Q4 2021 Catastrophe Bond & ILS Market Report

Market expands as annual issuance breaks record by 15%

ARTEMIS

Focused on insurance-linked securities (ILS), catastrophe bonds, alternative reinsurance capital and related risk transfer markets.

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INTRO

The Artemis Q4 2021 catastrophe bond and related insurance-linked securities (ILS) market report examines the new risk capital issued in the period and the record-breaking full-year, alongside the composition of transactions completed.

For the universe of traditional 144a property catastrophe bonds, it was the second most active fourth quarter ever, in terms of risk capital issued, at approximately $2.8 billion. However, for the full-year, it was a record for property cat bond issuance, with more than $12.5 billion of risk capital issued covering a wide range of perils and geographies.

In fact, once you include all privately placed, or cat bond lite deals and cat bonds covering other lines of business (life/health/specialty etc) that we've tracked in our Artemis Deal Directory, then Q4 issuance reached $3.2 billion and full-year 2021 issuance hit a new record of $14 billion, surpassing the previous annual record set in 2020 by almost $2 billion, or 15%.

Alongside analysing property cat bonds, private deals and other ILS transactions, this report details the issuance of mortgage ILS for both the fourth quarter and the full-year. In a dedicated mortgage ILS section, the report shows that in 2021 mortgage issuance hit a record $6.3 billion, of which roughly $1.3 billion came to market in Q4.

So, overall, catastrophe bond and related ILS issuance, including mortgage ILS deals, has also set a new annual record in 2021 at just under $20.3 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.

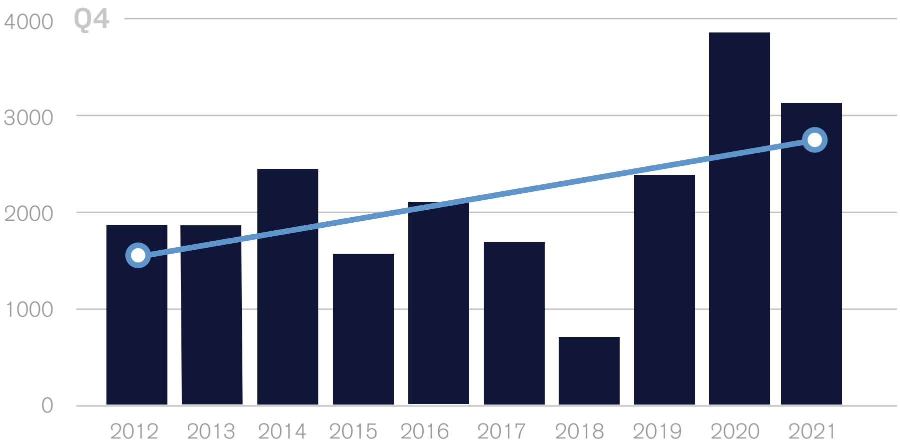
Transaction Recap

As shown by the table below, a mix of 27 traditional 144a cat bonds, privately placed deals, and mortgage ILS transactions featured in the fourth-quarter of 2021. Issuance in the period came from a mix of repeat and new sponsors, including primary insurers, reinsurers, and corporates. Brief details of each transaction are below:

ISSUER / TRANCHE	SPONSOR	PERILS	$M	DATE
Orange Capital Re DAC (Series 2021-1)	NN Group	European multi-peril	85	Dec
Bonanza Re Ltd. (Series 2021-1)	American Strategic Insurance Group	U.S. multi-peril	80	Dec
Four Lakes Re Ltd. (Series 2021-1)	American Family Mutual Insurance Co.	U.S. multi-peril	125	Dec
3264 Re Ltd. (Series 2022-1)	Hannover Re	Worldwide peak perils	100	Dec
Matterhorn Re Ltd. (Series 2021-1)	Swiss Re	International multi-peril	150	Dec
Titania Re Ltd. (Series 2021-2)	Syndicate 1910 (Ariel Re)	International multi-peril	175	Dec
Topanga Re Ltd. (Series 2021-1)	Farmers Insurance Group	U.S. multi-peril	160	Dec
Logistics Re Ltd. (Series 2021-1)	Prologis, Inc.	U.S. earthquake	95	Dec
Phoenician Re Ltd. (Series 2021-1)	Alphabet Inc.	California earthquake	275.5	Dec
Hexagon III Re Pte. Ltd. (Series 2021-1)	Covéa Group	France multi-peril	173.4	Dec
Sanders Re II Ltd. (Series 2021-2)	Allstate	U.S. multi-peril	400	Nov
Residential Reinsurance 2021 Limited (Series 2021-2)	USAA	U.S. multi-peril	300	Nov
Radnor Re 2021-2 Ltd.	Essent Guaranty	Mortgage insurance risks	439.4	Nov
Eagle Re 2021-2 Ltd.	Radian Guaranty	Mortgage insurance risks	484	Nov
Eclipse Re Ltd. - November issuance	Unknown	Property catastrophe risks	277.22	Nov
Acorn Re Ltd. (Series 2021-1)	Hannover Rück SE / Oak Tree Assurance, Ltd.	U.S. earthquake	475	Oct
Oaktown Re VII Ltd.	National Mortgage Insurance Corporation	Mortgage insurance risks	363.7	Oct
SD Re Ltd.	Sempra Energy	California wildfire	180	Oct
Eclipse Re Ltd. - October issuance	Unknown	Property catastrophe risks	66.7	Oct
Power Protective Re Ltd. (Series 2021-1)	Los Angeles Department of Water & Power	California wildfire	30	Oct

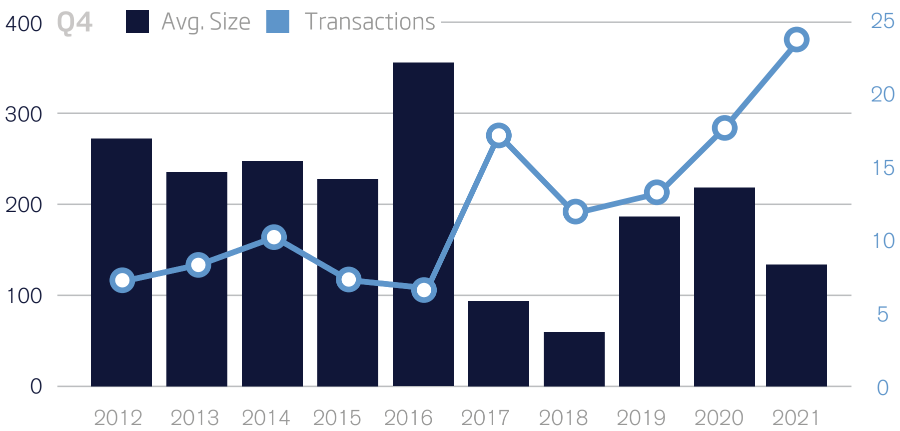
Q4 ILS issuance by year ($M)

Year-on-year, cat bond and ILS issuance declined by roughly $727 million to end the fourth-quarter of 2021 at around $3.2 billion, which is the second most active Q4 in the market's history, as shown by the Artemis Deal Directory. Issuance in the period came in $984 million above the previous 10-year average.



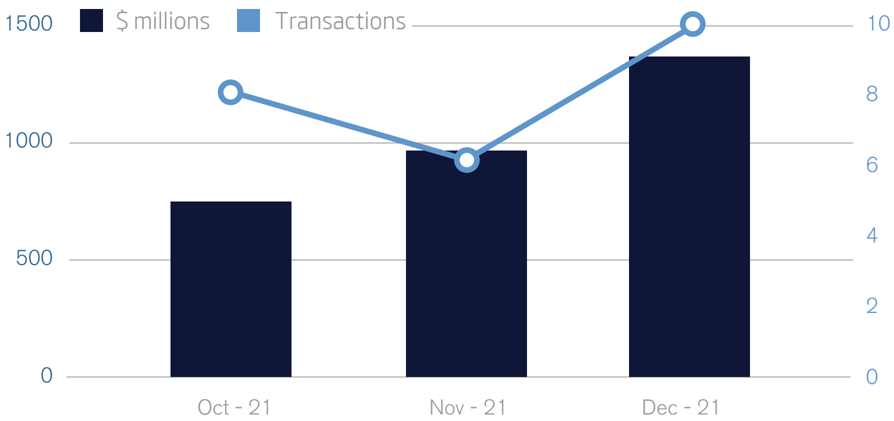
ILS average transaction size & number of transactions by year ($M)

A mix of 24 traditional 144a and cat bond lite transactions came to market in the final quarter of the year, which is the most ever recorded for the period. The average transaction size was $131 million, which is down on both last year and the previous 10-year average.



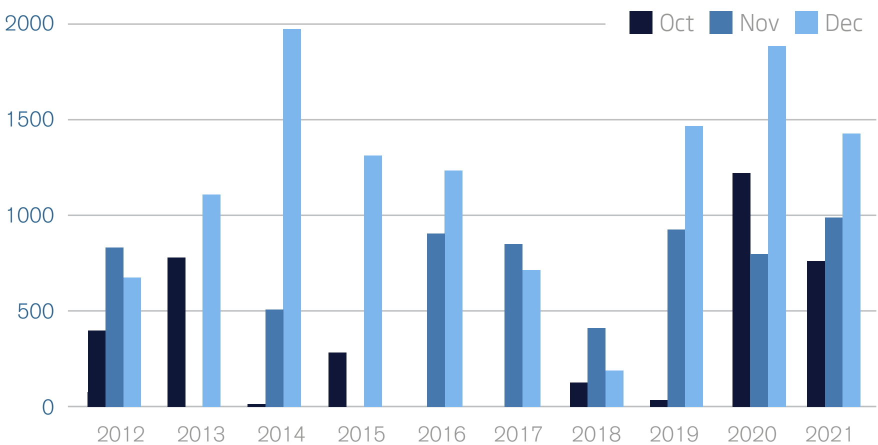
Number of transactions and volume issued by month ($M)

Approximately 45% of quarterly issuance came to market in the final month of the year. In total, 10 transactions were issued in December, amounting to roughly $1.42 billion of new risk capital. In November, six transactions saw $977 million of new risk capital issued, which is a record for the month. October was the quietest month of the quarter, in terms of issuance, with $752 million launching from eight transactions.



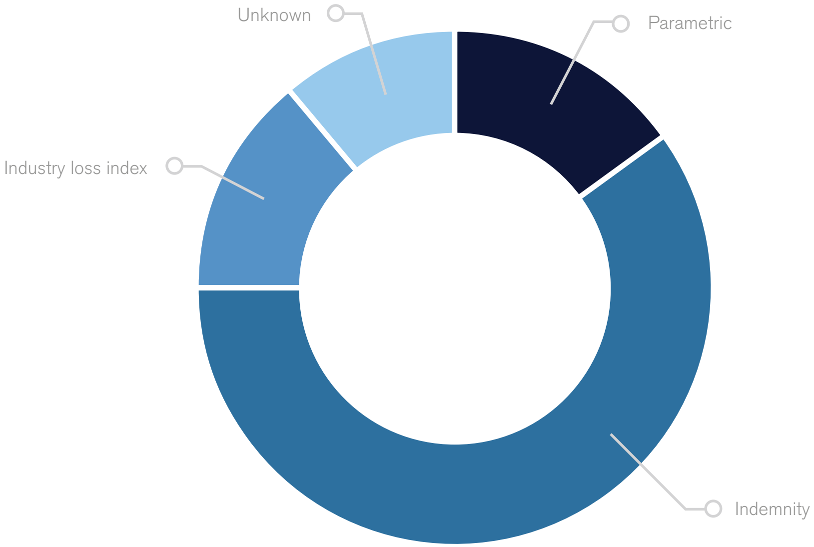
Q4 issuance by month & year ($M)

The Artemis Deal Directory shows that year-on-year, November was the only month in 2021 that experienced growth in issuance. But while issuance in both October and December declined from the prior year, it came in above the prior 10-year average for both months.



Q4 2021 ILS issuance by trigger type

While deals structured utilising an indemnity trigger dominated again in Q4 2021, accounting for 60% of quarterly issuance, this is a smaller slice than witnessed in prior quarters as greater trigger diversification returned.

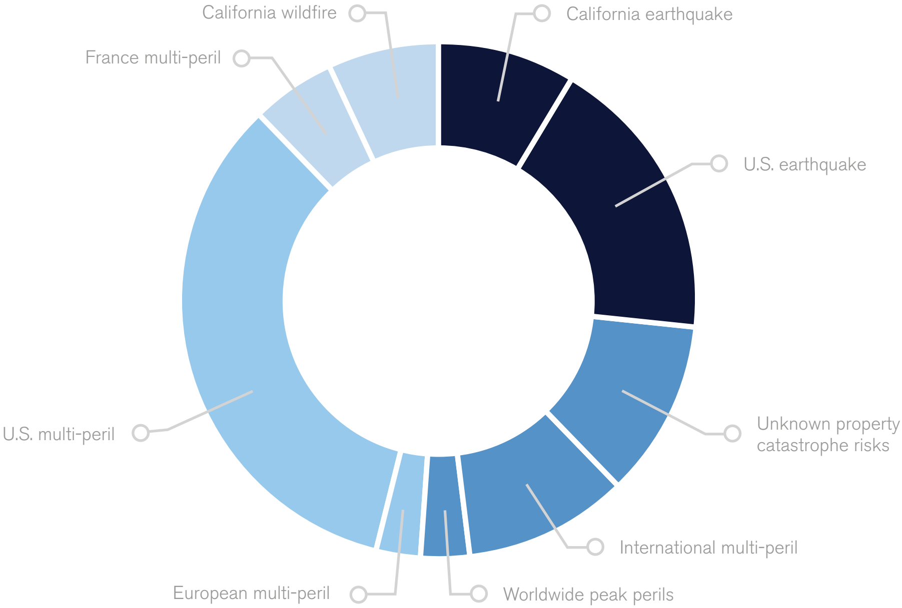


In fact, 15% of issuance this quarter leveraged a parametric trigger, and 14% of total issuance was structured using an industry loss index trigger. For the remaining 11% of Q4 issuance we do not have trigger information, as these were private cat bond deals.

Q4 2021 ILS issuance by peril

Roughly $1.1 billion of the almost $3.2 billion of risk capital issued in the quarter were deals covering multiple U.S perils. These deals came from a mix of repeat and new sponsors, including the likes of American Strategic, American Family Mutual, Farmers Insurance, Allstate, and prolific cat bond sponsor USAA.

Multi-peril deals were common in Q4 both in the U.S. and elsewhere. Transactions from Swiss Re and Ariel Re brought $325 million international multi-peril risk to market, while Hannover Re sponsored a $100 million deal covering worldwide peak perils. Additionally, $85 million of European multi-peril diversification came from first time sponsor NN Group, while Covéa sponsored a $173 million deal covering multiple perils in France.



Deals providing sponsors with U.S. earthquake protection account for approximately 27% of fourth-quarter issuance. This includes a $95 million deal issued by first time sponsor Prologis, and a $475 million transaction from repeat sponsor Hannover Re / Oak Tree Assurance. Google's parent, Alphabet, also returned in Q4 with $275.5 million of U.S. quake risk specific to the state of California.

Also focused on California were deals from repeat sponsors Sempra Energy and the Los Angeles Department of Water & Power. Combined, these transactions brought $210 million of California wildfire risk to market, accounting for roughly 7% of issuance.

Nine privately placed transactions brought a combined $344 million of unknown property catastrophe risks to market.

OCORIAN

PART III: CORPORATE GOVERNANCE OF ILS VEHICLES – A VIEW FROM THE BOARDROOM

Ocorian's George Jones continues the firm's deep dive into governance best practice for insurance linked securities (ILS) vehicles by outlining the key legal, statutory and fiduciary duties of a company's directors.

Good governance is ultimately down to a company's directors and in the case of ILS deals, it is the board of directors of the special purpose insurer (SPI) that shoulders responsibility for ensuring they are fit and proper for the role.

To establish good corporate governance practices, SPI boards should be looking to:

- provide leadership within a framework of prudent and effective controls which enable risk to be assessed and managed;
- set strategic aims, ensuring that the necessary financial and human resources are in place to meet the company's objectives and review management performance; and
- set values and standards and ensure that the company's statutory and legal obligations to stakeholders and the government are understood and met.

Directors should also be aware of their fiduciary duties whereby they must act in good faith for the benefit of the company, use their powers for the purposes for which they are intended, and fulfil the duties of their office honestly. Key fiduciary duties include a duty to:

- act in what they consider to be the best interests of the company and not for any collateral purpose;
- exercise powers for a proper purpose, namely a purpose that advances the interests of the company as distinct from its shareholders;
- avoid conflicts of interest by not putting themselves in a position in which their duties and personal interests may conflict; and
- avoid making a personal profit from any opportunities arising out of their directorship, even if acting honestly and for the good of the company.

Directors also have a duty of care when exercising their directorship powers. This duty has three aspects:

- **Degree of skill:** the standard required should reflect the person's experience and knowledge.
- **Attention to the business:** a director should attend to the affairs of a company diligently. Unless they are an executive director, this does not mean devoting all their time and attention to the management of the company or be an expert in its field of business. Rather, they must display such reasonable care in performing their duties as would be expected of a normal person in such situations.
- **Reliance on others:** a director is not liable for the acts of co-directors or company officers solely by virtue of being a director. They can rely on executives in good faith who have been specifically appointed for the purpose of attending to the detail of management. However, directors cannot absolve themselves entirely of their responsibility by delegation to others.

These duties are expected of all directors, irrespective of whether they are executive directors directly employed by the company, independent non-executive directors with no other connection, or non-independent non-executive directors typically provided by a local third-party service provider in addition to other services such as insurance management or corporate services.

The duties are similarly expected of alternate directors even if their appointment is for the purpose of a single meeting, or shadow directors (a person whose directions or instructions the directors of a company are accustomed to act, regardless of title).

For an SPI to meet its goals while remaining compliant with its obligations, both the appointment of appropriate directors to the company's board and an understanding by those directors of their legal, statutory and fiduciary duties are vital components to good corporate governance.

GEORGE JONES

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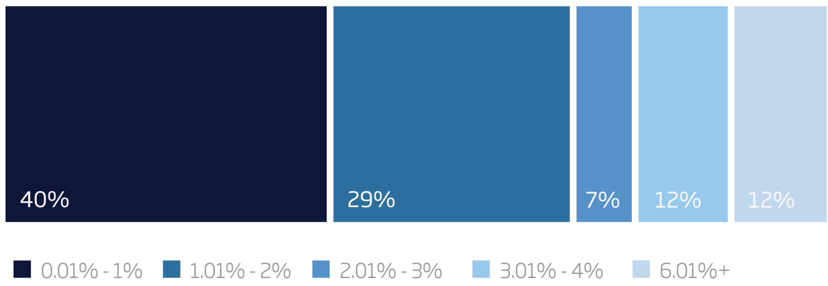
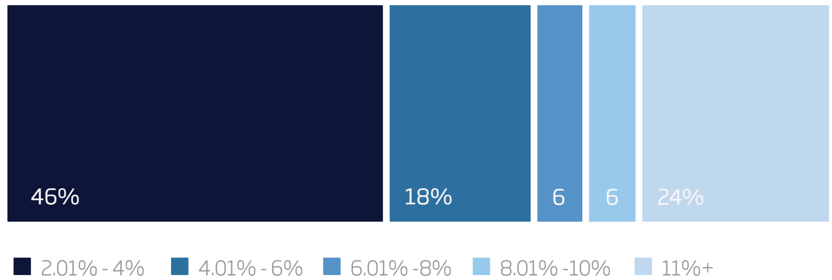
Q4 2021 ILS issuance by expected loss

Of the $2.8 billion of risk capital issued in the quarter that we have expected loss data for, just shy of 70% had an expected loss of below 2%, with the majority of this having an expected loss of less than 1%. $535 million of issuance had an expected loss of between 2.01% and 4% in the period, with 12% of issuance having an expected loss of more than 6%. The highest expected loss in the quarter came from the Class B tranche of Hexagon II Re Pte notes, at 8.05%. The lowest expected loss on offer was 0.32% and came from the Class B tranche of Bonanza Re notes.



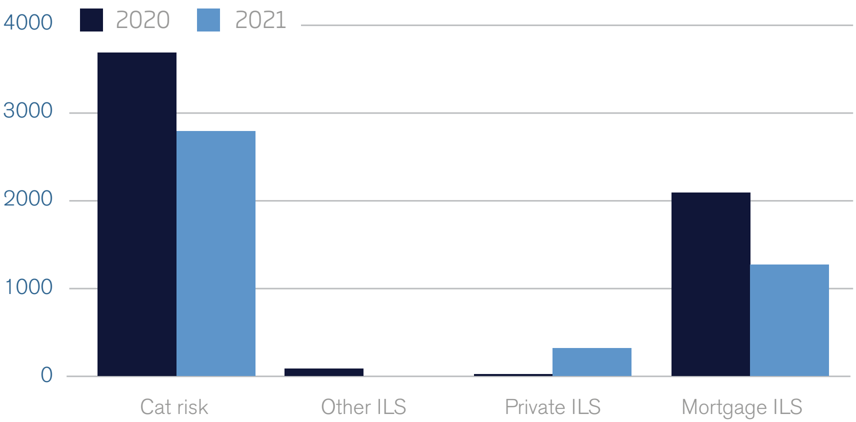
Q4 2021 ILS issuance by coupon pricing

We have pricing data for $2.8 billion of quarterly issuance. Of this, 46% paid investors a coupon of between 2.01% and 4%. $675 million, or 24% of Q4 issuance offered a coupon of between 4.01% and 8%, with the large majority of this paying a coupon of less than 6%. Coupon pricing of between 8% and 10% accounted for 6% of issuance, while 24% of total risk capital issued offered a coupon of more than 11%. The highest coupon on offer in Q4 came from Hannover Re's 3264 Re deal, at 19%. Three tranches of notes offered a coupon of 2.5%, the lowest on offer in the period.



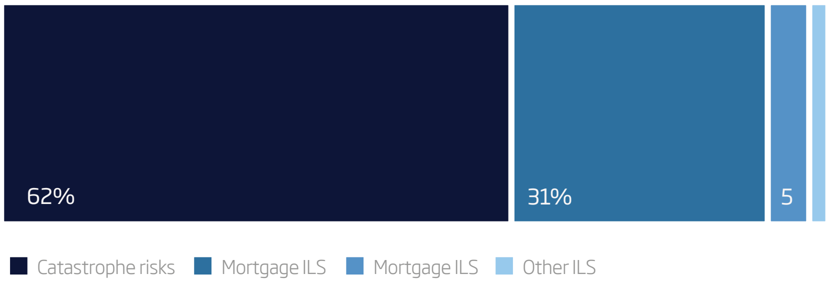
YoY Q4 ILS issuance split

Issuance of traditional 144a property catastrophe bonds was again strong in the fourth quarter at $2.8 billion. Although this is down on the record $3.7 billion seen in Q4 2020, when including private deals it ensured that Q4 issuance exceeded $3 billion for consecutive years. Year-on-year, cat bond lite issuance increased by 450% to roughly $344 million.
The fourth quarter and full-year also featured a number of mortgage ILS deals, which are detailed later in this report.



Full-year 2021 ILS issuance split

For the full-year 2021, catastrophe risk issuance has set a new record at more than $12.5 billion, accounting for 62% of issuance and beating 2020's total by over $1.5 billion. After approaching the $10 billion mark in both 2017 and 2018, property cat bond issuance declined to less than $6 billion in 2019, but has since rebounded to reach new heights. As shown by the Artemis Deal Directory, cat bond lite issuance also broke records in 2021, surpassing $1 billion for the first time in a calendar year. Deals covering other ILS, such as extreme mortality, amounted to $470 million this year.



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The Future of Collaboration for ILS Fund Managers

Collaboration is integral to an ILS Fund Manger's ability to run its business. Today these engagements among internal and external parties come at significant transaction costs. Digitizing processes and information exchanges will reduce these costs, while creating a more seamless experience.

Cumbersome blending of information

The ILS Fund Manager's team of specialists deploy an array of expert tools that are not well integrated into end-to-end processes. For example, a modeler deploys vendor models to assess the technical risks and economics of a natural catastrophe portfolio. However, the outputs of the vendor model need to be combined with information from other specialists to enable decision-making on the underlying investment in question. This blending of information is cumbersome to piece together and often involves duplicate data entry.

Furthermore, such decision-making is taken up as a collaborative activity across cross-functional teams. Today, this is a manual process whereby interpreting and reconciling information inputs eats into time that would be better spent discussing the merits and implications of a particular deal.

What does the ideal ILS Fund Manager collaboration look like?

A clear and future-oriented solution features:

360 Degree View

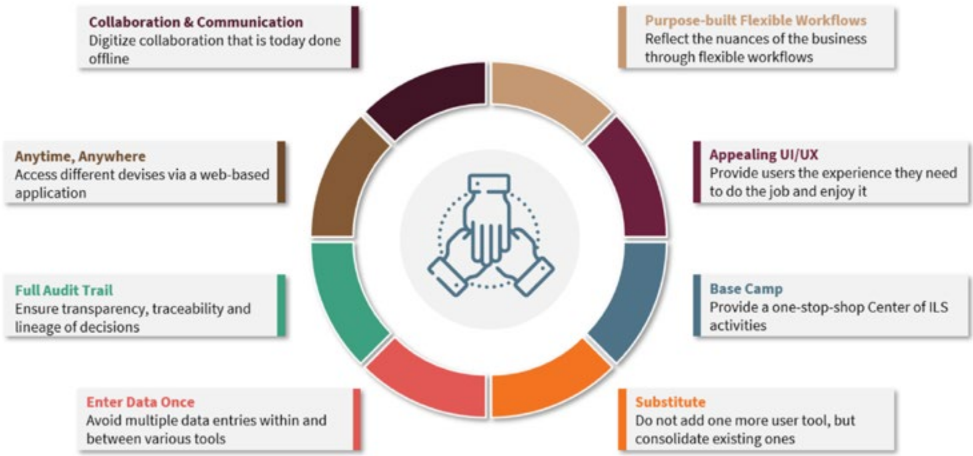
- Offer one user access point to all relevant information for decision-making purposes
- Put data into context and turn it into information and ultimately knowledge

Collaboration & Connectivity

- Foster teamwork by combining multiple modes of communications from internal and external parties into one channel
- Facilitate connectivity with an integrated system landscape

Workflow

- Increase productivity through business processes automation
- Increase transparency on ongoing activities



Capabilities for a future-oriented ILS workbench platform

Some dedicated ILS Fund Managers work exclusively with collateralized reinsurance, cat bonds, and other (re)insurance specific products. Others also engage in different asset classes thus deploying operating models covering a wider set of business needs and capabilities. Focusing only on the dedicated ILS Fund Managers, each player deploys a different operating model, and employs a different make-up of internal functions–some with dedicated portfolio management and underwriting teams, some with a combined role, and some with a hierarchical structure with senior decision-makers and supporting operations. Any solution would need to account for these company-specific circumstances and processes in place. Beginning to digitize processes and information exchange is then a step toward developing a common language, a definition of business terms, and a clear understanding of processes across the industry.

Digitizing the process and information exchanges must importantly take the role of third-party partners into account (for structuring, fronting, transformer capabilities, fund management, reserving, etc.), as these engagements are often involved in key processes. Deploying such a platform, results in an improved collaborative experience, data quality, turnaround time, and an overall more efficient and effective work environment.

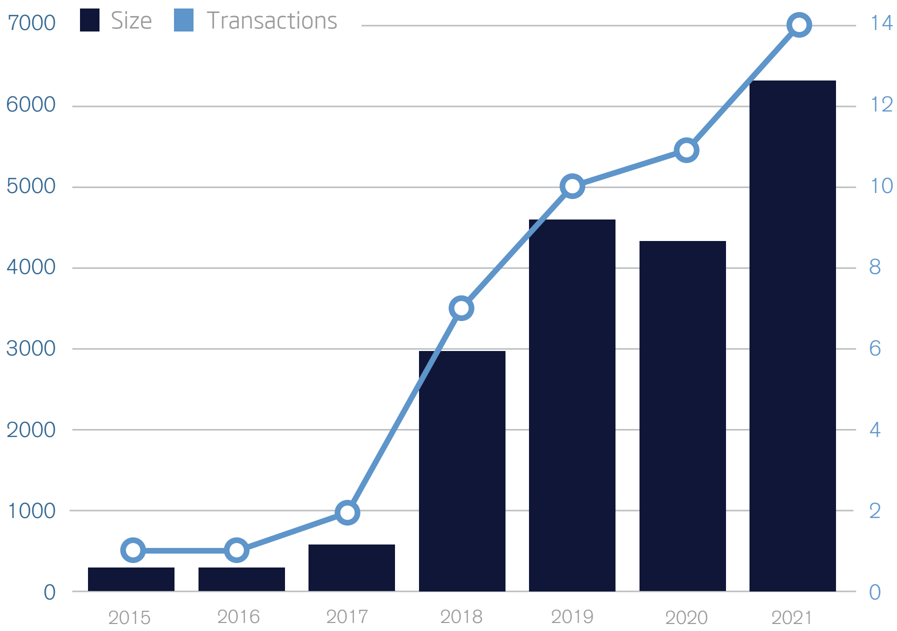
Synpulse is specialized in analyzing your current set-up, proposing a tailored solution / adaptation for your needs, and seeing it through to roll out with our experienced team of ILS and technology experts. Get in touch if you are interested to know more.

JOEL SMITH
ASSOCIATE PARTNER

Mortgage ILS issuance by year

During 2021, mortgage ILS issuance was substantial as 14 separate transactions were issued from sponsors Arch Capital, MGIC Investment Corp, Genworth Mortgage Insurance, Radian Guaranty, National Mortgage Insurance Corp, and Essent Guaranty.

Combined, the 14 mortgage ILS deals to come to market in 2021 amounted to a record almost $6.3 billion, which is up on last year's total of $4.3 billion and above the previous annual record of $4.56 billion set in 2019.

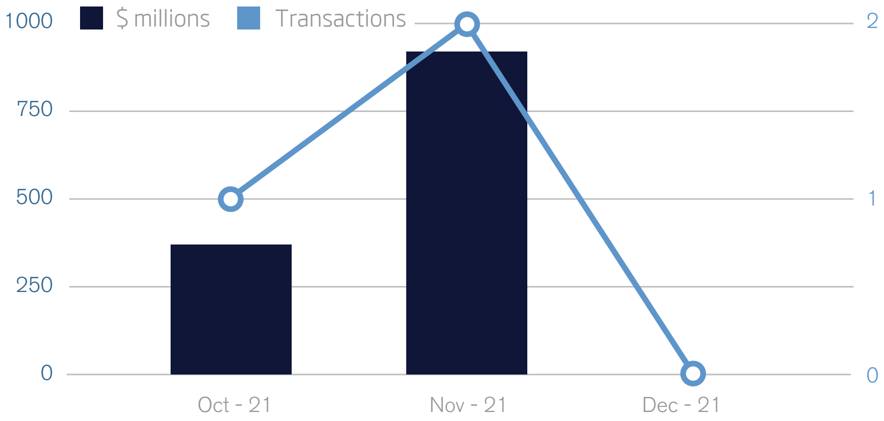


The first mortgage ILS deal was issued in 2015 by Arch (then United Guaranty), which has become the most prolific sponsor of these deals with 17 in total, amounting to almost $8 billion. Both Essent Guaranty and National Mortgage Insurance Corp have sponsored seven deals, totalling $3.1 billion and $2.1 billion, respectively. Radian Guaranty has issued six deals at a combined size of $2.9 billion, Genworth Mortgage Insurance five deals at a total size of $1.8 billion, and MGIC Investment Corp has issued four deals, combining to bring $1.4 billion of mortgage risk to market.

So, since the first deal was issued six years ago, sponsors have successfully placed mortgage ILS deals amounting to a huge $19.3 billion of collateralized mortgage reinsurance secured from 46 transactions.

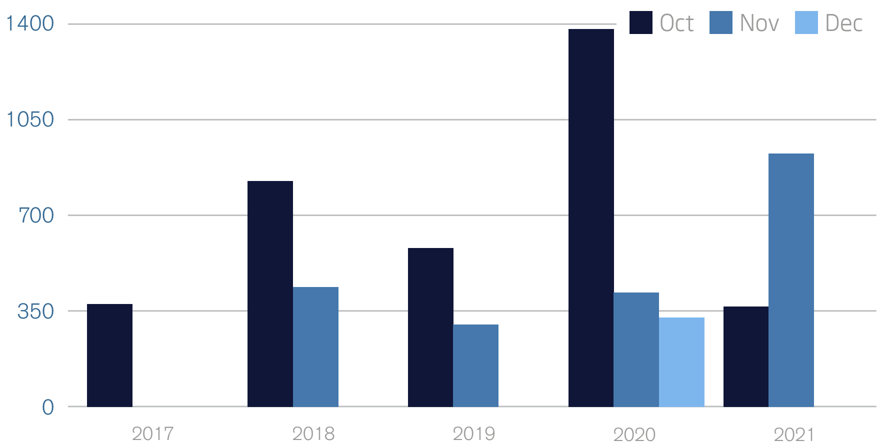
Mortgage transactions and volume issued by month ($M)

At least one mortgage ILS transaction was issued in all but four months of 2021. In March, April, and June mortgage issuance surpassed $1 billion. The most active month of the year was April, which saw three transactions come to market with a combined value of $1.168 billion. The Artemis Deal Directory shows that the majority, or almost 60% of mortgage ILS issuance in 2021 came to market in the first half of the year.



Q4 mortgage issuance by month and year

Although the first mortgage ILS deal was issued in 2015, the first deal to complete in a fourth quarter didn't occur until 2017, as shown by the chart. Since then, at least one deal has been issued in October, while November issuance has also been strong. The issuance of mortgage ILS is rare in the final month of any year, only occurring once since 2015.

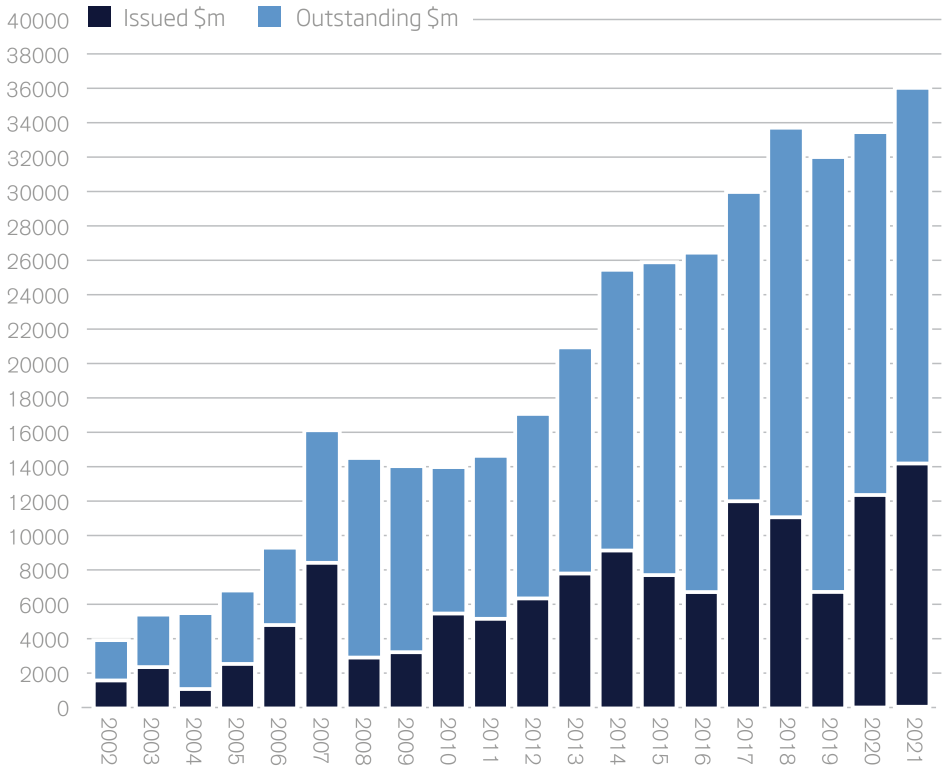


Issued / Outstanding by year

Catastrophe bond and related ILS (144a property cat bond, other line-of-business cat bond, and private cat bond) issuance of $3.2 billion in the fourth-quarter helped the market set a new record in 2021, as total issuance for the year rose by 15% to reach an impressive $14 billion. This is above the 2018 total, which was the previous record, by $2.2 billion, and is the fourth time in the last five years that annual issuance has surpassed the $10 billion mark.

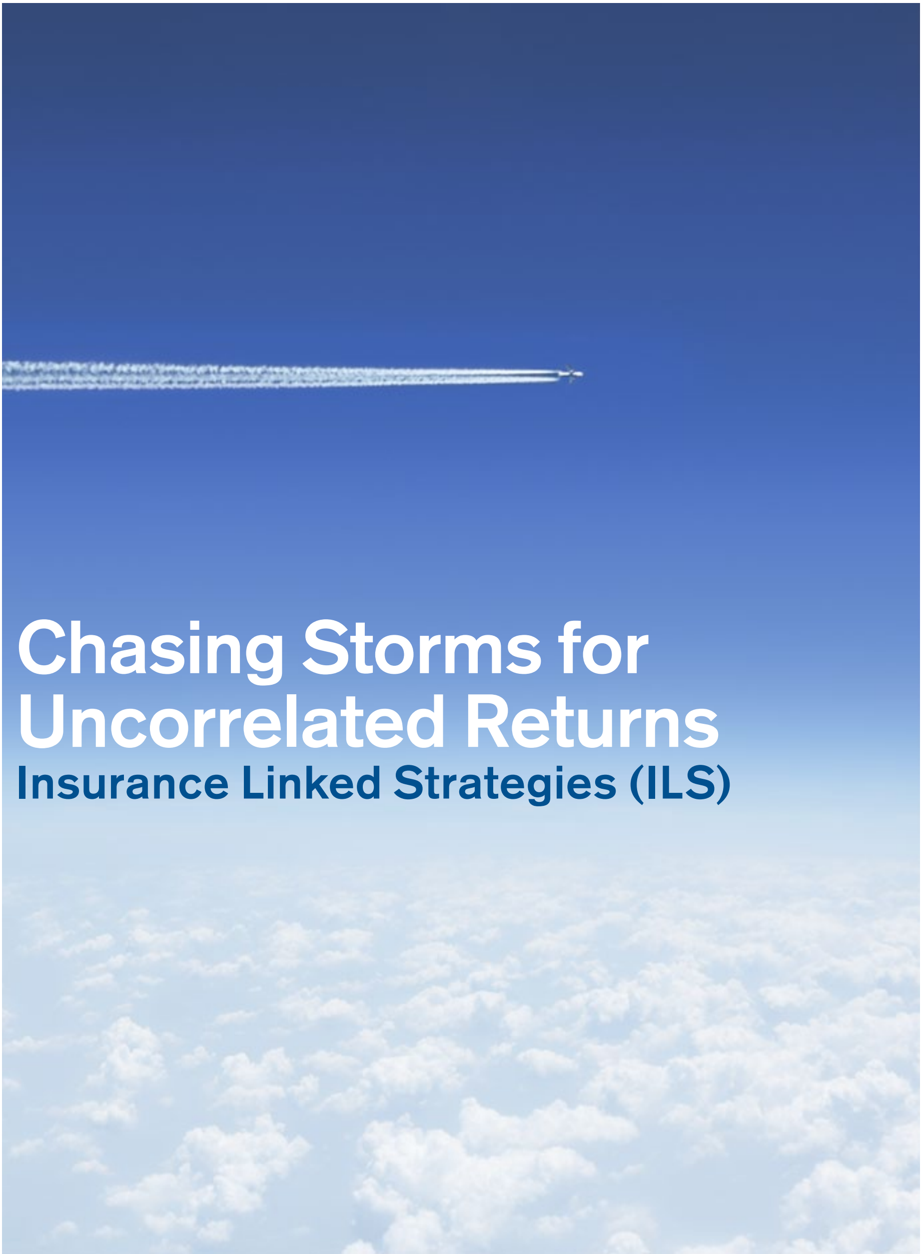
While issuance failed to set a record for any individual quarter of 2021, issuance in each period was above the previous 10-year average. The strongest quarter of the year was Q2 when more than $6.3 billion of risk capital was issued, beating the 10-year average by an impressive $2.6 billion. The least active quarter of the year, in terms of risk capital issued, was Q3 at $1.4 billion, although this is still the third most active Q3 in the market's history, as shown by the Artemis Deal Directory.

As a result of the record level of property cat bonds, private deals and also the influence of deals covering non-catastrophe risks, the outstanding market at the end of 2021 has reached a new high of almost $36 billion. This represents growth of more than $2.5 billion, or almost 8%, from the end of 2020 and means that for the fourth year running, the outstanding market size has breached $30 billion.



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/

For qualified investors only.

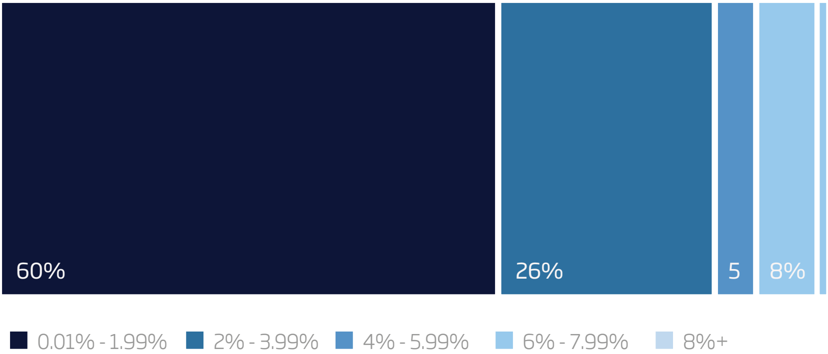


Chasing Storms for Uncorrelated Returns

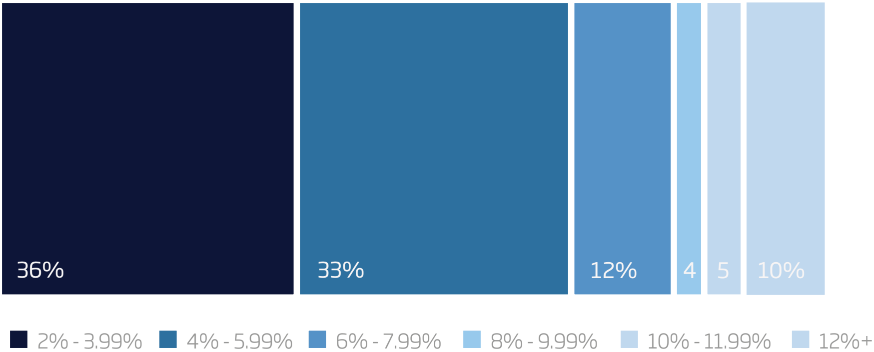
Insurance Linked Strategies (ILS)

For further information please visit www.credit-suisse.com

Full-year 2021 ILS issuance by expected loss

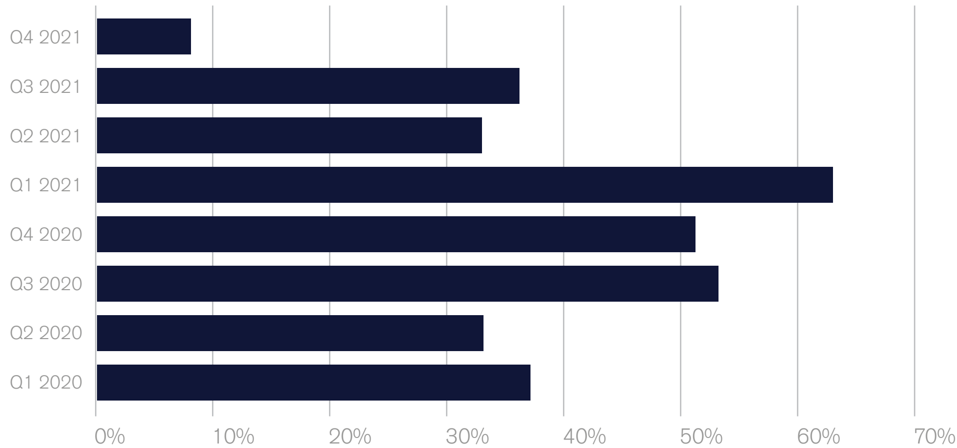


Full-year 2021 ILS issuance by coupon pricing

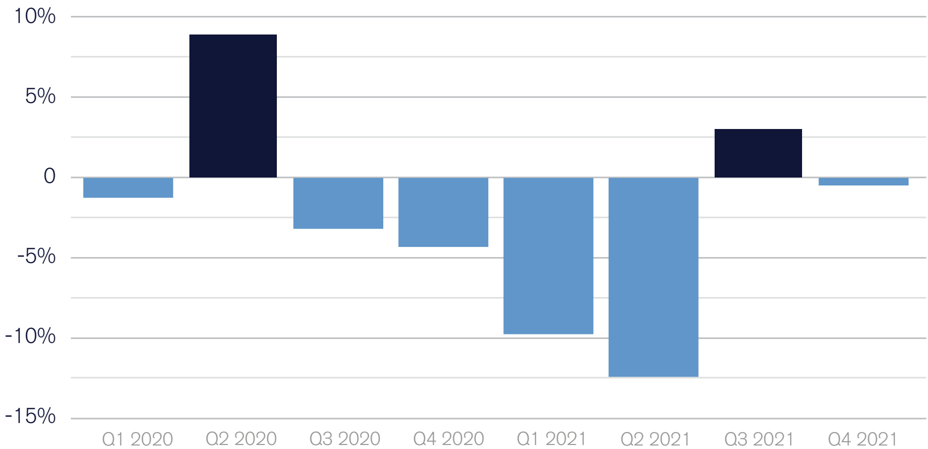


Issuance size and price changes

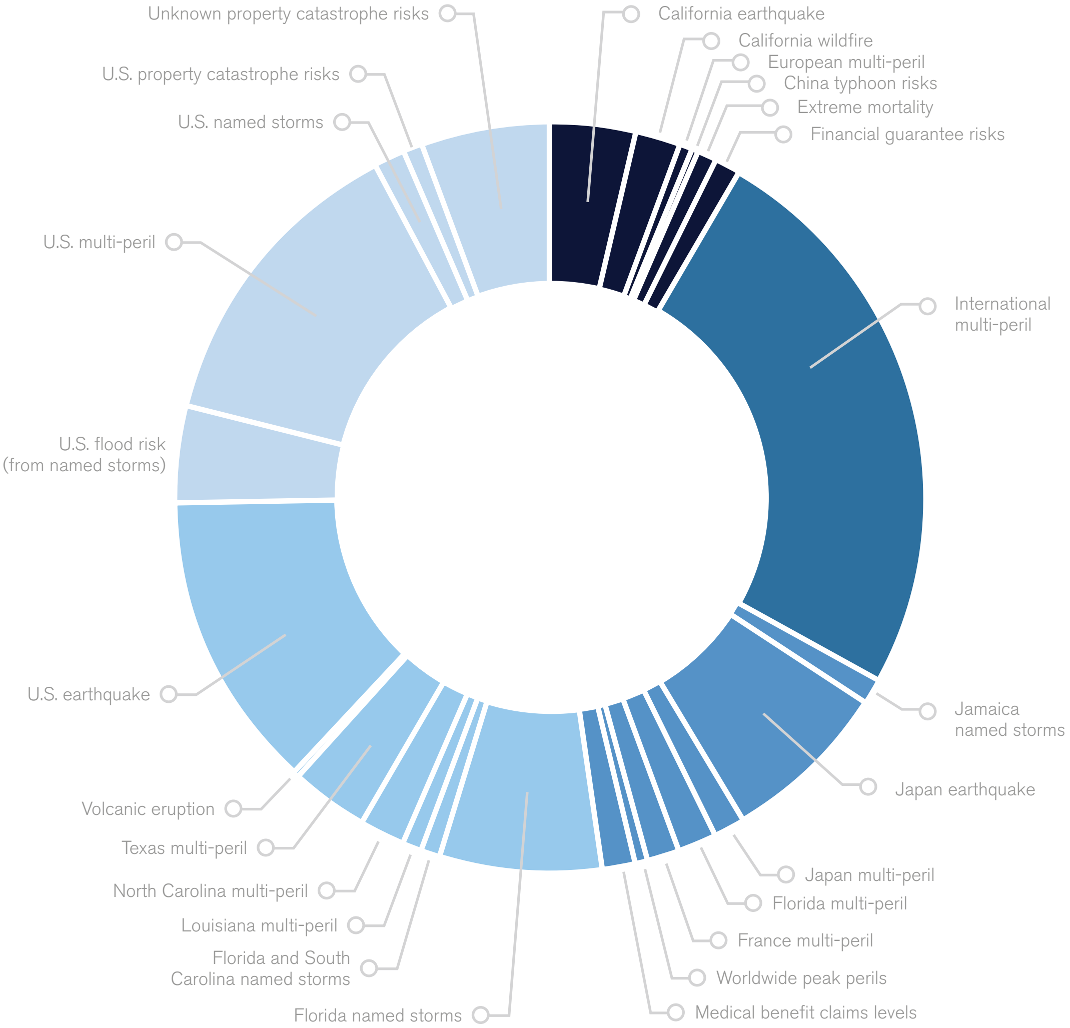
In the fourth quarter, property catastrophe bonds issued increased in size by an average of 7.9%. While this still represents growth for sponsors while deals were marketing, suggesting demand from investors, it does represent a steep decline from the average upsize of 36% recorded in Q3, and an even sharper decline from the 51% average deal upsize seen in Q4 2020. For the full-year, property cat bonds issued have, on average, increased by 31%, compared with 42% a year earlier.



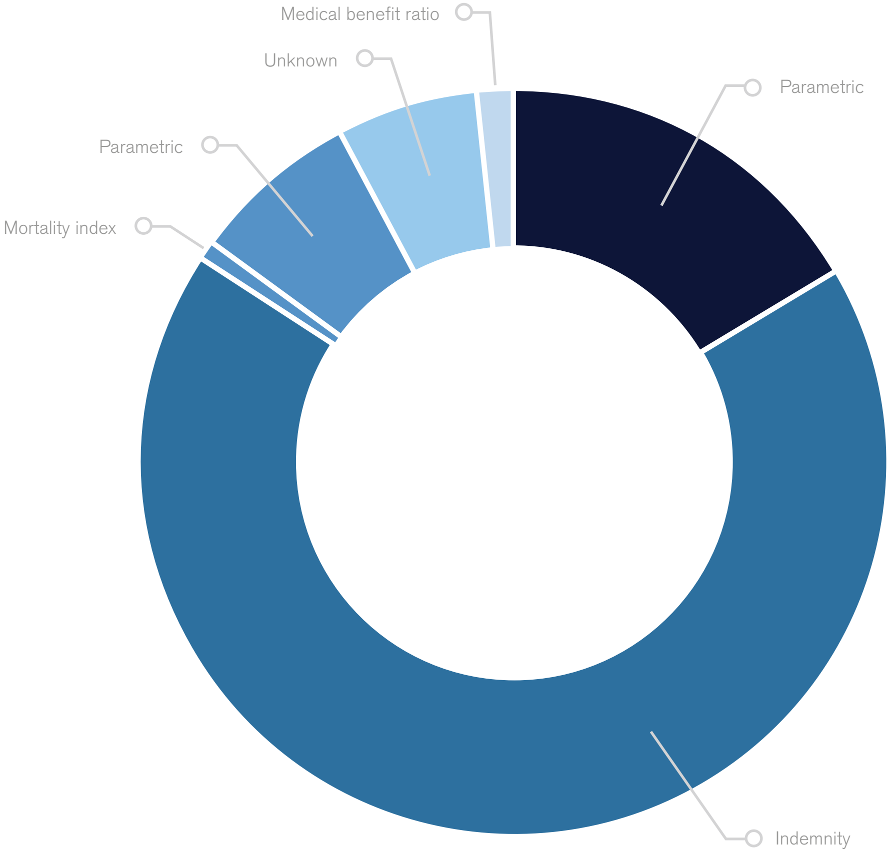
After four consecutive quarters of a negative average price change of property cat bond issuance, the trend reversed in Q3 but has reverted again in Q4. Although minimally negative, the average price change of property cat bond deals issued in Q4 was -0.30%, compared with +2.9% in Q3. During the fourth-quarter, six tranches of notes priced at or above the mid-point of initial guidance, eight priced below, and four deals secured pricing at the mid-point. The most dramatic price change witnessed in the period was an 18.9% increase.



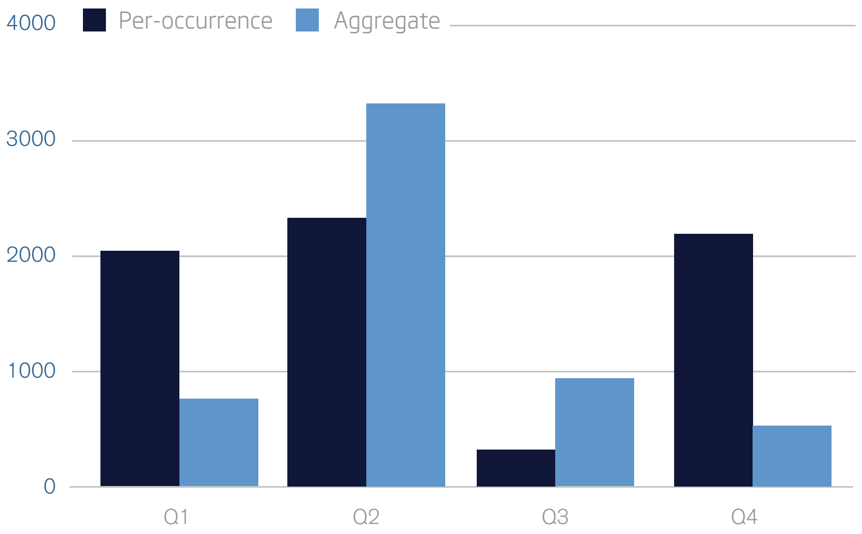
Full-year 2021 ILS issuance by peril



Full-year 2021 ILS issuance by trigger



2021 ILS issuance per-occurrence vs aggregate split by quarter



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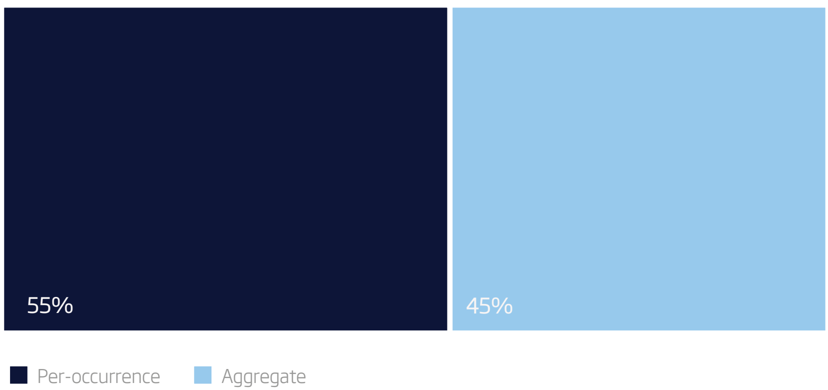
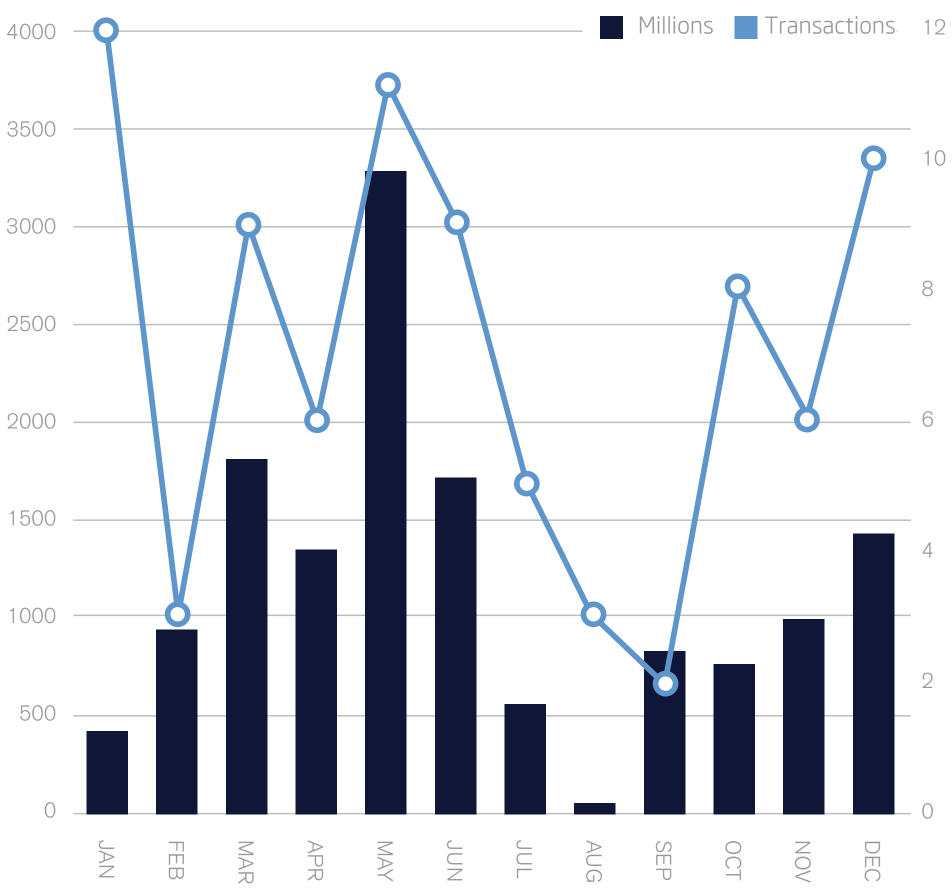


Full-year 2021 number of ILS transactions and volume issued by month

As well as setting a new record for annual issuance, 2021 witnessed more transactions than any other year, at 84. Of these, 50 came to market in the first-half of the year and 34 in the second-half. Reflecting this, cat bond and ILS issuance in the opening six months of 2021 reached a huge $9.5 billion, with the remaining $4.5 billion coming to market in H2.

When compared with last year, less months of the year saw issuance levels surpass the $1 billion mark. However, issuance in certain months was unusually strong which enabled issuance to again break records as the outstanding market size hit a new high of almost $36 billion.

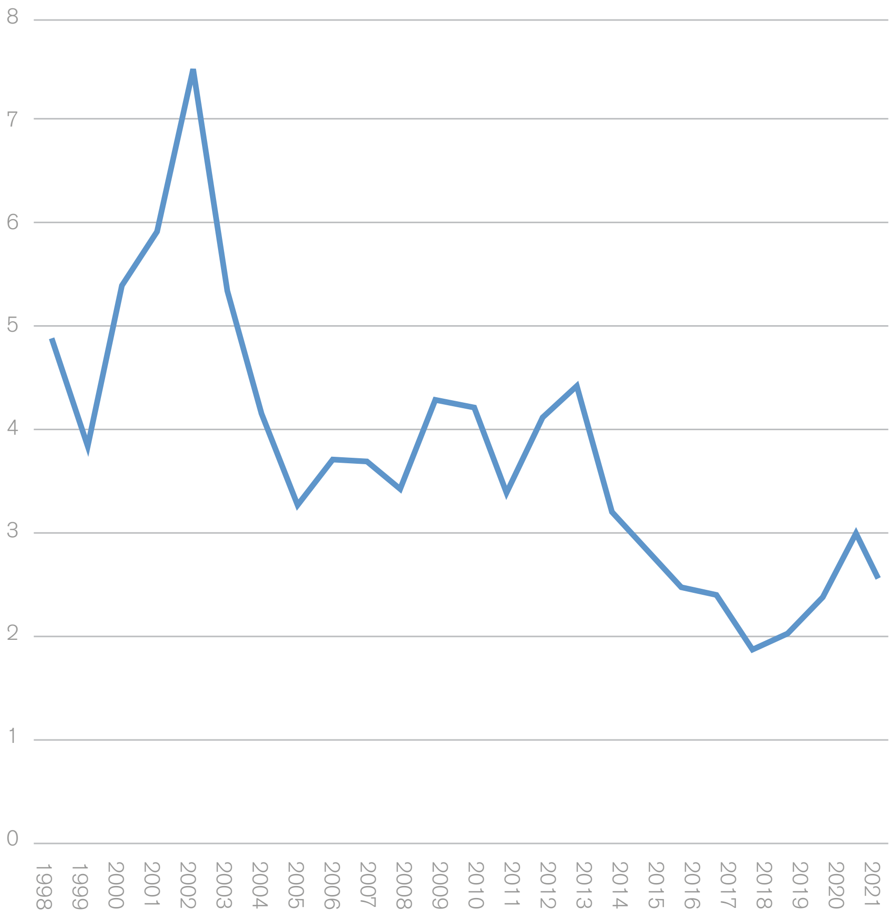
The busiest month of 2021, in terms of risk capital issued, was March, which saw nine transactions bring a combined $1.81 billion of issuance. In terms of the number of transactions, January was the most active of the year, although the majority of the 12 deals issued were privately placed.



Catastrophe bond and ILS average multiple by year

In 2021, the average multiple (price coupon divided by expected loss) of annual issuance declined to 2.58 from the 2.98 recorded at the end of 2020. While this represents a year-on-year dip, it's positive for investors that after falling below 2 in 2017, the average multiple of cat bond issuance has remained above 2 for four consecutive years now, reflecting investors desire to sustain returns from the ILS asset class.

Artemis' data shows that, as the multiple has fallen, so too has the spread (price coupon minus expected loss) of cat bond and ILS issuance in 2021, from 4.96% last year to 3.86%. This reflects the year-on-year decrease in the average expected loss and coupon of issuance, which fell from 2.5% and 7.46% in 2020, respectively, to 2.44% and 6.3% in 2021, respectively, as well as cat bond investor focus shifting further towards the higher layers of reinsurance towers.



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

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