



Q1 2019 Catastrophe Bond & ILS Market Report

New sponsors and perils
feature in above average Q1

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INTRO

This report reviews the catastrophe bond and insurance-linked securities (ILS) market at the end of the first-quarter of 2019, looking at new risk capital issued and the composition of transactions completed during the quarter.

At \$2.8 billion, catastrophe bond and ILS issuance was the second most active Q1 in the market's history, in terms of deal volume. This came from 20 transactions consisting of 28 tranches of notes, as shown in the Artemis Deal Directory.

New sponsors often feature in the market in the opening quarter of the year, and 2019 was no exception. Pool Re, IAG, and the North Carolina Insurance Underwriting Association were all first-time sponsors of Q1 catastrophe bonds. At the same time, Allstate, Arch Capital, Essent Guaranty, TransRe, UnipolSai Assicurazioni, State Farm, Terra Brasis Re and Aetna all returned in Q1 2019, while a range of private deals also featured.

Catastrophe bond and ILS market activity shows that investors remain attracted to the asset class, in spite of recent market challenges. The Artemis Deal Directory shows that when compared with the end of the first-quarter of 2018, the outstanding market size has increased by \$5.1 billion to a huge \$37.9 billion.

Artemis is the leading, freely accessible source of timely, relevant and authoritative news, analysis, insight and data on the insurance-linked securities, catastrophe bond, alternative reinsurance capital and related risk transfer markets. The Artemis Deal Directory is the leading source of information, data and analysis on issued catastrophe bond and insurance-linked securitization transactions.

Transaction Recap

20 transactions consisting of 28 tranches of notes were issued in Q1, amounting to \$2.8 billion of new risk capital.

First time sponsors Pool Re and IAG brought \$97 million of terrorism risk and \$54 million of Australia and New Zealand catastrophe risk to market, respectively. The North Carolina Insurance Underwriting Association issued its first solo deal in Q1, a \$450 million North Carolina multi-peril deal.

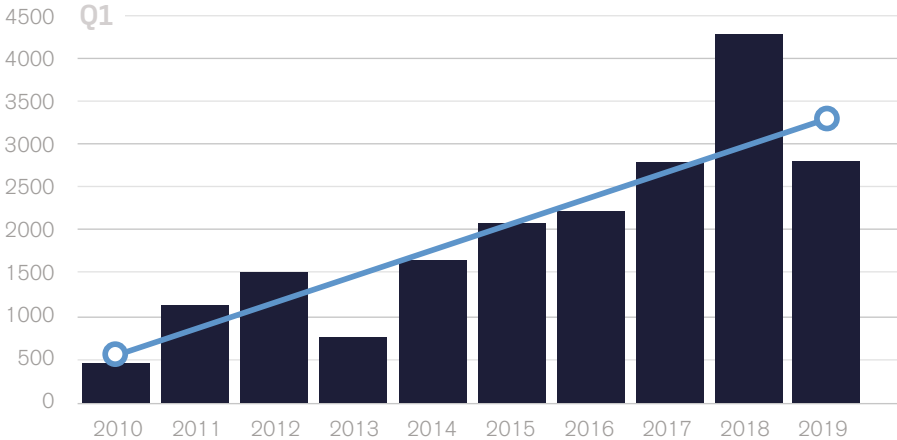
Arch Capital and Essent Guaranty returned for additional mortgage reinsurance. Combined, the pair sponsored \$815 million of mortgage insurance risk. TransRe and UnipolSai Assicurazioni also returned. The former brought \$250 million of international multi-peril risk to market, while the latter sponsored the first ever Italian multi-peril transaction. State Farm returned with \$300 million of U.S. quake risk.

Allstate's latest deal under the Sanders Re issuance platform brought \$300 million of U.S. multi-peril risk. Aetna also featured in Q1 with a \$200 million deal under its Vitality Re platform, while Terra Brasis Re returned with \$5 million of protection against Latin American property cat risks. Nine private deals brought a combined \$253 million of U.S. and unknown property cat risks to market.

| ISSUER / TRANCHE | SPONSOR | PERILS | SIZE (\$M) | DATE |
|--------------------------------------|---|--|------------|------|
| Merna Re II Ltd. (Series 2019-1) | State Farm | U.S. earthquake | 300 | Mar |
| Sanders Re II Ltd. (Series 2019-1) | Allstate | U.S. multi-peril | 300 | Mar |
| Bellemeade Re 2019-1 Ltd. | Arch Capital Group Ltd. | Mortgage insurance risks | 341.79 | Mar |
| Bowline Re Ltd. (Series 2019-1) | Transatlantic Reinsurance Co. | International multi-peril | 250 | Mar |
| Dodeka XXII | Unknown | U.S. property catastrophe risks | 18.67 | Mar |
| Dodeka XXI | Unknown | U.S. property catastrophe risks | 17.96 | Mar |
| Radnor Re 2019-1 Ltd. | Essent Guaranty | Mortgage insurance risks | 473.184 | Feb |
| Orchard ILS Pte Ltd | Insurance Australia Group (IAG) | Australia and New Zealand catastrophe risks | 54 | Feb |
| Baltic PCC Limited (Series 2019) | Pool Re | Terrorism risk | 97 | Feb |
| Cape Lookout Re Ltd. (Series 2019-1) | North Carolina Insurance Underwriting Association | North Carolina named storm & severe thunderstorm | 450 | Feb |
| Atmos Re DAC | UnipolSai Assicurazioni S.p.A. | Italian multi-peril | 51.03 | Feb |
| Jungfrau IC Limited 2019 | Unknown | Unknown property catastrophe risks | 12 | Jan |
| Alpha Terra Validus III | Terra Brasis Re | Latin American property catastrophe risks | 5 | Jan |
| Dodeka XX | Unknown | U.S. property catastrophe risks | 23.936 | Jan |
| Dodeka XIX | Unknown | U.S. property catastrophe risks | 27.609 | Jan |
| Dodeka XVIII | Unknown | U.S. property catastrophe risks | 25.181 | Jan |
| Vitality Re X Ltd. (Series 2019) | Aetna | Medical benefit claims levels | 200 | Jan |
| Seaside Re (Series 2019-22) | Unknown | U.S. property catastrophe risks | 10 | Jan |
| Seaside Re (Series 2019-21) | Unknown | U.S. property catastrophe risks | 30 | Jan |
| Resilience Re Ltd. (Series 1912A) | Unknown | Unknown property catastrophe risks | 88 | Jan |

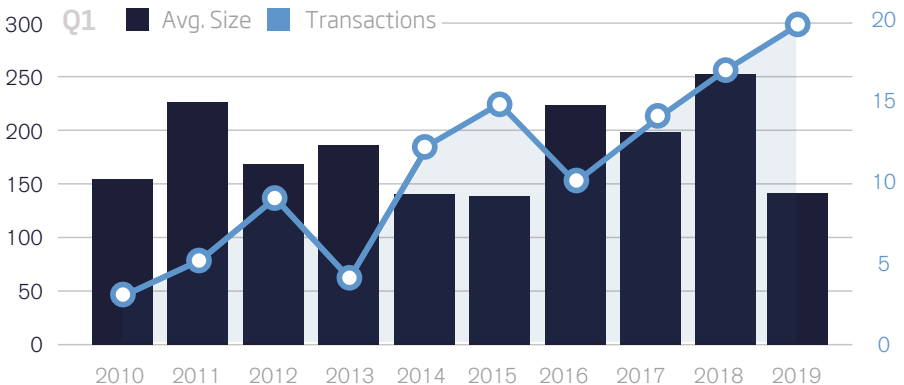
Q1 ILS issuance by year (\$M)

For the fifth consecutive year, catastrophe bond and ILS issuance in the first-quarter surpassed \$2 billion, and at \$2.8 billion is the second most active Q1 in the market's history, in terms of deal volume. Q1 2019 issuance is \$829 million above the ten-year average for the period.



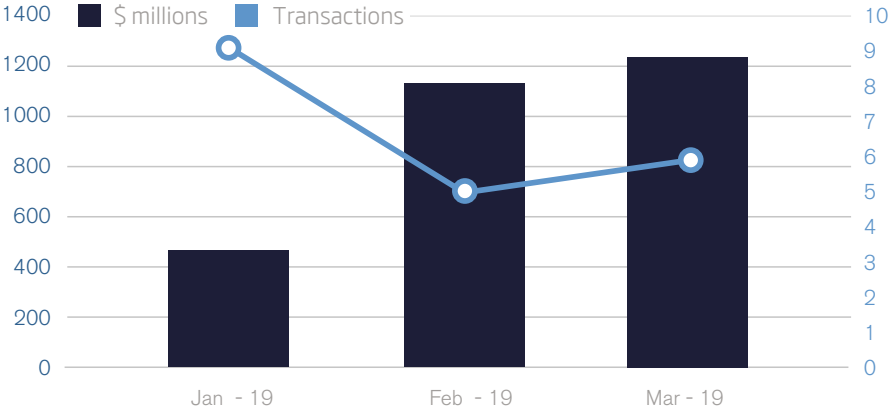
ILS average transaction size & number of transactions by year (\$M)

In terms of the number of deals, the 20 issued in Q1 2019 makes it the most active first-quarter ever, and some way above the ten-year average of 11 deals. The average transaction size in the first-quarter of 2019 was roughly \$139 million, which is significantly lower than the \$249 million witnessed last year, and roughly \$41 million lower than the ten-year average for the period.



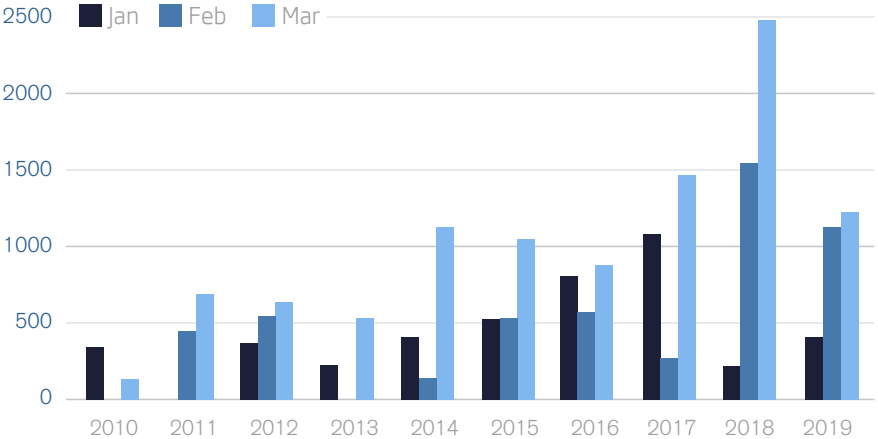
Number of transactions and volume issued by month (\$M)

With nine deals, January was the most active month of the quarter, in terms of the number of deals issued. February saw five deals and March saw six deals come to market in 2019. However, January issuance was dominated by private deals, which are typically smaller in size than a traditional 144A cat bond, meaning that in terms of risk capital issued, January was the quietest month, at \$422 million.



Q1 issuance by month & year (\$M)

At \$1.1 billion, February issuance surpassed the \$1 billion mark for the second year running and was substantially above the ten-year average for the month. Six transactions brought \$1.2 billion of new risk capital to the market in March, which is roughly \$100 million above the ten-year average for the month, as shown by the Artemis Deal Directory.





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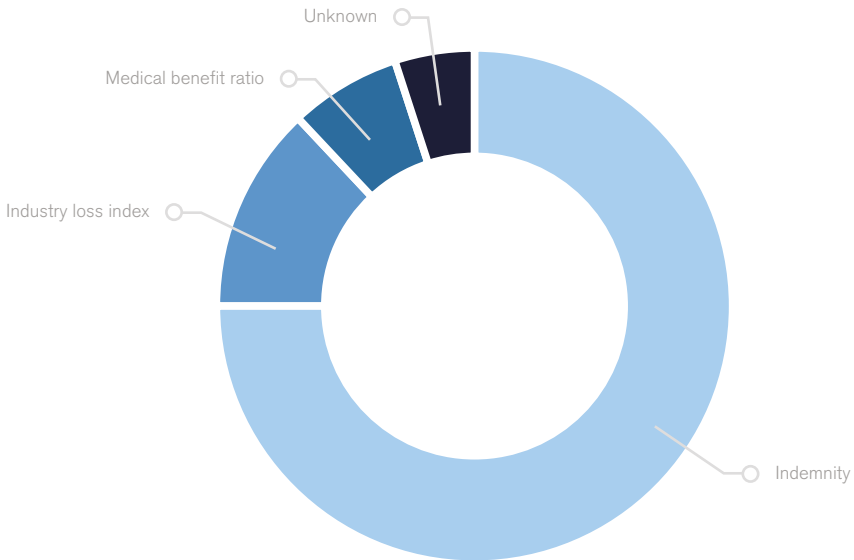
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Q1 2019 ILS issuance by trigger type

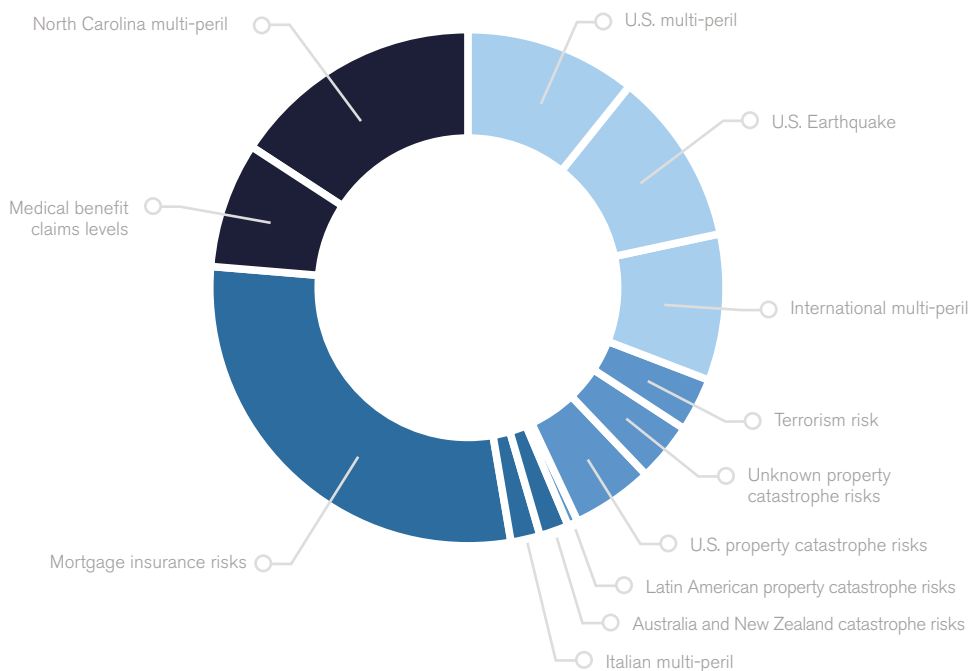
Typically, indemnity triggers dominate first-quarter catastrophe bond and ILS issuance, and this was again the case in 2019, with indemnity structured deals totalling \$2.1 billion, or 75% of quarterly issuance.



TransRe, combined with numerous issuances under the familiar Dodeka platform, brought \$363 million of industry loss index trigger diversification to market in Q1, accounting for 13% of issuance in the period. 7% of issuance, or \$200 million utilised a medical benefit ratio trigger structure. Trigger information was unavailable for 5%, or \$128 million of Q1 2019 issuance.

Q1 2019 ILS issuance by peril

The volume of mortgage ILS deals has grown substantially, and transactions from Arch Capital and Essent Guaranty continued the trend, accounting for almost a third of Q1 issuance.



In a market first, standalone terrorism risk featured in Q1. Sponsored by Pool Re, the deal brought \$97 million of UK terrorism risk to market. UnipolSai Assicurazioni sponsored a \$51 million Italian multi-peril deal, another first for the industry, while IAG's first cat bond provided \$54 million of Australia and New Zealand catastrophe risk protection. The North Carolina Insurance Underwriting Association's \$450 million deal brought North Carolina named storm and severe thunderstorm risk to market.

\$300 million of U.S. multi-peril risk came from Allstate, while TransRe returned with a \$250 million transaction covering multiple international perils. State Farm sponsored \$300 million of U.S. quake risk, while Aetna's \$200 million Vitality Re X deal provided investors with diversification in the form of medical benefit claims levels. Terra Brasis Re brought a small slice of Latin America property cat risk to market. Unknown sponsors issued a combined \$253 million of U.S. and unknown property cat risks in Q1.

Bermuda's ILS Market Flourishes and Continues to attract Record Numbers of ILS Listings in 2019

Bermuda is well known as the leading domicile for ILS. Approximately 80% of the world's public ILS are listed on the Bermuda Stock Exchange, including ILS vehicles not domiciled in Bermuda.

Regulators in the Bermuda market typically combine prudent rules and regulations with an acceptable level of flexibility and foresight to accommodate innovation and creative products without compromising regulatory oversight. Bermuda as a jurisdiction and the Bermuda Stock Exchange (BSX) as an institution, has each played an important role in the development of ILS as a trusted, mainstream asset class globally.

ILS are complex financial instruments that typically require a listing on a recognized stock exchange and in February, it was no surprise when the issuers of the world's first terrorism risk cat bond chose to list in Bermuda. Baltic PCC Limited became both the first UK domiciled ILS and the first terrorism risk cat bond to list on the BSX.

The Listing sponsor is one of the many service providers that contributes to ILS deals. "BSX Listing Sponsors play a key role in the Listing process in providing a mechanism of communication with the BSX and ensuring that issuers understand their regulatory obligations" says Greg Wojciechowski, the President and CEO of the Bermuda Stock Exchange, commenting

on the Baltic PCC Limited listing which was sponsored by Estera. He continued that "Indeed, the BSX has a unique value proposition for clients seeking a listing (technical or otherwise) on an internationally recognized and fully operational stock exchange"

Alison Dyer Fagundo, Managing Director of Estera, agrees with Mr. Wojciechowski, and added "The Baltic PCC Limited listing demonstrates that even issuers in larger financial centers such as London respect Bermuda as a jurisdiction and recognize the great value of listing on the BSX".

The Baltic PCC Limited terrorism cat bond was issued in February and became the highlight of the first quarter of 2019 for the ILS market. All reports are that the GBP75M cat bond was heavily oversubscribed - a good sign for the market, and a possible indication of investor appetite for portfolio diversification within the ILS asset class in terms of the types of underlying risks. The relatively small size of this deal and the level of interest it generated are signs that the market will likely see similar and perhaps larger

terrorism cat bonds coming to the market, with Bermuda very likely to play a role once again.

Also peaking the interest of the market in the first quarter of 2019 was recent news of Pacific Gas and Electric Company's (PG&E) bankruptcy, and ongoing discussions around ultimate responsibility for the November 2018 Campfire wildfire event in California that destroyed over 18,000 structures, burned over 150,000 acres and caused over 80 deaths by some reports. PG&E, its affiliates and subsidiaries are insured by the Bermuda domiciled Cal Phoenix Re Ltd Cat Bond issued in August 2018 at US\$200M. While the effect of these events on this cat bond is still not fully known, the eventual outcome will be interesting to the Bermuda market as services providers and regulators may have to navigate the legal and administrative intricacies of loss events in ILS structures. The Bermuda market is well placed to deal with such events, as was proven 2 years ago when the Gator Re Ltd losses were settled smoothly without resort to the courts.

As ILS is becoming a more mainstream asset class, the smaller 'collateralized re' or 'cat bond lite' sub class is also becoming more established

in its own right. While the December ILS renewal season was slower than expected, the BSX listed over \$350M of ILS notes in late December and Early January that were issued through 'cat bond lite' structures. This included 9 deals issued from the Seaside Re 'cat bond lite' platform - more than double the number of deals issued from this platform in the December 2018 renewal period.

In January, 2019 the BSX announced that total listing of ILS on the BSX surpassed the US\$30B mark for the first time. Since then, we have seen several new deals come to the market and listed on the BSX including the US\$450M Cape Lookout Re Ltd, and the Eur45M Atmos Re DAC which was issued through an Irish vehicle and listed in Bermuda.

Alison Dyer Fagundo concluded that "We at Estera remain comfortable that ILS products will persist as a relevant asset class and will continue to engage the interest of investors. We expect that the largest and most innovative ILS products will continue to be listed on the BSX."



Alison Dyer-Fagundo
Managing Director



Sherman Taylor
Associate Director

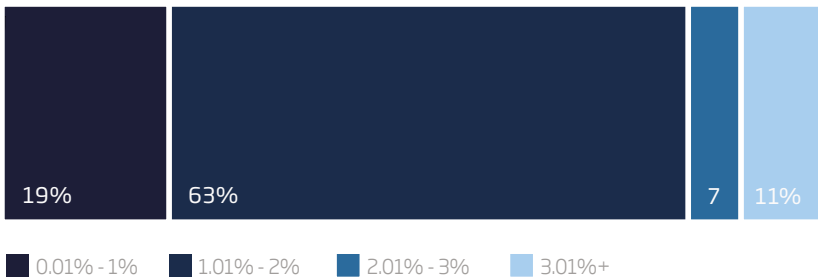


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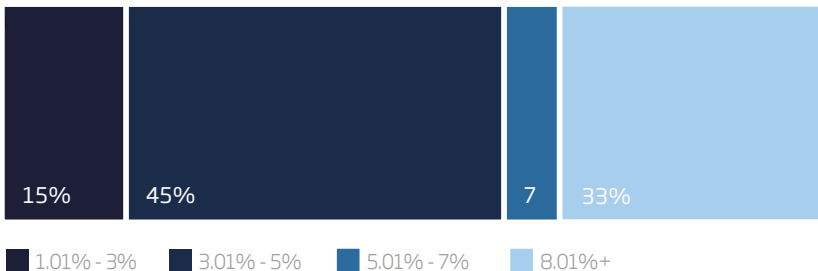
Q1 2019 ILS issuance by expected loss

For the \$1.35 billion of total risk capital issued that we have expected loss data for, more than 63% of first-quarter issuance had an expected loss of between 1.01% and 2%. Approximately \$250 million of quarterly cat bond and ILS issuance had an expected loss of 1% or lower, showing that Q1 deals remain fairly low in terms of risk. The Class B tranche of Bowline Re notes, at 3.69%, were the riskiest of the quarter. While the Class A tranche of Vitality Re X notes offered the lowest expected loss, at just 0.01%.



Q1 2019 ILS issuance by coupon pricing

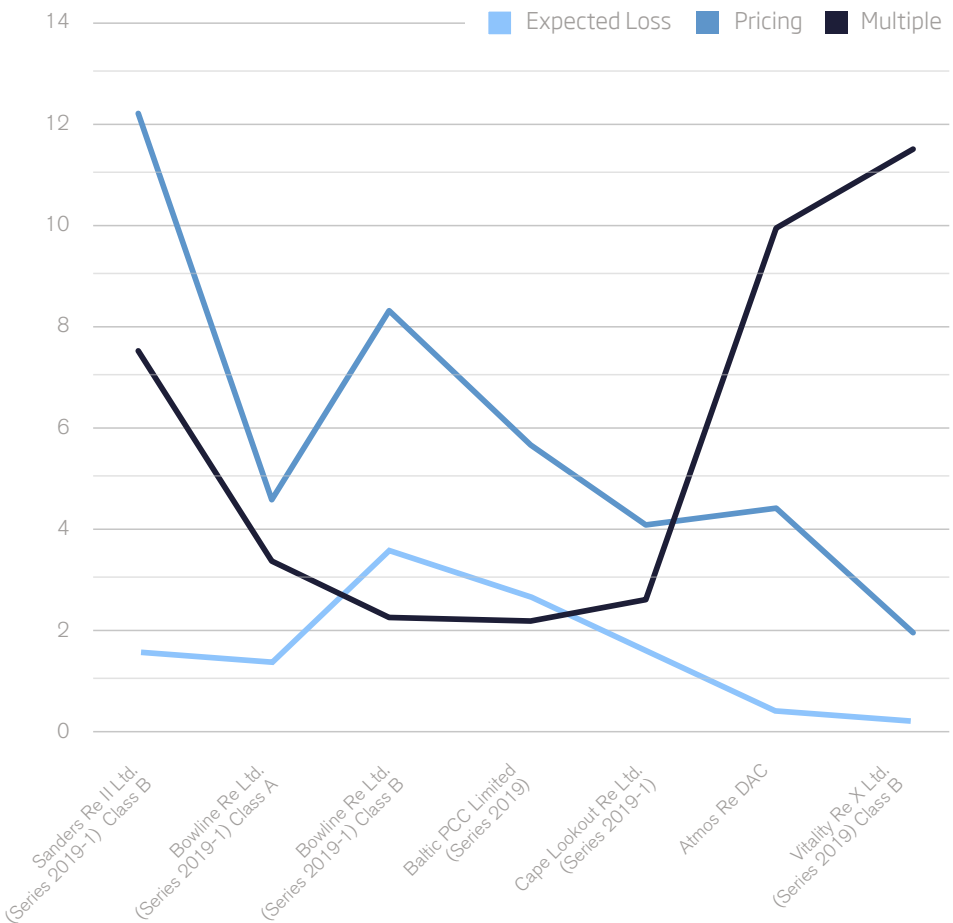
For first-quarter issuance where we have pricing data (this amounts to \$1.35 billion of total Q1 issuance), 45% or just over \$601 million paid investors a coupon of between 3.01% and 5%. \$200 million of issuance had a coupon of below 3%, while \$97 million offered a coupon of between 5.01% and 7%. At 12.25%, the highest coupon on offer in the quarter came from the Class B tranche of Sanders Re notes. The least risky notes on offer in Q1, Vitality Re X Class A, had the lowest coupon, of 1.75%.



Pricing multiples of Q1 2019 issuance

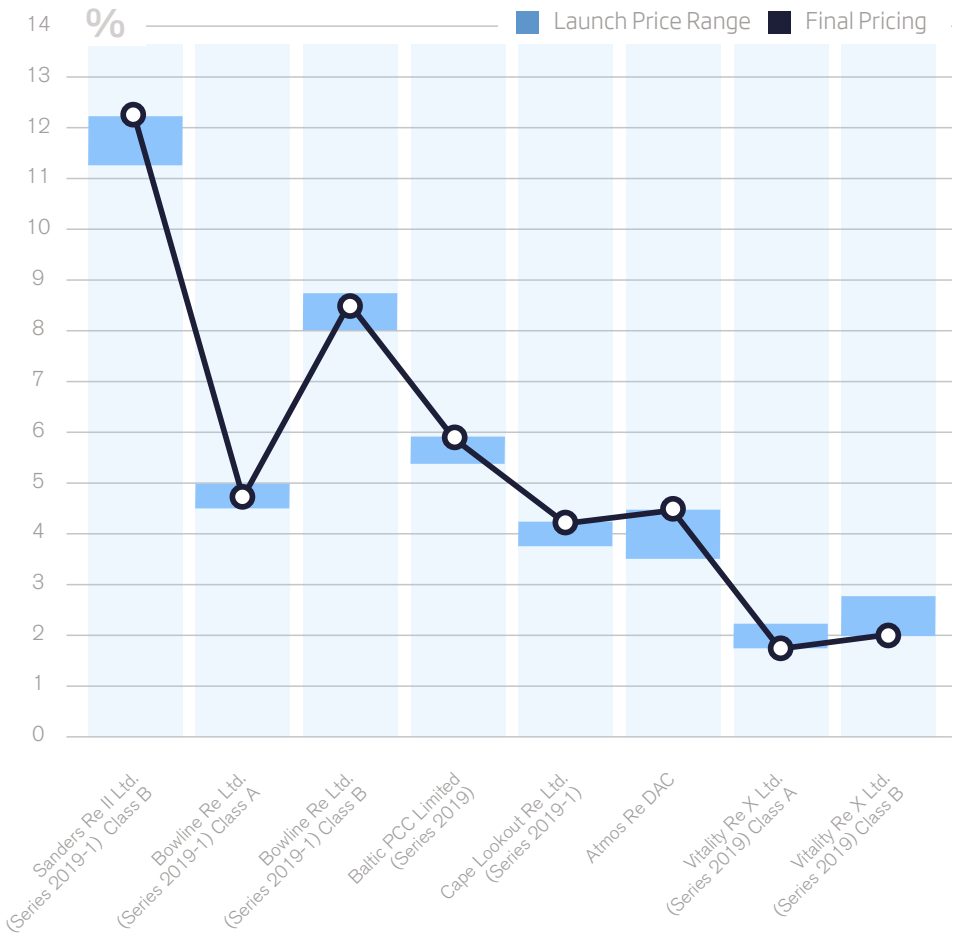
The average multiple (price coupon divided by expected loss) of Q1 2019 issuance, where we have full pricing data, was 3.65. This is a huge improvement on the 1.82 average multiple recorded at the end of Q4 2018, and as shown by the Artemis Deal Directory, is a significant increase on the first-quarter of last year, which had an average multiple of 2.10.

After declining in Q4 2018 following a recovery in Q3, the average multiple of catastrophe bond and ILS issuance not only recovered but improved notably in the opening quarter of this year.



Cat bond and ILS price changes during Q1 2019 issuance

For the \$1.35 billion of risk capital issued where we have full pricing data, the average price change in Q1 was 0.63%. One tranche of notes priced exactly at the mid-point of initial price guidance, and in fact, more tranches priced above the initial mid-point than below. That the average is only slightly positive, reflects the fact the two deals that priced below initial mid-point guidance, fell quite dramatically while marketing.



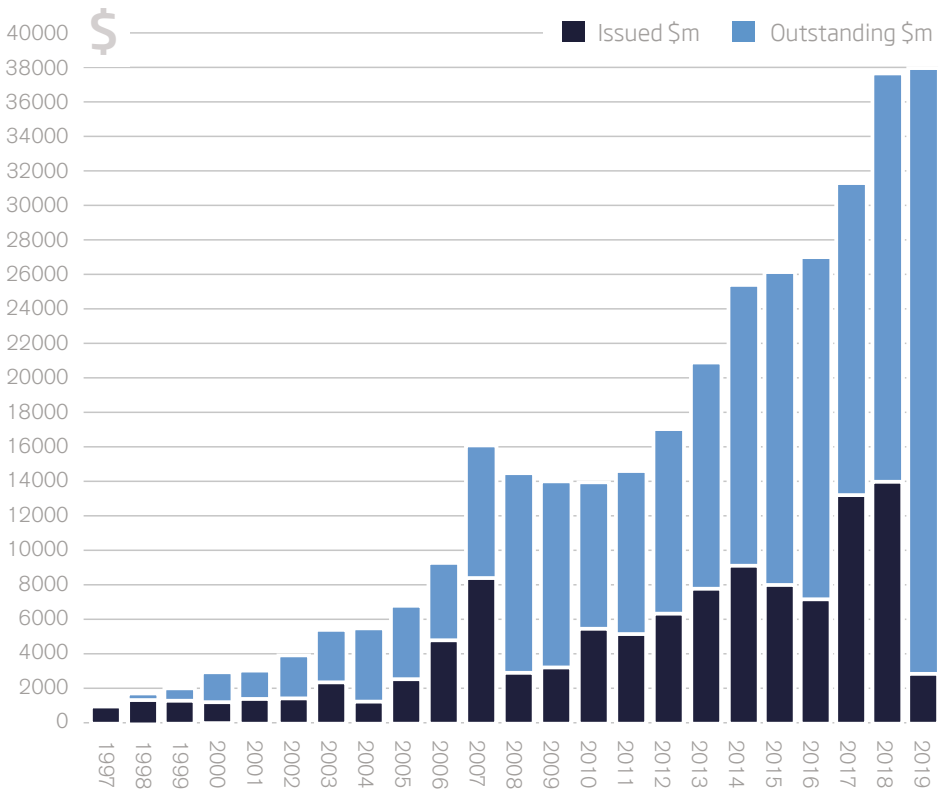
Issued / Outstanding

First-quarter 2019 catastrophe bond and ILS issuance remained strong at \$2.8 billion. Despite the catastrophe activity of the last two years and the fact Q1 issuance declined year-on-year, continued, outright market growth shows that both investor and sponsor market appetite remains.

As shown by the Artemis Deal Directory, the solid level of Q1 2019 issuance more than offset quarterly maturities, helping the market once again achieve outright growth. As at the end of Q1 2019, at \$379 billion, the outstanding catastrophe bond and ILS market is approximately \$391 million larger than at the end of 2018.

The rise of mortgage ILS deals was again evident in Q1 2019, and despite the strong volume of new risk capital issued in the quarter, absent the inclusion of mortgage ILS deals, at \$1.96 billion, issuance would have been in line with the ten-year average for the quarter.

According to Artemis' data, approximately \$1.75 billion of deals are scheduled for maturity in the second-quarter of 2019. However, Q2 catastrophe bond and ILS issuance over the last decade has averaged more than \$3.3 billion, suggesting it's likely that the market will continue to expand in the first-half of 2019.



If you want to see full details of every catastrophe bond and ILS transaction included in the data in this report please visit www.artemis.bm/deal_directory/



All catastrophe bond and ILS issuance data sourced from the Artemis Deal Directory.

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