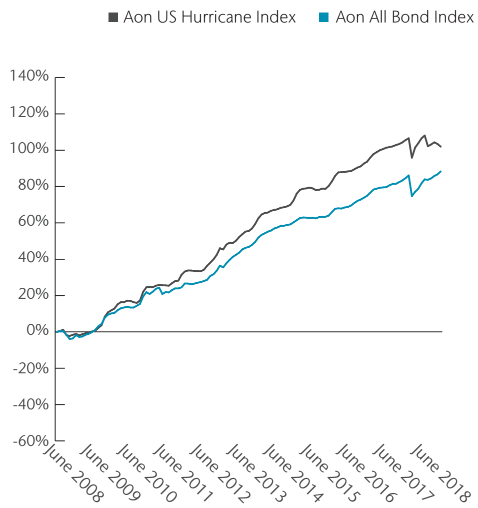


Exhibit 9b: Aon All Bond index versus financial benchmarks

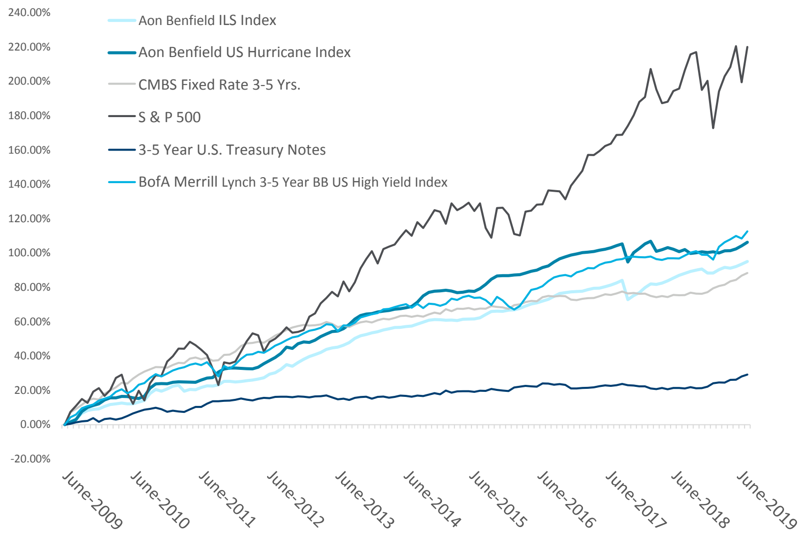


Exhibit 10: Aon ILS Indices

Index Title	Return for Annual Period Ended June 30		5 yr Avg Annual Return	10 yr Avg Annual Return
Aon Benfield ILS Indices	**2019**	**2018**	**2014-2019**	**2009-2019**
All Bond Bloomberg Ticker (AONCILS)	4.30 %	3.12 %	4.41 %	6.90 %
U.S. Hurricane Bond Bloomberg Ticker (AONCUSHU)	2.74 %	-1.13 %	4.18 %	7.50 %
Benchmarks				
3-5 Year U.S. Treasury Notes	6.44 %	-0.98 %	2.04 %	2.59 %
3-5 Year BB US High Yield Index	8.03 %	1.00 %	4.55 %	7.83 %
S&P 500	8.22 %	12.17 %	8.45 %	12.33 %
ABS 3-5 Year, Fixed Rate	6.75 %	0.77 %	3.07 %	5.15 %
CMBS 3-5 Year, Fixed Rate	7.38 %	-0.08 %	2.87 %	6.53 %

ILS-Related Markets

Over the period, we estimate total capital markets capacity to be USD93 billion, which is comprised of collateralized re, catastrophe bonds, ILWs and sidecars. This total value represents a reduction of approximately USD5 billion vs. last year (at time of writing).

As seen since 2017, the market has been resilient and able to trade, renew capacity, attract new capacity; however, the noted reduction comes from estimated reductions in capacity from losses being paid on collateralized capacity. Further, these overall capacity estimates by product type have largely seen the greatest impact in the collateralized re product line as public reports indicate losses paid by various funds. The cat bonds, sidecars, and ILWs outstanding have been stable.

Exhibit 11: Alternative market development

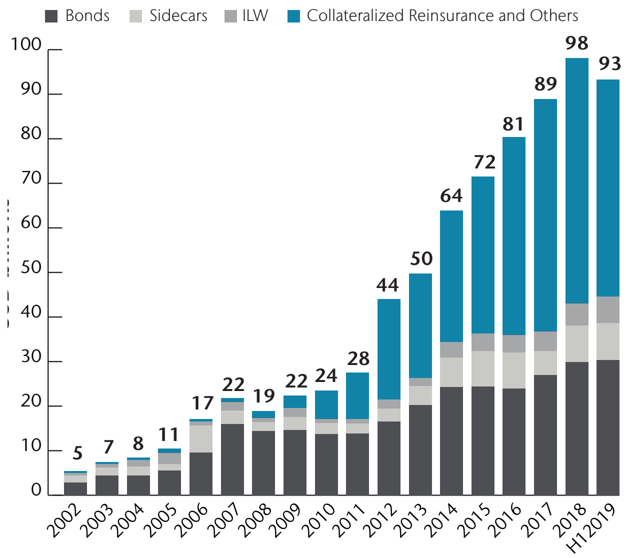
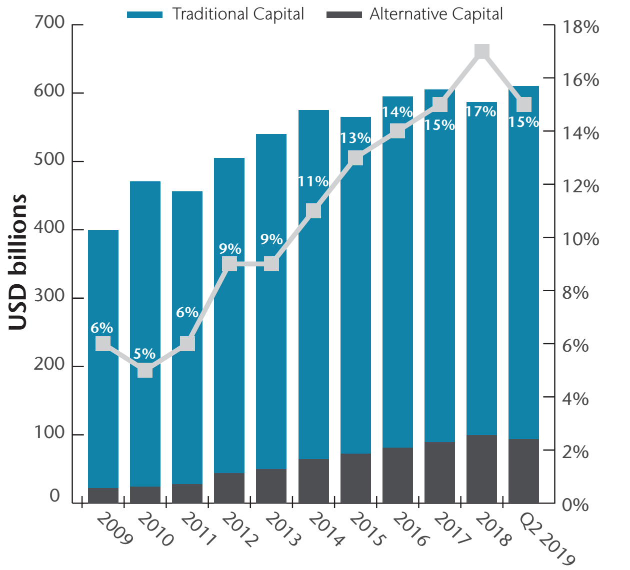


Exhibit 12: Global reinsurer capital



Collateralized Reinsurance Market Trends

We expect the collateralized reinsurance segment to contract in calendar year 2019, from USD55 billion in 2018 to USD48.6 billion. Although the segment continues to form the largest part of the ILS market by capacity volume, some investors have allocated away from the class in favour of other instruments following recent catastrophe loss activity in 2017 and 2018.

Investor appetite for collateralized reinsurance can be more sensitive to loss activity than catastrophe bonds, due to the propensity for losses at lower return periods.

Where funds are owned by reinsurers, retrocession capacity is increasingly being fronted by the likes of Hannover Re and Arch Re, to leverage the strength of such balance sheets.

The Bermuda Monetary Authority (BMA) has proposed a new class of insurer for use in the underwriting of collateralized reinsurance, to create a regulated home for multi-use and increasingly innovative applications of collateralized protection backed by the capital markets.

Sidecars

Given the ongoing potential pricing dislocation following the catastrophe events of 2017 and 2018, leveraging all capital sources has become increasingly important to cedents. Sidecars continue to offer strategic value to (re)insurers by providing a third-party capital platform with increasing benefits over the medium to long-term.

2017, 2018 and 2019 year-to-date have been active years in the sidecar market. New sidecars have come to market as sponsors look to both utilize ILS capital to grow their businesses and establish partnerships with ILS investors. Furthermore, veteran sidecar sponsors continued to fortify their relationships with the capital markets with repeat issuances. In many cases offerings were modified to include new regions and perils, lines of business, and overall business mix with differentiating features.

Although ILS managers reloaded capital following recent catastrophe events and subsequent loss development, they have increased their focus on achieving return targets. While capacity remains available for proportional strategies, emphasis will be put on quality cedents with diversified offerings. Additionally, as the market continues to digest the lessons learned from the 2017 and 2018 catastrophe events and their ultimate positions are clearer, there will be certain structural features sought in future transactions to help strengthen the participation of the capital markets in sidecar transactions going forward, while maintaining benefit of the product for sponsors.

Historically, the sidecar market has been weighted towards retrocessional cover for U.S. peak perils, namely Florida hurricane and California earthquake. Further, as alternative capital continues to migrate down the risk chain, investors have interest in sharing the underwriting result of quality primary writers, helping to diversify away from the peak retrocession cover, making up a majority of the sidecar market. Looking forward, we expect the market to remain active as sponsors look for capacity going into January 1 renewals.

One notable development in December 2018, Peak Re successfully launched a USD75 million Lion Rock Re Ltd. reinsurance sidecar, its first ILS offering, becoming the first ever Asian sidecar sponsor, helping to pioneer an important milestone in the (re)insurance market.

Exhibit 13: New quota share sidecars launched during 12 months to June 30, 2019

Sidecar	Inception Date	(Re)Insurer	Size (USD million)
Lion Rock Re Ltd.	Dec-18	Peak Re	USD 75.00
Alturas Re Ltd. (Series 2019-1) Class A	Dec-18	AXIS Capital	USD 55.00
Alturas Re Ltd. (Series 2019-2) Class A	Dec-18	AXIS Capital	USD 75.00
Lorenz Re (Torricelli 2019)	Jan-19	PartnerRe	USD 67.00
157 Re	Apr-19	CCR Re	-
Voussoir Re Ltd. 2019-1	Apr-19	Arch Capital	USD 74.00
Alturas Re Ltd. (Series 2019-3) Class A	Jun-19	AXIS Capital	USD 39.00
Total			**USD 385.00**

Exhibit 14: Renewal quota share sidecars launched during 12 months ending June 30, 2019

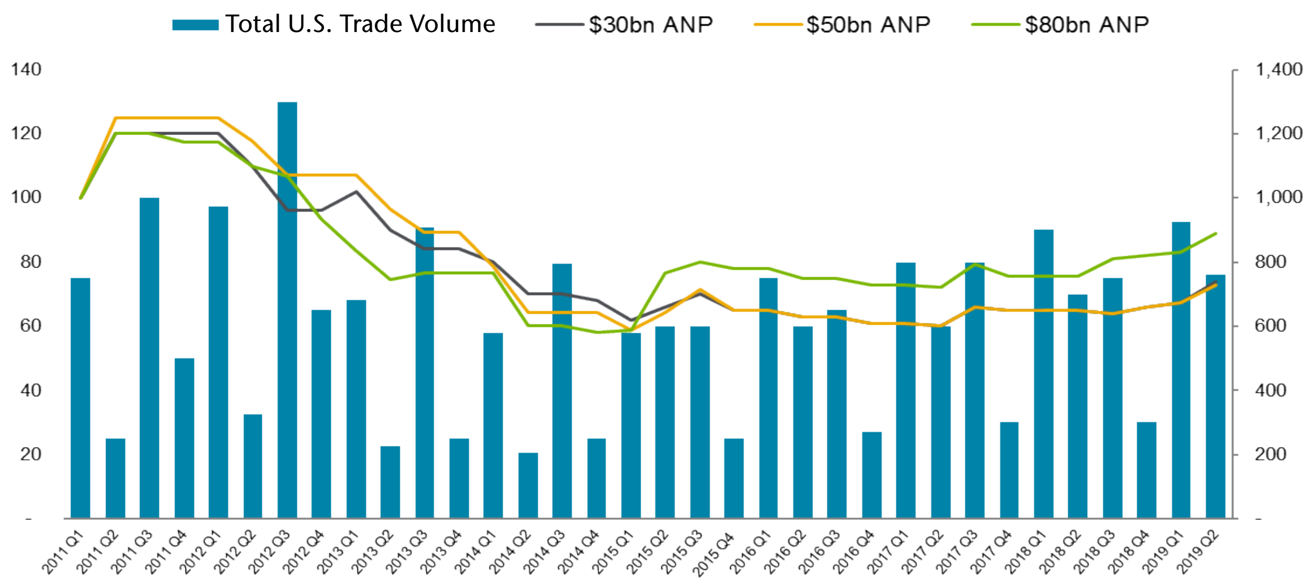
Sidecar	Inception Date	(Re)Insurer	Size (USD million)
Lorenz Re	Jul-18	PartnerRe	USD 195.00
Leo Re Ltd. (2019-1) Class A	Dec-18	Munich Re	USD 20.00
Eden Re II Ltd. (2019-1) Class A	Dec-18	Munich Re	USD 86.80
Leo Re Ltd. 2019-1 Class B	Jan-19	Munich Re	USD 380.00
Lorenz Re (Torricelli 2019)	Jan-19	PartnerRe	USD 67.00
NCM Re (UK PCC) Ltd	Jan-19	Neon Syndicate 2468	USD 77.00
Limestone Re Ltd. (2019-1)	Jan-19	Liberty Mutual	USD 150.00
Eden Re II Ltd. (2019-1) Class B	Jan-19	Munich Re	USD 213.30
Harambee Re Ltd. 2019	Jan-19	Argo Group	-
K-Cessions	Jan-19	Hannover Re	USD 640.00
Versutus Ltd. (2019)	19-Feb	Brit Ltd.	USD 190.00
Turing Re Ltd. 2019-1	Apr-19	Hamilton Re	USD 65.00
Oxbridge Re NS Ltd. (2019-1)	Jun-19	Oxbridge Re	-
Limestone Re Ltd. (2019-2) & Private Placements	Jun-19	Liberty Mutual	USD 240.00
Total			**USD 2,324.10**

Industry Loss Warranties (ILWs)

The January, 2019 ILW renewals saw a year-on-year reduction in trading due in part to a differential in market pricing expectation compared to what clients were prepared to commit to purchase. However, as we approached the U.S. wind June 1 and July 1 renewal dates, the ILW market saw an increased period of trading activity. The gap between buy and sell price closed by a small increment, but what was more apparent was an increased appetite from a number of clients to execute an ILW hedge. This mid-year 'tail wind' in trading has had the effect of increasing the year-over-year trading volume. The current estimate for in-force ILW limit stands at USD5.5 - 6 billion. Capital markets investors have continued to be a major driver in the ILW space, both as purchasers of ILW limit and as suppliers of ILW capacity.

The increase in ILW pricing has been somewhat unilateral across most ILW products and was a further increase on the 2018 pricing correction following the events of 2017. Wildfire coverage has been particularly singled out for attention, with a number of all natural peril trades being converted into Named Windstorm and Earthquake-only. Similarly low level second or third event ILWs for the most part are now transacted on this basis. There have been no supply shortages of available ILW capacity for the vast majority of products if buyers are willing to execute and clear limit at the current hurdle rates.

Exhibit 15: U.S. ANP price movement by quarter + U.S. trade volume



Private Placements

Over the past five years we have seen consistent issuance of private placement bonds as measured in both number and notional limit, whether in the form of private placement catastrophe bonds or collateralized reinsurance. Issuance numbers range between 14 and 24 deals per year, with notional limits still measured in the hundreds of millions compared to 144A cat bond issuance being of a material larger size and measured in the billions. While this represents a substantial increase from the early days of private placements, we anticipate the next wave of growth will occur during this current market disruption, being the 2018 catastrophic events following the 2017 catastrophes of Hurricanes Harvey, Irma, Maria and California wildfire.

Insurance companies and reinsurance companies will be pushed to think creatively to successfully place their reinsurance and retrocession programs, and creative structures lend themselves well to private placements.

The risk transfer mechanisms to the alternative capital markets can be viewed along a continuum. At one end of the spectrum are the 144A (public) catastrophe bonds. At the other end resides collateralized reinsurance, with private placement catastrophe bonds in between. The spectrum can be viewed across a range of different criteria, such as deal size, level of syndication, third party service provider costs, customization, documentation, and speed to market.

Exhibit 16: Private placement deal count

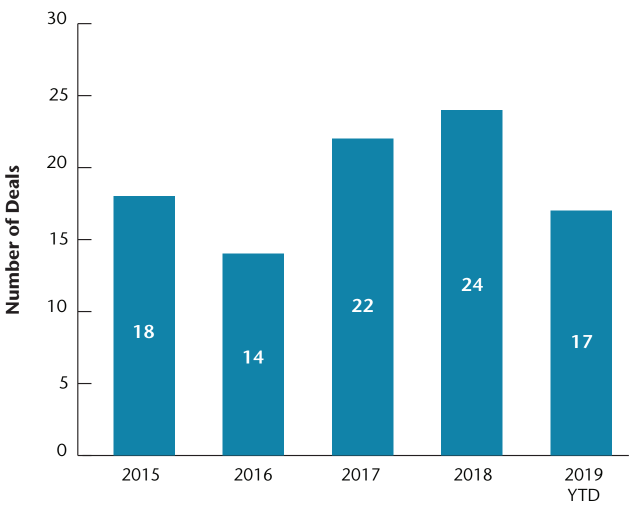
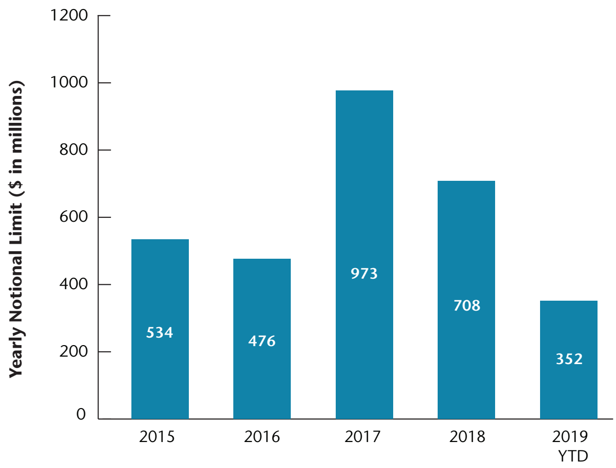


Exhibit 17: Private placement notional limit



At a high level, 144A bonds are usually larger than private placements, which are less commonly above USD100 million limit. While many of the same investors participate in both, the underlying funds available for each can be somewhat different, and there exists more overall capacity for 144A deals. We see this as a growing segment of the ILS space:

i. The overall structure of private placement cat bonds is very similar to the 144A, although variations can exist.

ii. 144A transactions can regularly consist of 15-50 investor participants; whereas, private placements tend to be 15 investors or less.

iii. Since private placement catastrophe bonds utilize fewer parties in a transaction, they facilitate significant customization and can represent a good way for new sponsors to enter the market.

iv. Opportunities such as weather, terror, or cyber might be attractive new perils for the ILS markets that can come via private placement catastrophe bonds and eventually transition to a 144A approach once a track record and scale have been established.

v. The risks that regional companies, mid-sized public entities, and corporations house can be attractive for ILS investors in a tradable, syndicated and security format.

Exhibit 18: Private placement catastrophe bond transactions[1]

Date	Issuer	Series	Size (millions)	Trigger	Peril
Jul-18	Dodeka XVI	Unknown	USD 9.60	Industry Loss Index	US Property Cat Risk
Aug-18	Dodeka XVII	Unknown	USD 18.32	Industry Loss Index	US Property Cat Risk
Dec-18	Newport 2019-1	Unknown	USD 10.00	Indemnity	Motor third-party liability
Dec-18	LI Re	2018-1	USD 10.00	Unknown	California Quake
Dec-18	Artex SAC Limited	HX Notes	USD 50.22	Unknown	Property Cat Risk
Dec-18	Seaside Re	2019-42	USD 25.00	Unknown	US Property Cat Risk
Dec-18	Seaside Re	2019-41	USD 10.00	Unknown	US Property Cat Risk
Dec-18	Seaside Re	2019-31	USD 30.00	Unknown	US Property Cat Risk
Dec-18	Seaside Re	2019-12	USD 10.00	Unknown	US Property Cat Risk
Dec-18	Seaside Re	2019-11	USD 10.00	Unknown	US Property Cat Risk
Dec-18	Seaside Re	2019-2	USD 20.00	Unknown	US Property Cat Risk
Dec-18	Seaside Re	2019-1	USD 7.00	Unknown	US Property Cat Risk
Jan-19	Jungfrau IC Limited 2019	B and V	USD 12.00	Indemnity	Property Cat Risk
Jan-19	Alpha Terra Validus III	Unknown	USD 5.00	Indemnity	Latin America Property Cat Risk
Jan-19	Dodeka XX	Unknown	USD 23.94	Industry Loss Index	US Property Cat Risk
Jan-19	Dodeka XIX	Unknown	USD 27.61	Industry Loss Index	US Property Cat Risk
Jan-19	Dodeka XVIII	Unknown	USD 25.18	Industry Loss Index	US Property Cat Risk
Jan-19	Seaside Re	2019-22	USD 10.00	Unknown	US Property Cat Risk
Jan-19	Seaside Re	2019-21	USD 30.00	Unknown	US Property Cat Risk
Jan-19	Resilience Re Ltd.	1912A	USD 88.00	Unknown	Property Cat Risk
Mar-19	Dodeka XXI	Unknown	USD 17.96	Industry Loss Index	US Property Cat Risk
Mar-19	Dodeka XXII	Unknown	USD 18.67	Industry Loss Index	US Property Cat Risk
Apr-19	Eclipse Re Ltd.	2019-01A	USD 20.00	Unknown	Unknown Property Cat Risk
Jun-19	Dodeka XXIII	Unknown	USD 9.33	Industry Loss Index	US Property Cat Risk
Jul-19	Cerulean Re	2019-1	USD 22.94	Unknown	US Property Cat Risk
Jul-19	Dodeka XXIV	Unknown	USD 11.36	Industry Loss Index	US Property Cat Risk
Jul-19	Eclipse Re Ltd.	2019-03A	USD 30.00	Unknown	Unknown property Cat Risk
Jul-19	Eclipse Re Ltd.	2019-05A	USD 100.00	Unknown	Property Cat Risk
Jul-19	Eclipse Re Ltd.	2019-04A	USD 25.00	Indemnity	Florida Named Storms

[1] Private Placement data retrieved from Artemis. Note that not all Private Placement transaction information is available.

Market Analysis by Region

North America

North American perils continued to dominate catastrophe bond issuances as of the 24 catastrophe bonds issued during the period. Only Atmos Re DAC was exclusive of North American risk.

For this 12-month period, cedents were composed of both repeat and first-time members of the risk-transfer capital markets. Regional insurers, global (re) insurers, corporations, and public/government entities sought coverage from named storm, earthquake, severe thunderstorm, winter storm, wildfire, volcanic eruption, meteorite impact, among other perils.

H2 2018

During the period we saw three corporate entities enter the space. First was repeat sponsor Kaiser Permanente via Acorn Re 2018-1. The sponsor initially sought protection via this parametric triggered structure in 2015. Second, new sponsors PG&E and Sempra Energy brought their standalone wildfire bonds to market. The PG&E transaction was immediately impacted by the camp fire causing a full loss to the notes.

Further, as discussed, FEMA came back to market with its second issuance of FloodSmart Re 2019-1 covering U.S. flood risk.

Exhibit 19: H2 2018 of 2018 property catastrophe bonds covering North America peril

Beneficiary	Issuer	Series	Class	Size (million)	Covered Perils	Trigger	Recovery	Collateral
AXIS Specialty Limited	Northshore Re II Ltd.	2018-1	Class A	USD 200.00	US NS, US/CAN EQ, EU WS	Industry Index	Annual Aggregate	IBRD
Kaiser Permanente	Acorn Re Ltd.	2018-1	Class A	USD 400.00	Westcoast EQ	Parametric	Occurrence	IBRD
Federal Emergency Management Agency	FloodSmart Re Ltd.	2018-1	Class A Class B	USD 325.00 USD 175.00	US, DC, PR, VI: FL	Indemnity	Occurrence	MMF
Pacific Gas and Electric Company	Cal Phoenix Re Ltd.	2018-1	Class A	USD 200.00	CAL WF	Indemnity	Annual Aggregate	IBRD
California Earthquake Authority	Ursa Re Ltd.	2018-1	Class D	USD 250.00	CAL EQ	Indemnity	Annual Aggregate	MMF
Sempra Energy	SD Re Ltd.	2018-1	Class A	USD 125.00	CAL WF	Indemnity	Annual Aggregate	IBRD
United Services Automobile Association	Residential Reinsurance 2018 Limited	2018-II	Class 1 Class 2	USD 50.00 USD 150.00	US TC, EQ, WS, ST, WF, VE, MI, OP	Indemnity	Occurrence	MMF
State Compensation Insurance Fund	Golden State Re II Ltd.	2018-1	Class A	USD 210.00	US EQ	Modeled Loss	Occurrence	EBRD
Total				**USD 2,085.00**				

H1 2019

15 North America property transactions closed in the first half of 2019. This represented a total issuance volume of USD2.4billion. Issuance volume was driven exclusively by veteran sponsors. Of note, however, was the return of the North Carolina Insurance Underwriting Authority (NCIUA), to market its issuance of Cape Lookout Re 2019-1 in Q1, and then again in Q2. The NCIUA had participated in catastrophe bond offerings before but in conjunction with the North Carolina Joint Underwriting Authority (NCJUA). Further, Swiss Re returned from a six-year hiatus with a 100 percent U.S. wind exposed issuance.

Exhibit 20: H1 2019 of 2019 property catastrophe bonds covering North America perils

Beneficiary	Issuer	Series	Class	Size (million)	Covered Perils	Trigger	Recovery	Collateral
North Carolina Insurance Underwriting Association	Cape Lookout Re Ltd.	2019-1	Class A	USD 450.00	NC Named Storms	Indemnity	Annual Aggregate	MMF
Transatlantic Reinsurance Company	Bowline Re Ltd.	2019-1	Class A Class B	USD 100.00 USD 150.00	US, PR, VI, DC, CAN NS, EQ, ST	Industry Index	Annual Aggregate	MMF
Allstate Insurance Company	Sanders Re II Ltd.	2019-1	Class B	USD 300.00	DC and US (ex. FL) NS, EQ, SW, Fire, OP	Industry Index	Occurrence and aggregate	IBRD
State Farm Fire and Casualty Company	Merna Re II Ltd.	2019-1	Class A	USD 300.00	AL, AR, IL, KY, MI, MO, OH, OK, WI, IN, LA, MS, TN EQ and Fire Following	Indemnity	Occurrence	MMF
Federal Emergency Management Agency	FloodSmart Re Ltd.	2019-1	Class A Class B	USD 250.00 USD 50.00	US, DC, PR, VI: FL	Indemnity	Occurrence	MMF
American Coastal Insurance Company	Armor Re II Ltd.	2019-1	Class A	USD 100.00	US NS, EQ	Indemnity	Occurrence	MMF
Total				**USD 1,700.00**				

Exhibit 20: continued

Beneficiary	Issuer	Series	Class	Size (million)	Covered Perils	Trigger	Recovery	Collateral
United Services Automobile Association	Residential Reinsurance 2019 Limited	Series 2019-I	Class 12 Class 13	USD 60.00 USD 75.00	US TC, EQ, WS, ST, WF, VE, MI, OP	Indemnity	Annual Aggregate	MMF
Security First Insurance Company	First Coast Re II Pte. Ltd.	Series 2019-1	Class A	USD 100.00	FL NS, ST	Indemnity	Occurrence – Cascading	MMF
Texas Windstorm Insurance Association	Alamo Re Ltd.	Series 2019-1	Class A	USD 200.00	TX NS, ST	Indemnity	Annual Aggregate	MMF
American Integrity Insurance Company of Florida	Integrity Re Ltd.	Series 2019-1	Class A	USD 50.00	FL NS, ST	Indemnity	Occurrence - Cascading	IBRD
Safepoint Insurance Company	Manatee Re III Pte. Ltd.	Series 2019-1	Class A Class B	USD 20.00 USD 20.00	FL, LOU, NJ, TX NS, ST	Indemnity	Occurrence – Cascading	MMF
SCOR Global P&C SE	Atlas Capital UK 2019 PLC	Series 2019-1	-	USD 250.00	NS & EQ: US, DC, PR, VI, Can. EU WS: AU, BG, DN, FR, GE, IR, LU, HO, NW, UK, SW, SZ	Industry Index	Annual Aggregate	EBRD
North Carolina Insurance Underwriting Association	Cape Lookout Re Ltd.	Series 2019-2	Class A	USD 100.00	NC NS, ST	Indemnity	Annual Aggregate	MMF
Swiss Reinsurance Company Ltd.	Matterhorn Re Ltd.	Series 2019-1	Class A	USD 250.00	CT, DE, DC, ME, MA, NH, NJ, NY, PA, RI, VT, VA, WV NS	Industry Index	Occurrence	MMF
AXIS Specialty Limited	Northshore Re II Ltd.	Series 2019-1	Class A	USD 165.00	NS: US, DC, PR USVI; EQ: US, DC, Canada; WS: EU	Industry Index	Annual Aggregate	MMF
Total				**USD 1,290.00**				

US Wildfires

Wildfire remains a hallmark of multi-peril deals in the ILS market, with USD5.23 billion in outstanding multi-peril limit exposed to California wildfire, and with an additional USD325 million more limit that was issued in 2018 exposed to wildfire on a stand-alone basis across two large California utility companies, PG&E and Sempra Energy. In 2019, USD435 million in bonds have had exposure to California wildfire through the Sanders Re II and Residential Reinsurance 2019 transactions, indicating continued investor appetite even after the Camp and Woolsey wildfires that occurred in 2018.

Considering the scale of these losses, investors remain open to providing capacity to wildfire as a peril, with increased issuance prices from the general market hardening, compensating for any potential view of increased wildfire risk. Several investors believe that the recent wildfire events are not driven as much by climate changes, but rather by altered building practices. Homeowners have more recently shown a preference to live in wooded areas, which drives up the frequency component of insurable value affected by a wildfire, versus neighborhoods that were clear cut before building began.

In addition to being compensated from a spread perspective, investors will be looking for more simplified and transparent structures.

Florida Market

As the ILS market digested the implications from Irma and other 2017 events, ILS continued to demonstrate value to both sponsors and investors alike, with strong demand for more cat bond issuance on both sides. Florida hurricane coverage continues to be one of the cornerstones offered by the ILS market, placing it at the forefront of competitive terms and pricing. The ILS market continues to converge with traditional capacity sources in coverage terms and conditions, leaving Florida-driven sponsors well positioned to continue to customize issuances to the unique dynamics of the Florida insurance market. ILS capacity and market fundamentals remain robust, indicating alternative capital will continue to be a source of competitively priced and innovative reinsurance coverage in the Florida market for the foreseeable future.

The comparatively localized peril of Florida hurricane comprises a significant amount of the overall contribution to expected loss to all outstanding cat bonds

Exhibit 21: 2019 peril contribution to Expected Loss

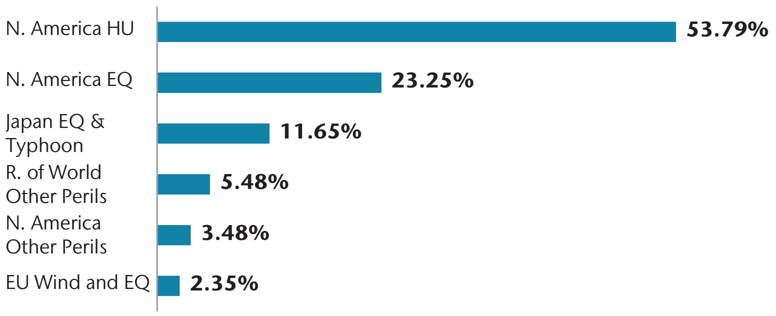
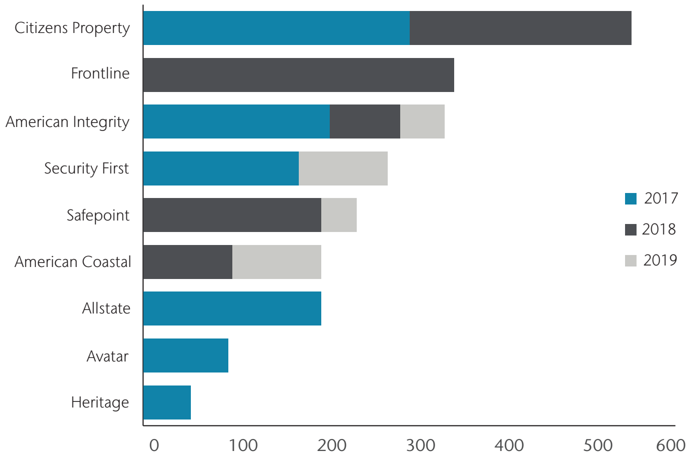


Exhibit 22: Catastrophe bond issuance for largest Floridian sponsors (2017 - 2019)



To date, USD248 million of catastrophe bond notional amount has been paid out due to losses from Irma, with currently USD304 million is estimated to be the total catastrophe bond payout across all notes as losses continue to develop.

Europe

During the 12-month period ending June 30, 2019, two Europe-only catastrophe bonds were brought to market: Atmos Re 2019-1 and Baltic PCC Ltd 2019. The former had an issuance size of EUR45 million and provided second-time sponsor Unipol with coverage for atmospheric pressure, snow pressure and flooding across Italy. Baltic PCC Ltd was sponsored by Pool Re, Britain's leading terrorism reinsurer, and was designed as a GBP75 million private placement offering to protect against commercial terrorism related losses.

We continue to see modest demand from prospective sponsors for ILS coverage, due in part to the continued competitiveness of the European traditional market. This is coupled with a negative interest rate environment for Euro-denominated currencies, restricting the range of viable collateral solutions available to European sponsors.

Veteran sponsor, SCOR Global P&C SE, came back to market with another Atlas series of notes in June 2019. The French sponsor has leveraged the ILS market for several years and in a variety of forms. As is common with SCOR, the transaction covered North American and European risks. The offering was once again domiciled under the UK ILS domicile regime, having been the first catastrophe bond sponsor to do so in 2018.

There does remain appetite for proportional ILS capacity from Europe-based cedents, with one successful Europe-only placement, in CCR Re[1], and several global placements completed out of London. CCR Re was also the first ILS placement under the French ILS regime.

Negative interest rates

Interest rates in the European Union remain negative, as they have been since 2013, with deposit facility rates still sitting at approximately -0.40 percent since 2016. The transfer of European risk to the capital markets, as euro assets, remains costly to hold as collateral, either in the form of European Money Market Funds or Euro-denominated medium-term notes. European cedents have been looking further afield to generate a return on their collateral.

[1] *To Aon's knowledge, as sidecars are placed privately with little disclosure requirements.*

Asia Pacific

During the 12-month period ending June 30, 2019, three catastrophe bonds were issued out of Singapore using the ILS grant scheme introduced by The Monetary Authority of Singapore (MAS) in February 2018 to help fund upfront ILS bond issuance costs.

In December 2018, Singapore celebrated its first ILS issuance, the AUD75 million Orchard ILS Pte. Ltd. private transaction by Insurance Australia Group (IAG), the first SPRV licensed in Singapore and the first catastrophe bond to be issued out of Singapore and an Asian domicile. It was also IAG's first catastrophe bond. This was followed by Security First Insurance's USD100 million issuance of First Coast Re II Pte. Ltd. in May 2019, the first full-fledged 144A catastrophe bond to be issued in Singapore and the first Floridian issuer to do so in Asia. The following week, Floridian issuer Safepoint Insurance Company issued USD40 million of Manatee Re III Pte. Ltd., also issued out of Singapore.

During the summer of 2018, Japan experienced five natural catastrophes which incurred more than USD1 billion in economic losses, beginning with an earthquake of magnitude 5.5 in mid-June in Osaka, followed by flooding in June/July in southwestern Japan, Typhoon Jebi in September, an earthquake of magnitude 6.6 in Hokkaido soon after, and finally Typhoon Trami in late September. Several non-life Japanese insurers needed to buy additional wind and flood cover during the middle of the risk period in September and October 2018.

In May 2019, The General Insurance Association of Japan (GIAJ) estimated the total amount of claim payments for Typhoon Jebi, which made landfall in September 2018, at over JPY1 trillion, an increase from the JPY805 billion estimate released in December 2018. With respect to the USD200 million Akibare Re Ltd. (Series 2016-1) annual aggregate catastrophe bond sponsored by Mitsui Sumitomo Insurance (MSI), increasing industry and cedent loss expectations for Typhoon Jebi have resulted in 140bps widening of its secondary interest spread within four months, reaching 370bps in January 2019. Following the release of Akibare's loss report in February, a partial pay-out was priced in by the market. A full loss of principal was subsequently priced in following the release of MSI's losses update in May. Jebi losses which continue to develop could adversely affect reinsurers' retrocession arrangements as for several market participants fewer protections are purchased for retro portfolios than for reinsurance books.

During the 12-month period ending June 30, 2019, one catastrophe bond with USD175 million capacity covering Japanese earthquake peril has expired. The total volume of catastrophe bonds from the Asia Pacific region represents 11.5 percent of the market outstanding volume of natural catastrophe bonds as of the end of June 30, 2019.

With respect to secondary market activity, the increase in Japanese earthquake and typhoon catastrophe-bond spreads as of late 2018 can be attributed to the need for liquidity by some ILS funds at year-end as capital lock-ups and continued pressure on rates led to fund redemptions. In November 2018, most bonds were trading above par but have seen a decline in prices since alongside an increase in trading activity.

A currently observed trend is for major non-life Japanese insurers to leverage ILS markets not only as a source of capacity but to also explore new business opportunities. Mitsui Sumitomo Insurance's acquisition of an 80 percent interest in Leadenhall Capital Partners from MS Amlin Corporate Services Limited in February 2019 testifies to this strategy of seeding new fund initiatives, designing alternative risk transfer products in Japan and overseas and looking at areas of cooperation in the alternative credit space.

Exhibit 23: Outstanding Japanese Typhoon catastrophe bonds

Beneficiary	Issuer	Series	Class	Size (millions)	Covered perils	Trigger	Rating	Initial expected loss*	Initial interest spread
Mitsui Sumitomo Insurance Co., Ltd	Akibare Re Ltd.	2016-1	Class A	USD 200.0	JP TY	Indemnity	NA	1.19 %	2.50 %
Mitsui Sumitomo Insurance Co., Ltd Aioi Nissay Dowa Insurance Co., Ltd	Akibare Re Ltd.	2018-1	Class A	USD 220.0	JP TY, FL, EQFF	Indemnity	NA	0.73 %	1.90 %
			Class B	USD 100.0	JP TY, FL			0.99 %	1.90 %
Sompo Japan Nipponkoa Insurance Inc.	Aozora Re Ltd.	2016-1	Class A	USD 220.0	JP TY	Indemnity	NA	0.90 %	2.20 %
Sompo Japan and Nipponkoa Insurance Inc.	Aozora Re Ltd.	2017-1	Class A	USD 480.0	JP TY	Indemnity	NA	1.14 %	2.00 %

Source: Aon Securities LLC
**Initial modeled annual expected loss*

Legend
JP — Japan
TY — Typhoon
FL — Flood
EQFF — Earthquake Fire Following

Model Updates

AIR released model updates for Typhoon in Mainland China and Earthquake in New Zealand in Touchstone 7, combining new data and understanding gained from recent events in the region with the latest modeling approaches. The Typhoon model update includes new historical catalogue events, updated stochastic wind and precipitation induced flood intensities, modified wind and flood damage functions, an updated disaggregation algorithm and a new supported class of construction and occupancy codes. The Earthquake Model for New Zealand has been updated to incorporate the latest seismic research and science in the region such as time-dependent and time-independent stochastic catalogues, support for sub-perils in addition to shake and the ability to model land damage for The Earthquake Commission's EQ cover policies.

RMS released model updates for Southeast Asia Earthquake, Taiwan Earthquake, South Korea Earthquake and Philippines Typhoon and Inland Flood in RiskLink v18.1. The Southeast Asia Earthquake update includes upgraded models for Indonesia, Philippines, Malaysia, Singapore, Thailand and Vietnam with re-evaluated and recalibrated components such as seismic sources, ground motions, soil amplification, liquefaction, landslide, building inventory, vulnerability and post-event loss amplification. The Taiwan Earthquake Model has been updated to reflect new science on earthquakes in Taiwan, new information about the building stock, new building codes and a better understanding of building performance. It also incorporates updates across all components of the model including geocoding, the stochastic event set, ground motion modeling, geotechnical data, vulnerability functions and building inventory. The South Korea Earthquake Model has been updated based on the latest science and data on earthquakes in South Korea alongside a new event rate scheme and updated Industry Loss Curves. The Philippines Typhoon and Inland Flood Model now includes several updates to the model's vulnerability component, the building inventory database, damage functions for specific construction classes and aggregate hazard data.

Impact Forecasting's Thailand Flood model received an update within ELEMENTS 13 to address additional vulnerability considerations and improvements on postal code modelling.

Natural catastrophe losses

The 12-month timeframe from July 2018 to the end of June 2019 proved active and costly across Asia-Pacific (APAC). No fewer than 17 events surpassed the billion-dollar (USD) threshold on an economic loss basis, with most of the events occurring in Asia. Japan or China were impacted by 12 of the 17 events. These billion-dollar events caused an aggregate economic cost of more than USD80 billion alone, though just one-quarter (USD23 billion) were covered by public and private insurance entities. While this is actually much higher than the long-term coverage percentage dating to 1980 – roughly 10 percent – this wide protection gap further highlights the low insurance take-up that exists across APAC.

Exhibit 24: Notable natural disaster events in APAC (July 2018 – June 2019)

Date	Event	Impacted Countries	Fatalities	Economic Loss (USD)	Insured Loss (USD)
July 2018	Japan Floods	Japan	246	10 billion	2.3 billion
September 2018	Typhoon Jebi	Japan	17	18 billion	12.5 billion
September 2018	Hokkaido Earthquake	Japan	44	1.8 billion	0.3 billion
September 2018	Typhoon Mangkhut	Guam, Philippines, China and HK	161	6.0 billion	1.3 billion
Sept./Oct. 2018	Typhoon Trami	Japan	4	5.0 billion	3.3 billion
December 2018	Sydney Hailstorm	Australia	0	1.2 billion	0.9 billion
Jan./Feb. 2019	Townsville Flooding	Australia	3	1.9 billion	0.9 billion
Summer 2019	Seasonal Flooding	China	225	8.5 billion	0.3 billion

Source: Aon's Catastrophe Insight Group (Impact Forecasting)

The most impactful event on an economic and insured basis was Typhoon Jebi, which made an initial landfall on Japan's Shikoku Island before later crossing the Kansai Region during September 2018. The typhoon's strong winds and heavy rains led to extensive damage and interruption across the country. Insurance claims continue to be processed in the aftermath of the event, with loss development (creep) suggesting that claims payouts will exceed USD12 billion. The overall economic cost, given a combination of underinsurance and non-insured damage, was even higher. Japan was further impacted by a significant flood event in July 2018 – which led to insurance payouts nearing USD2.25 billion – and another costly typhoon landfall in September: Typhoon Trami. Trami additionally led to insurance payouts exceeding USD3.0 billion. This was the costliest year on record for the Japanese insurance industry for typhoon-related events.

Additional tropical cyclone events in Asia which left a multi-billion-dollar financial impact included Tropical Storm Rumbia (August 2018), Typhoon Mangkhut (September 2018), and Cyclone Fani (May 2019). Seasonal flooding was impactful across southern China within the Yangtze River Basin in the summer of 2019 with economic costs already approaching USD8.5 billion in July 2019. Hundreds of fatalities from monsoon flooding were additionally recorded in India, Bangladesh, Nepal and Pakistan.

Two notable weather events were also recorded in Australia. The costliest was a flood event that caused widespread inundation within the city of Townsville along the eastern coast of Queensland at the end of January and into February 2019. Insurance payouts for residential, commercial, and agricultural damage was at least USD0.87 billion. A series of severe thunderstorms swept across the greater Sydney metro region in December 2018 that saw hailstones larger than the size of tennis balls lead to considerable automobile and structural damage. Total insured losses were listed at USD0.84 billion.

Hong Kong

In October 2018, chief executive of Hong Kong Carrie Lam announced that the Insurance Authority is working closely with the government on the legislative framework to facilitate the formation of Special Purpose Vehicles specifically for issuing ILS in Hong Kong. The target is to introduce the legislative amendments into the Legislative Council in the 2019-20 legislative session.

Hong Kong would be well positioned to benefit from increasing interest in ILS in the region, especially given that Mainland insurers may be interested in using different tools to manage a range of risks, be they agricultural, natural disaster or infrastructural risks.

In December 2018, Peak Re successfully launched a USD75 million Lion Rock Re Ltd. reinsurance sidecar, its first ILS offering, not only becoming the first Hong Kong domiciled sidecar sponsor, but also the first ever Asian sidecar sponsor, helping to pioneer an important milestone in the (re) insurance market.

The Philippines

In December 2018, the World Bank has renewed an insurance program to help the Philippines better respond to losses from climate and disaster risks, providing 25 provinces in the country with the Philippine peso equivalent of USD390 million in insurance against major typhoon and earthquake events. The renewed policy doubles the coverage under a 2017 policy facilitated by the World Bank through a catastrophe swap.

The panel of risk takers, selected through a competitive bidding process, also doubled under the renewed policy. Risk takers were able to participate in the transaction either through a derivative contract or a retrocession agreement. The World Bank is also currently supporting the Philippines in preparing a sovereign catastrophe bond to complement the existing insurance program by providing cover for more extreme events.

Collateral Solutions

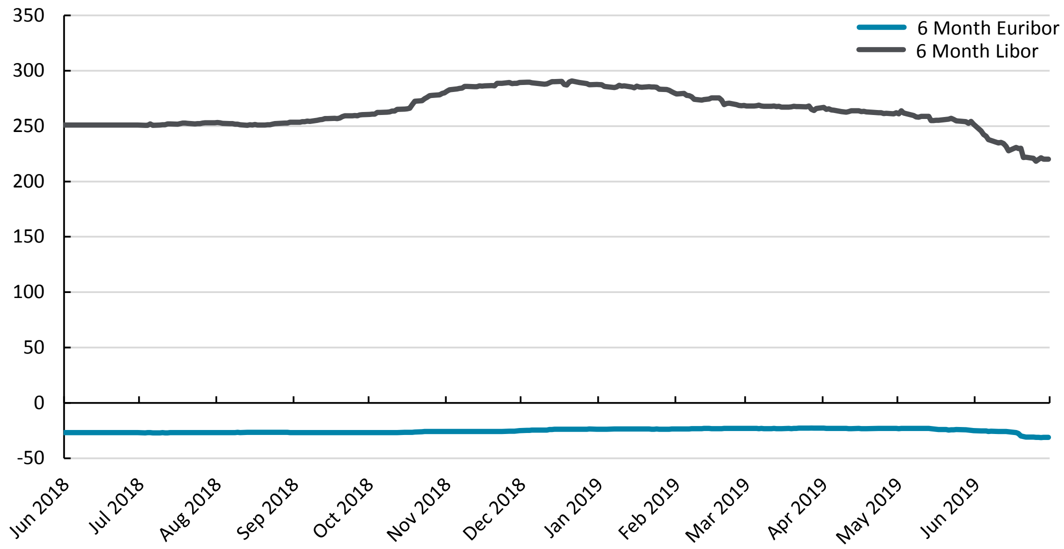
Debt securities from highly-rated international institutions, as permitted investments, continue to be widely used in in new catastrophe bond transactions, mainly in the form of putable floating rate notes issued by the International Bank for Reconstruction and Development (IBRD) and the European Bank for Reconstruction and Development (EBRD). These solutions have historically offered higher total yield than Money Market Funds.

The number of catastrophe bonds issuing IBRD or EBRD notes moved from 41 percent of total bonds, between 1 July 2017 and 30 June 2018, to 35 percent, between 1 July 2018 and 30 June 2019.

At the same time, the U.S. interest rate environment has remained stagnant and European interest rates remain negative, meaning that both sponsors and investors continue to pursue and favour collateral investments that offer an increased yield to the overall transaction, while minimizing counterparty and default risk.

The below exhibit shows that LIBOR continues to track down, from 2.50 percent to 2.20 percent between June 30, 2018 and June 30, 2019.

Exhibit 25: EURIBOR and LIBOR Development



In the current interest rate environment, we expect both investors and sponsors to continue to be incentivized to pursue innovative collateral solutions that increase the overall yield of a transaction, while retaining a high level of credit worthiness.

Exhibit 26: IBRD and EBRD notes program description

IBRD notes	EBRD notes
The International Bank for Reconstruction and Development (IBRD) is a World Bank institution that provides loans and other assistance primarily to middle income countries. To fund dvelopment projects in member countries, the IBRD finances its loans from its own equity and from money borrowed in the capital markets through the issuance of IBRD notes. IBRD notes are unsubordinated, unsecured notes persuant to the IBRD's existing Global Debt Issuance Facility. The IBRD is rated Aaa by Moody's and AAA by Standard & Poor's.	The European Bank for Reconstruction and Development (EBRD) was founded in 1991 to create a new post-Cold War era in central and Eastern Europe. It is owned by 65 countries, as well as the European Union and European Investment Bank. The EBRD helps finance its development goals through the issuance of unsecured notes pursuant to its Global Medium Term Note Programme. The EBRD is rated Aaa by Moody's, AAA by Standard & Poor's and AAA by Fitch.

Source: International Bank for Reconstruction and Development, European Bank for Reconstruction and Development

Additional Collateral Solution Offerings

Though the main draw of catastrophe bonds is their diversification from traditional markets, collateral investments contribute a meaningful boost to returns, helping ILS asset managers to market their product showing strong returns. Reinsurance accounting limits collateral to only highly rated securities, while the relatively short term of ILS products and the potential for losses limits the investment to shorter-term instruments whose principal is not significantly exposed to the changing interest rate environment. In the early years of the ILS market, collateral solutions varied more widely, with loose bounds limiting investments to highly rated instruments that were approved by rating agencies for Regulation 114 accounts or agreements with highly rated counterparties that could provide returns off their own investment book.

In the first few years of the ILS market, these guidelines drove the use of total return swaps, where the SPV entered into a swap agreement with a financial institution that provided a yield of LIBOR *minus* a small margin in return for use of the collateral. To reduce risk to investors, the financial institutions would guarantee the principal, allowing for high returns with only as much risk as the financial institution behind the swap. Investors were comfortable with this setup until 2008 when four transactions, Ajax Re Ltd., Carillon Ltd., Newton Re Ltd. and Willow Re Ltd, experienced losses due to Lehman Brothers' default. For a few years, tri-party repos became popular, where a third party would make the decisions on what instruments the collateral was invested in, which reduced the ability for the bank counterparty to invest in high-risk assets to increase their own yield. Ultimately, collateral has moved to medium term putable notes issued by the IBRD or EBRD, which offer a discount to a LIBOR reference or money market funds.

U.S.-denominated medium term notes are issued by the International Bank for Reconstruction and Development ("IBRD" or the "World Bank"), an international organization owned by its 189 member countries. Its main business activities revolve around development activities in a goal to advance the global public goods agenda.

In order to meet its development goals, IBRD intermediates funds from the international capital markets, one of which source being the catastrophe bond markets. Over the past 10 years, IBRD has become a supplier of collateral on more than 60 catastrophe bonds with an aggregate size of more than USD13 billion. IBRD's bonds meet the safety, liquidity and financial return requirements of collateral trusts. Additionally, these funds are able to be used for IBRD's sustainable development goals in middle and low income countries.

IBRD notes have consistently offered returns in excess of money market funds, which has driven support for investors on a pure return basis. Further, we have seen increased support from ESG investors for bonds with IBRD note collateral as these meet the ESG guidelines due to the collateral's use in development. We expect to see continued support for IBRD collateral transactions moving forward in the space.

The main benefit of this type of collateral option is the increased yield. If this increased return can be realised consistently throughout the life of a bond, sponsors could theoretically pay less spread in the range of the delta between money market funds and this instrument. The second benefit lies simply in the increased optionality for sponsors. They will be able to put their reinsurance dollars where they are most comfortable, giving peace of heart for their risk transfer.

There are, however, a number of detriments to this solution to weigh against the positives. First is the management fee, which can be as high as 0.3 percent, removes a significant portion of the delta between money market funds and the new collateral option. If the fund net of fees could yield less than treasuries, investors likely will not credit the collateral as increased yield from the onset, in turn not allowing sponsors to pay less risk interest spread. The second main issue is a potential redemption freezes built into the solution. Given that the ILS market is correlated to itself, if there is a run on the fund after a natural catastrophe event that correlates with interest rate environment changes, the NAV could drop below par and reinsurance proceeds might not be payable on time or there might be a loss to the collateral. A third concern could lie in the fund being domiciled in the Cayman Islands, which could lead to reinsurance credit worries from rating agencies.

As we watch the market, we will continue to monitor both sponsors' and investors' desire to alter the collateral options. Changing interest rate environments could drive decisions to search for yield outside of money market funds, especially for lower risk bonds that derive a more significant portion of income to investors from the collateral investment.

Credit

Private credit is an emerging asset class and the term, private, covers a range of different investment styles and strategies. The term 'private debt' is typically applied to debt investments which are not financed by banks and are not issued or traded in an open market. 'Private' generally refers to the investment issuance and not the borrower. For example, public companies can borrow via private credit markets just as private companies can. Private credit falls into a broad category that can be described in a number of different ways including: alternative credit, direct lending, private lending and private debt.

Strategic Issuance Rationale
The demand for private direct capital investment amongst small to mid-size P&C insurers continues to climb as companies look to tap into the private capital markets. Since the financial crisis, banks have been less willing to lend to the smaller insurers, resulting in these companies looking for new sources of direct funding to execute on varying strategic priorities. Some of the most common uses of proceeds include:

i Growth through either acquisition or organic expansion into additional products and markets

ii Re-financing existing private credit products

iii Improvement of rating agency or regulatory capital position

iv Cheaper form of capital compared to certain quota share programs

v Technology system upgrades

Credit products have been utilized given their ability to provide an issuer with: greater flexibility in the capital structure, little to no dilution of ownership / earnings, and a cheaper cost of capital vs. equity. To achieve these benefits, the credit products most often issued have included senior, subordinated, mezzanine, surplus and convertible notes. Given the additional capacity within this space, the assessment of these products can be considered important for insurance companies capital management plans moving forward.

Growing Investor Appetite
Historically an underserved portion of the insurance capital markets, investor appetite for small to mid-size insurance focused private credit products has meaningfully expanded over the past few years. The market has seen investors from ILS funds and traditional asset managers to family offices and life insurance companies deploy capital into this asset class. Some of the rationale behind this expansion includes increasing appetite for increased yield in a low interest rate environment, low correlation to more 'traditional' asset classes, and greater flexibility in structuring. In the traditional fixed-income markets, decreased liquidity and rising asset correlations are increasing investors' willingness to trade liquidity for income and diversification.

Exhibit 27: Select recent U.S. senior and surplus note issuances

While a majority of the issuances within this space remain private, the below tables summarizes some of the publicly available transactions over the past 12 months.

Issuer	Security	Issuance Mo / Yr.	Term (Years)	Issuance Amount (000's)	Rate Terms	Coupon Structure	Issuance Rate[1]	Maturity Year
FedNat Holding Company	Senior Notes	February 2019	10	USD 100,000	7.50 percent	Fixed	7.50 %	2029
Germania Farm Mutual	Surplus Note	November 2018	20	USD 30,000	7.00 percent	Fixed	7.00 %	2038
Midwest Family Mutual	Surplus Note	November 2018	20	USD 18,000	7.75 percent	Fixed	7.75 %	2038
Palomar Specialty	Senior Notes	September 2018	NA	USD 20,000	6.50 percent + 3Mo Treasury	Floating	8.67 %	2028
Conifer Holdings	Senior Notes	August 2018	5	USD 25,000	6.75 percent	Fixed	6.75 %	2023

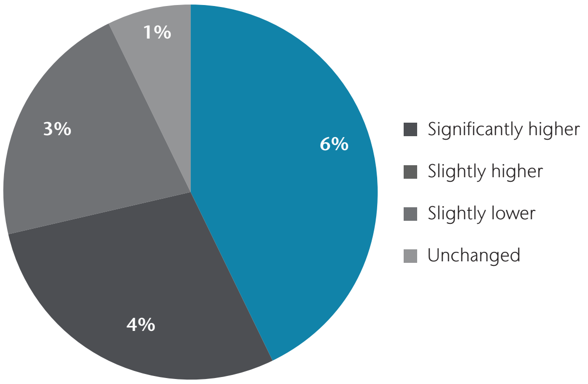
[1] *Based on floating benchmark on day of issuance.*

Market Participant Questionnaire

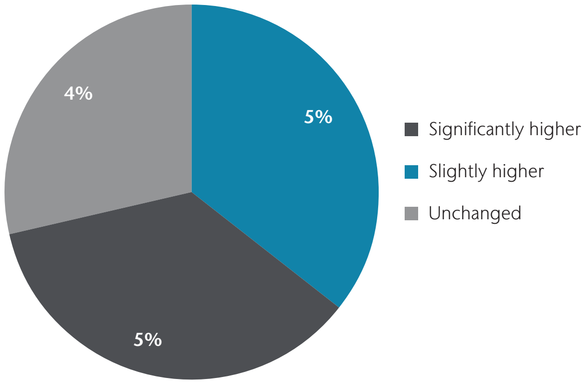
Aon Securities recently issued a market survey to a select group of Fund Managers and ILS Market Participants, across a range of geographies and disciplines.

A total of 14 respondents shared their views and aspirations for our sector, giving an insight into the evolution of the ILS space. We thank you for your participation.

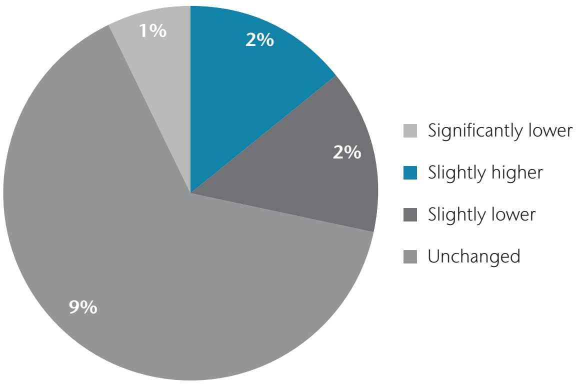
How has your fund's appetite for non-proportional ILS (for example, cat bonds) developed over the last three years?



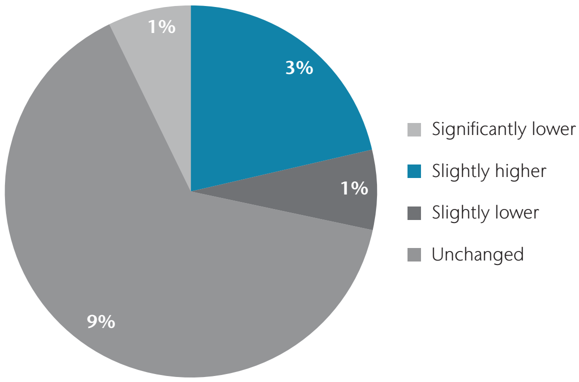
How do you predict your fund's appetite for non-proportional ILS will develop over the next three years?



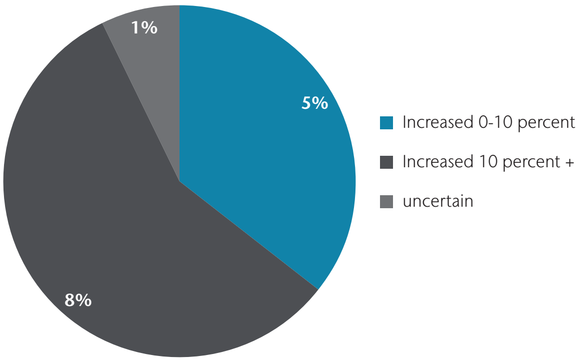
How has your fund's appetite for proportional ILS (for example, sidecars) developed over the last three years?

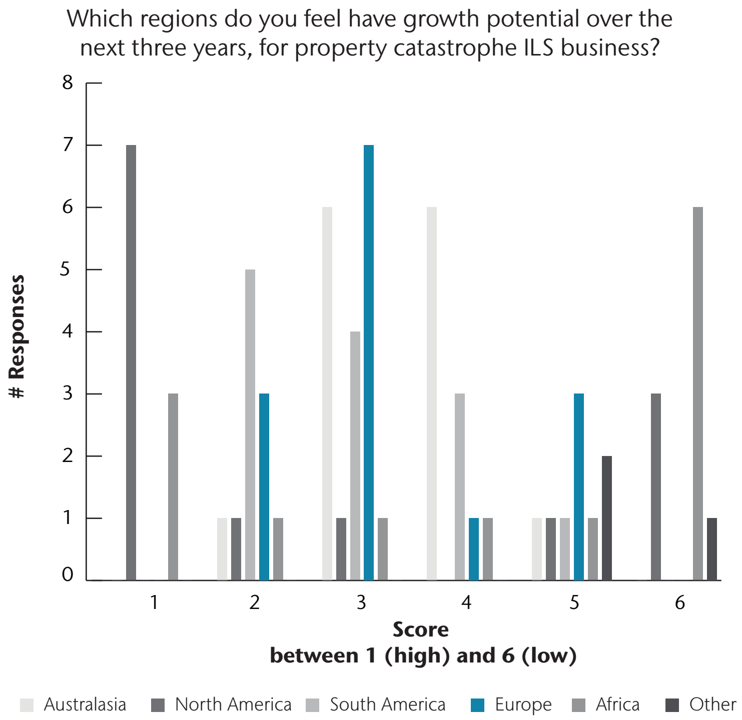


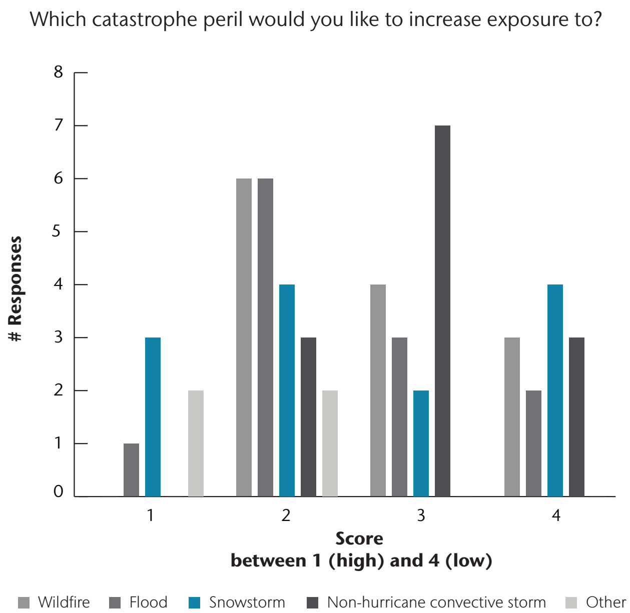
How do you predict your fund's appetite for proportional ILS will develop over the next three years?

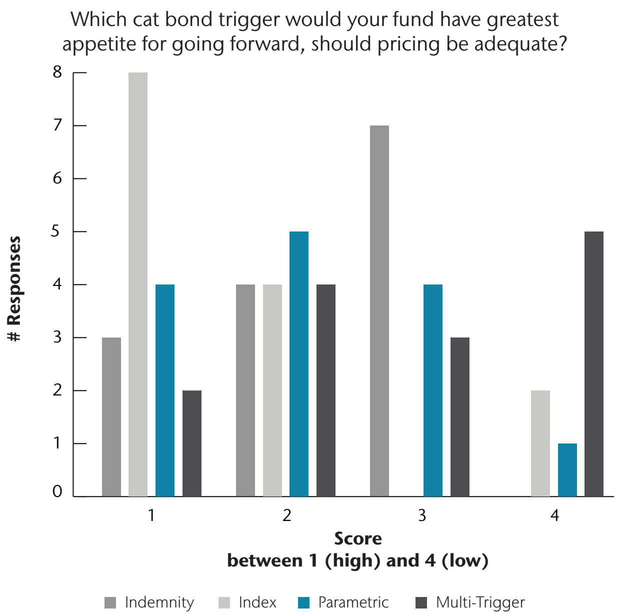


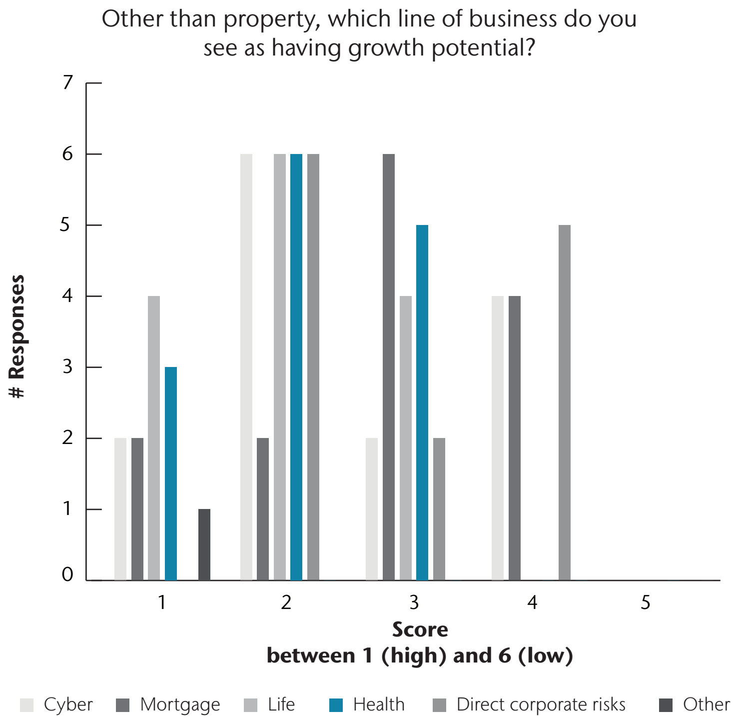
What do you think total capacity in the ILS market will be in July 2022 vs current levels?

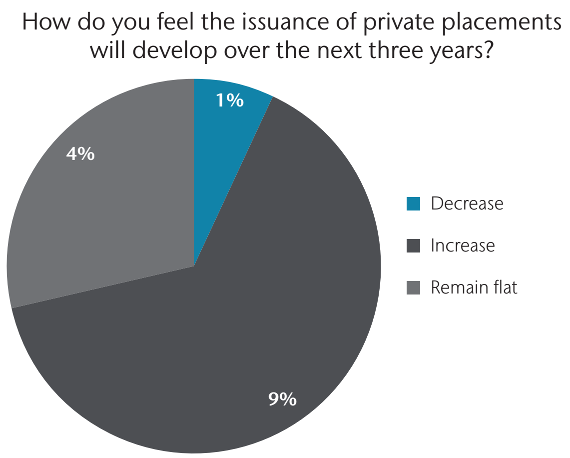


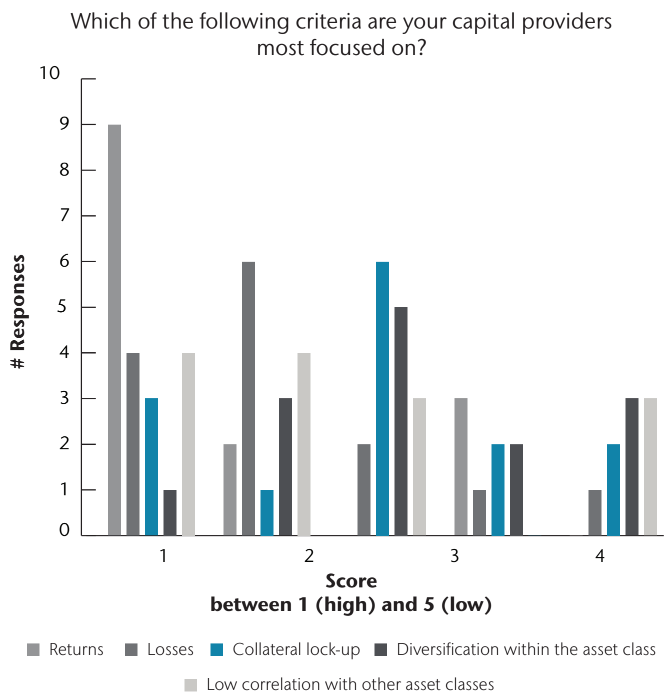

Which regions do you feel have growth potential over the next three years, for property catastrophe ILS business?
Responses
8
7
6
5
4
3
2
1
0
1
2
3
4
5
6
Score
between 1 (high) and 6 (low)
Australasia
North America
South America
Europe
Africa
Other


Which catastrophe peril would you like to increase exposure to?
Responses
8
7
6
5
4
3
2
1
0
1
2
3
4
Score
between 1 (high) and 4 (low)
Wildfire
Flood
Snowstorm
Non-hurricane convective storm
Other

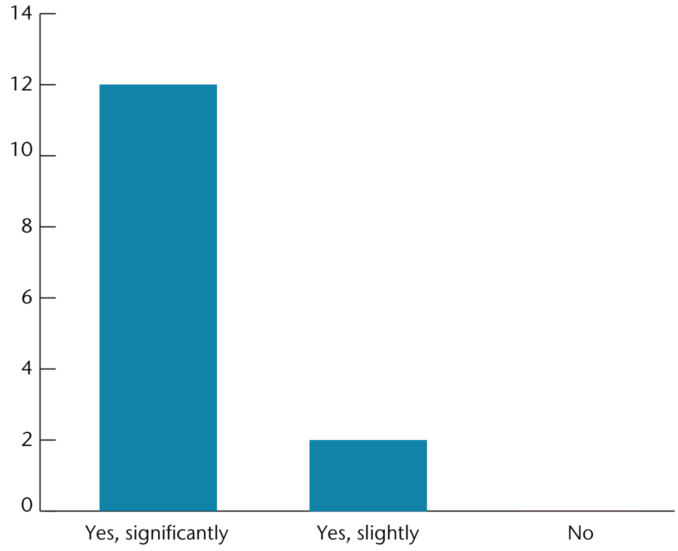

Which cat bond trigger would your fund have greatest appetite for going forward, should pricing be adequate?
Responses
8
7
6
5
4
3
2
1
0
1
2
3
4
Score
between 1 (high) and 4 (low)
Indemnity
Index
Parametric
Multi-Trigger


Other than property, which line of business do you see as having growth potential?
Responses
7
6
5
4
3
2
1
0
1
2
3
4
5
Score
between 1 (high) and 6 (low)
Cyber
Mortgage
Life
Health
Direct corporate risks
Other


How do you feel the issuance of private placements will develop over the next three years?
1%
4%
9%
Decrease
Increase
Remain flat


Which of the following criteria are your capital providers most focused on?
Responses
10
9
8
7
6
5
4
3
2
1
0
1
2
3
4
Score
between 1 (high) and 5 (low)
Returns
Losses
Collateral lock-up
Diversification within the asset class
Low correlation with other asset classes

Over the past three years, has the topic of climate change factored more frequently in discussions with investors?



Do you have any further comments on the appetite of your fund(s) going forward?

"There is a lack of [fund] appetite for... transactions with unnecessarily complex features... that provide only superficial benefit to the cedent."

"Pricing adequacy (including re-pricing), the ability to model risks (underwriting and post event estimates), transparency and interest alignment are key for the appetite."

"Need to see far better prospective returns to substantially increase allocation."

"As part of a large asset manager, we seek more liquid solutions in ILS"

"Regarding our cat bond funds, we would like to see more 144A deals (less so private deals).Regarding all other funds, we are flexible with regards form (collateralized, traditional, derivatives, etc.) All funds are growing, especially the cat bond fund."

Do you have any further comments on the direction of the ILS market?

"Down if the quality of transactions in Florida continues as present or up if the focus to well structured transactions return. The market is ready for some longer dated paper... [perhaps even] out to 10 years."

"Interesting to observe the conflict of investor and regulators to have clean cut collateral release and markets less inclined to commute. Is "non-ILS" ILS backed solutions the future?"

"Would prefer to see more single-peril issues, including new types of peril-region; also increased liquidity would be useful."

"It is important for the market to address trapped collateral and provide innovative solutions to limit the dilution impact of trapped collateral. We prefer U.S. risk, where data and mature models are available."

Notes

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About Aon

Aon plc (NYSE:AON) is a leading global professional services firm providing a broad range of risk, retirement and health solutions. Our 50,000 colleagues in 120 countries empower results for clients by using proprietary data and analytics to deliver insights that reduce volatility and improve performance.

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