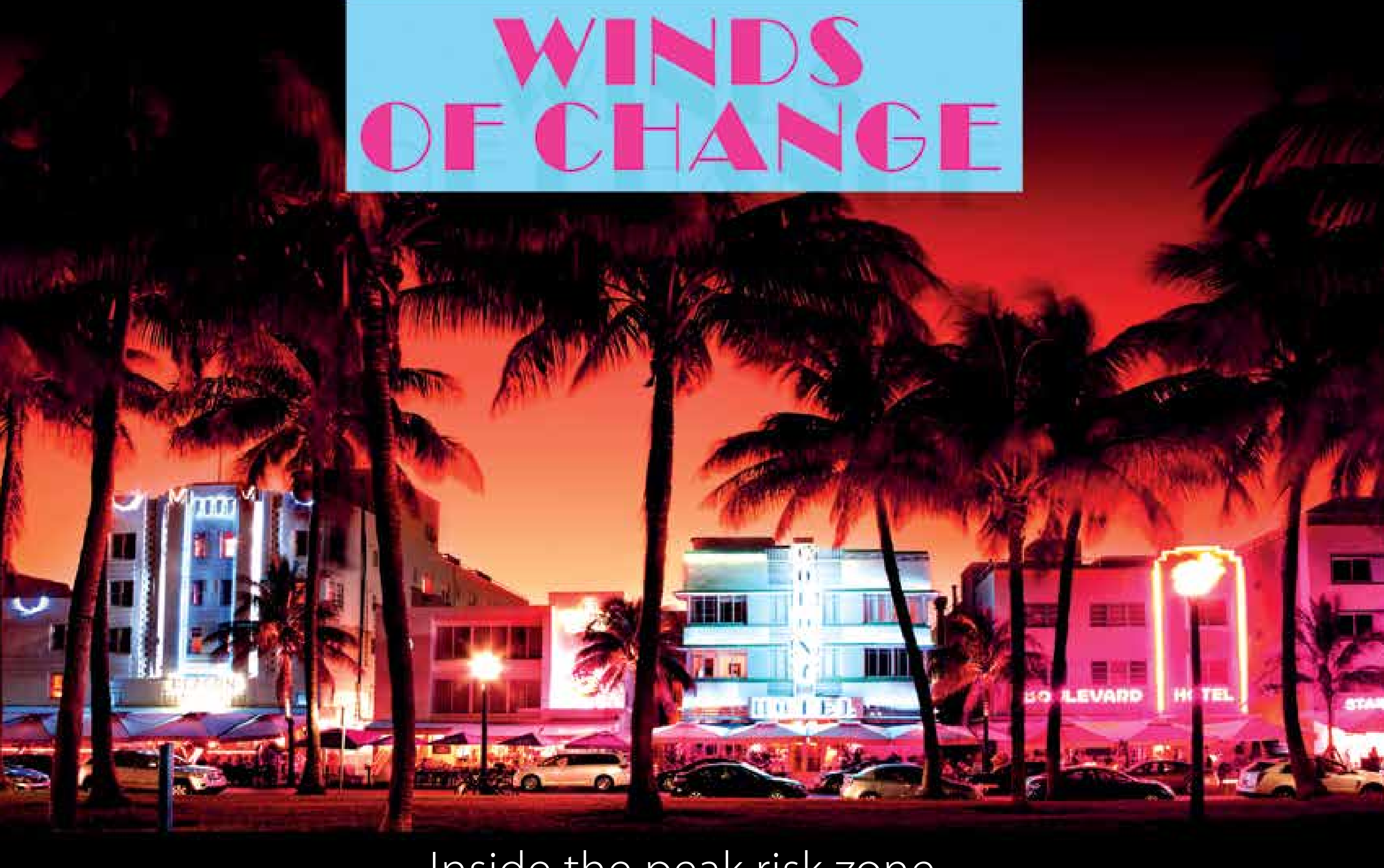
H2 2017

TRADING Risk

INVESTOR GUIDE

FLORIDA IN FOCUS:

WINDS OF CHANGE



Inside the peak risk zone
for insurance-linked securities

Leadenhall
Capital Partners

Insurance Linked Investments

Non-Life and Life Strategies

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COMMENT

Florida is truly the reinsurance market's risk hothouse.

Its coastline produces the bulk of the ILS market's exposure, and despite considerable pressure on margins in the past five years, Florida risks still squeeze out more profit for reinsurers than many other lines of business.

But the dazzling glare in the hothouse can be confusing for newcomers to the market.

Florida insurers operate in a litigious market and as a result, their claims infrastructure sometimes struggles with the heat.

The market has been dominated by local carriers rather than nationwide names, but the larger players among these Floridians are now looking to grow into "super-regional" carriers, changing the mix of risk that will flow to the reinsurers they are heavily reliant on.

Meanwhile, some ILS managers are looking to build up their coastal exposures by taking on Florida risk at its source.

An unusual stretch of good fortune since the state's last major hurricane loss has enabled carriers to build up their resources to face the next big one, and benefited reinsurers and ILS managers in turn.

But it also means that it has been some time since the market has had the chance to prove itself against a testing challenge.

We hope that this second edition of the *Trading Risk* Investor Guide helps to lay out some of the context needed to understand this market and its risks and opportunities, to set the scene for discussions between investors and managers about their approach to Florida.

In the absence of hurricane winds, the only way for the industry to ensure it is ready to face a disaster is through informed and educated debate.

Enjoy the read,

Fiona Robertson, *Trading Risk* editor

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Florida hotspot: the peak reinsurance risk

To understand the key dynamics of the Florida insurance and reinsurance market, you need to go back to 24 August 1992.

The day that Hurricane Andrew hit the state caused shockwaves throughout the industry, as losses reached more than double what underwriters had previously believed they stood to lose from a worst-case disaster.

This prompted a mass flight by nationwide insurers from Florida business, leaving the local government to step in.

Initial public insurance schemes set up after Andrew have now evolved into two organisations that remain a major influence in the local market. These are the state insurer of last resort, Florida Citizens Property Insurance (Citizens), and reinsurance scheme the Florida Hurricane Catastrophe Fund (FHCF).

Some national insurers later returned to Florida, either in their own name or through establishing local subsidiaries (so-called "pups") that isolate their exposure in the Sunshine State. These "pups" include Allstate's Castle Key and State Farm Florida.

But the dominant force in the market are the Florida-domiciled insurers or Florida domestics, which had a 71 percent market share based on total insured value at year-end 2016.

As data from Florida Citizens shows, the Floridians expanded notably in the past five years, moving up from a 45 percent market share in 2011.

This grab for market share has been supported by an active push from Citizens to offload policies, in a bid to reduce Florida taxpayers' exposure to hurricane risk.

Its scheme to cede policies to private insurers is officially known as its "depopulation" or "takeout" programme, a label often also applied to the private "depop" insurers that have quickly grown their portfolios by assuming policies from Citizens.

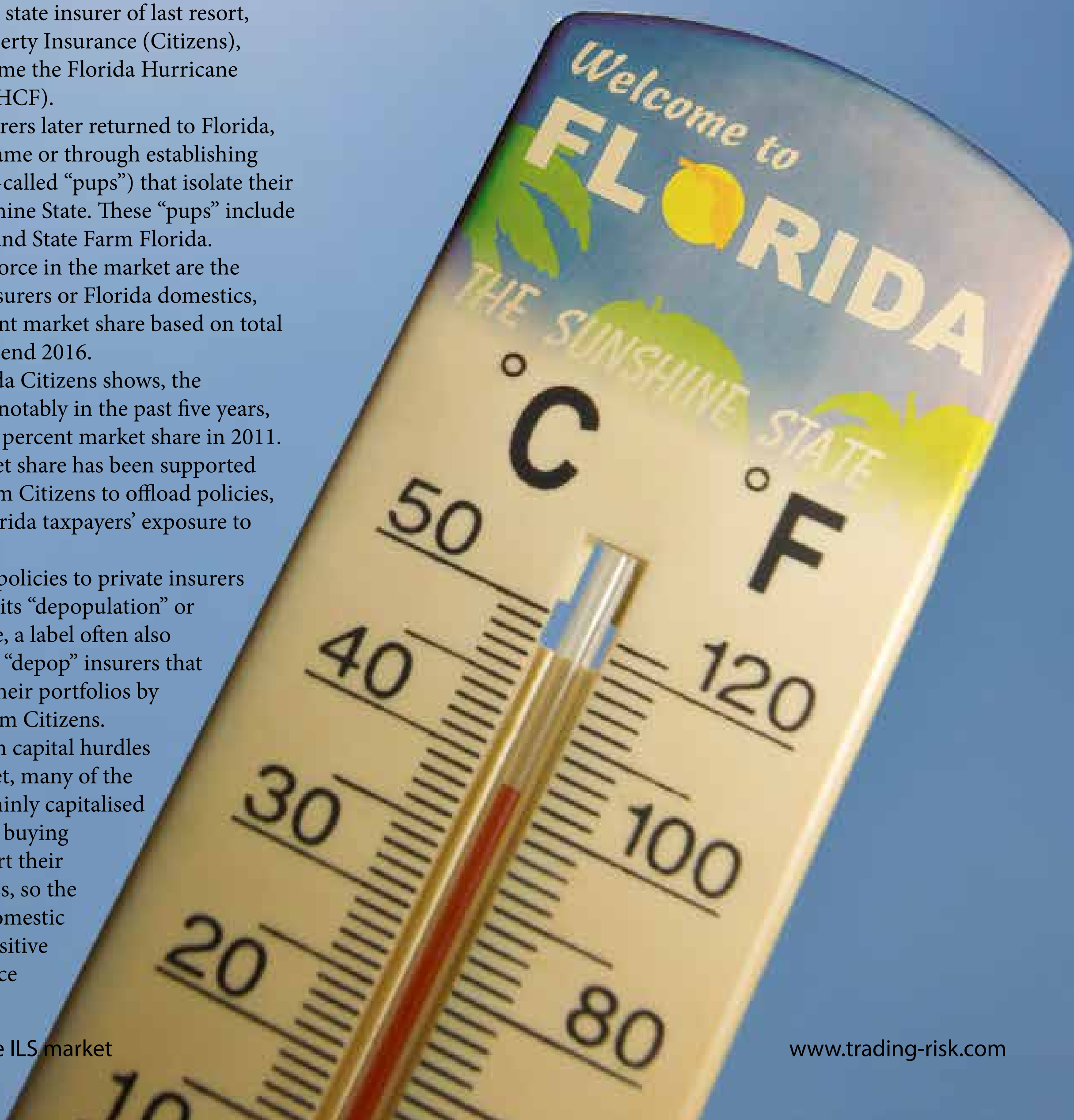
With low minimum capital hurdles to entering the market, many of the Florida carriers are thinly capitalised and hugely reliant on buying reinsurance to support their underwriting business, so the shift to the Florida domestic market has been a positive one for the reinsurance sector. But there are theories that this trend has now run its course and that Citizens could be set to grow again, with a number of Florida insurers struggling financially over the past year.

Ratings agency Demotech warned in February that it could downgrade insurers with less than $25mn of surplus, which prompted some M&A amongst the state's smaller operators, although no notable ratings actions were taken.

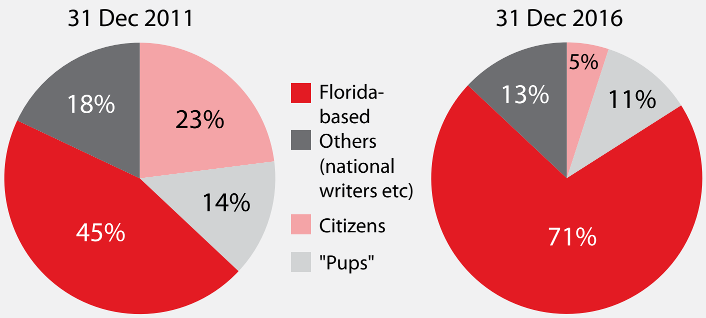
Behind the AOB crisis

Florida insurers have long been plagued by problems in controlling claims abuses.

Sinkhole claims were the bane of Florida insurance



Local Florida insurers grab market share



Based on total insured value for policies with wind coverage; includes admitted insurers only, surplus lines companies not included
Reflects values for State Farm Florida as reported for Q4 2013
Source: Florida Citizens

Fragmented market of top Florida carriers

Company	Market share (total insured value)
State Farm Florida Insurance Company	7%
Universal Property & Casualty Insurance Company	6%
Citizens Property Insurance Corporation	5%
Federated National Insurance Company	4%
Heritage Property & Casualty Insurance Company	4%
Security First Insurance Company	4%
United Property & Casualty Insurance Company	3%
Federal Insurance Company	3%
American Integrity Insurance Company of Florida	3%
St Johns Insurance Company, Inc	3%
Total	**42%**

Ranking by total insured value for personal and commercial residential business as of 31/12/2016, using 2013 data for State Farm Florida as after 2014 it began filing its market share data as confidential
Source: Florida Citizens Property Insurance.

business in the early 2000s, but the latest claims spiral relates to the "assignment of benefits" (AOB) regime.

AOB rules allow policyholders to sign over rights to reclaim losses from their insurer to a third party, and over the past year these have been used by repair contractors to file increasing numbers of inflated claims.

However, the reinsurance market has been largely insulated from this spike in insurance losses – since they're typically related to minor water damage claims and don't get covered by reinsurance for natural perils.

ILS influence

As the very reason for the ILS market's existence, it's no surprise that Florida is one of the areas where ILS capital is most dominant.

That's because even after hefty rate cuts, Florida still provides two thirds of the exposure and margin in the reinsurance industry's US wind portfolio, according to data from Aon Benfield.

This premium honeypot produced $8.7bn of gross homeowners' multiple-peril premium in 2015, according to the National Association of Insurance Commissioners. A large portion of this will be handed in turn to reinsurers. However, the FHCF absorbs a significant chunk of this expenditure because a certain level of participation in the state-backed scheme is mandatory.

Two of the leading private reinsurance carriers in the state are Bermudian ILS manager Nephila Capital and Everest Re, the Mt Logan Re sidecar operator.

Other major ILS market participants are RenaissanceRe and its DaVinci Re sidecar, Bermudian ILS manager Aeolus, Validus and its asset management platform AlphaCat, as well as Elementum.

Securis has been boosting its profile in the state in the past year, as has Credit Suisse.

According to a *Trading Risk* study of premiums ceded by the state's 10 largest insurers by net written premium, ILS market carriers and cat bond investors took 24 percent of the total $2.51bn ceded by the group last year.

This figure was down from a 27 percent share in 2015, but the longer-term picture has been of rapid growth from just a 14 percent share in 2012.

This suggests the sun has by no means set on the ILS market's expansion into Florida.

Florida timeline

1992	1993	2002	2007	2010	2011	2012	2014	2015	2016
Hurricane Andrew wreaks inflation-adjusted losses of $31bn	State reinsurer FHCF formed	State insurer of last resort Citizens set up	House bill 1A freezes Citizens rates, setting off a boom in its growth	Citizens sets off on "glidepath" to gradually increase rates	Florida Citizens returns to buy reinsurance after two-year hiatus	Citizens tips the scales at 1.5 million policies, taking 26% of Florida's residential insurance market	Citizens buys $1.5bn Everglades Re cat bond in one of the largest ever ILS deals	FHCF, the state reinsurer, buys $1bn of reinsurance for the first time	State-backed insurer Citizens shrinks to under 500,000 policies worth $144bn

Source: *Trading Risk*

Securis: broadening ILS horizons

London-headquartered ILS manager Securis Investment Partners spent its first five years building a track record for its flagship fund, which was then the firm's exclusive offering.

But in more recent years it has started expanding its offering and diversifying its range of funds as ILS investor appetite matures.

Today, primary insurance, specialty and life ILS sectors are among the fast-growing niches that it is exploiting as investors seek exposure to (re)insurance risk beyond the catastrophe segment.

But the chief operating officer at Securis Investment Partners, Vegard Nilsen, reflects that the early discipline of focusing on a single fund stood the company in good stead.

Initially, it had to turn away capital – "more than we would have liked to" – from investors who were not looking for the mix of life and non-life risk represented in the flagship Securis fund, he notes.

"It benefited us in the long term," he continues. "It was important for us to build a good track record early on, and focus all our attention on the Securis 1 Fund." The firm's initial one-track focus helped to build up the record of its flagship fund and avoided "cannibalising" its growth among multiple strategies, he explains. "It also allowed us to study investor behaviour to properly understand what they wanted."

With over 50 staff, Securis boasts one of the largest teams in the ILS space and has grown steadily since securing an initial $25mn of seed capital from Swiss Re in 2005. "The team and assets under management have grown hand in hand over the years – we have seen a very healthy evolution of the business."

After investing in expanding its underwriting team, Securis is placing an ever-increasing focus on automating and streamlining key areas of the business in order to ensure continued scalability, Nilsen explains.

"This allows the team to focus entirely on our core strategy, managing ILS portfolios and generating good risk-adjusted returns for our investors, and it will support further growth. Having said that, we don't want to grow just for the sake of growing, but if there is demand we will see further organic growth."

Operational focus

Supporting a broader range of products has brought the firm's infrastructure to the fore.

"Our Lloyds initiative, for instance, where we offer access to the London specialist insurance marketplace, is complex and data-intensive and until recently unexplored by ILS managers," Nilsen says, adding that the life sector is similarly complex.

As one of the first employees at Securis back in 2005, Nilsen says he today appreciates the company's early commitment to focus as much attention on its infrastructure and operating platform as on the investment management and insurance investment side of the business.

"One cannot function without the other," he adds, explaining that he sought to build a scalable business with strong processes in place.

"You want to have the mentality of a large institution while remaining nimble and efficient. We never did things on the back of an envelope. If you want to attract institutional quality investors, you have to behave like one."

Securis in brief

- Team of 52
- Approx 140 institutional clients
- Firm AuM: $4.7bn as of 1 August
- Founded 2005

When Securis launched in 2005, the ILS asset class was still fairly new, in particular to traditional investors. The conversion rate from the initial investor meeting to an actual decision to award a mandate was quite low, Nilsen explains.

This was not unexpected behaviour and led the firm to choose blue chip and well-known names to provide key services such as custody, administration, auditing, tax and legal advice at the outset, to make sure investors didn't have to waste valuable time unpicking operational matters.

"We didn't want investors to question the operational side," he says. "We wanted them to get comfortable with ILS as an asset class. Our main objective, from an operational point of view, was to provide clients with appropriate assurances, very early in the process, which allowed them to focus their time and energy on the asset class and investment strategy. This has worked well for us."

Independent values

Securis opened a Bermuda office in 2014, which has made a big impact on the firm's ability to source business and investment opportunities.

Securis also has offices in Zurich, Geneva and Tokyo and staff in the US and Australia.

While its origination team might be small compared to the numbers of underwriters employed by a global reinsurer, the firm is able to successfully deploy its assets, Nilsen says. "We have an impressive track record and have deployed in excess of $2bn this year alone."

"We have never felt we needed help with distribution," he explains. "We have a global team that takes care of that."

Vegard Nilsen, chief operating officer, Securis

Moreover, being a pure asset manager gives the firm an advantage in not having to balance the needs of a competing balance sheet, he argues.

"A key selling point for us is that we do ILS and nothing else. We're an independent asset manager, we're not an insurance or reinsurance company, nor are we linked, associated or owned by one. We are 100 percent aligned with our investors, if they do well, we do well."

Moreover, Nilsen also says that the firm's independent structure and the absence of a rated balance sheet entails fully collateralising all transactions it invests in and not taking market risk, as collateral is typically deposited with highly rated banks or invested in sovereign money market funds.

"One may argue that this is a limitation on our business, or less flexibility, but I think the opposite: it keeps us focused on our core strategy, ILS and our investors." In contrast, in the broader (re)insurance industry, times of financial crisis can often uncover investments in non-core businesses that can weaken balance sheets, he suggests.

Ownership change

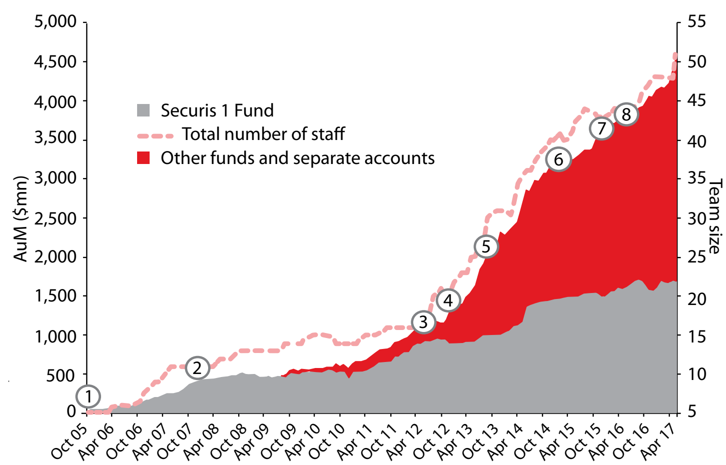
Launched initially with seed capital from Swiss Re and insurance private equity specialist Stone Point, these seed investors and Securis management sold a majority stake in 2012 to Northill Capital, an investment outfit linked to the Bertarelli family.

Its approach was a compelling one, says Nilsen. "It was an opportunity for us to work with a serious and long-term partner." Northill invests in a number of asset managers and with it Securis is looking forward to continued expansion, Nilsen says.

"It's truly been an organic growth story."

Securis corporate development – timeline

1. **October 2005**
   Securis I Fund incepted with $25m of seed capital from Swiss Re
2. **November 2007**
   Strategic partnership with Stonepoint Capital
3. **April 2012**
   New long-term partnership with Northill Capital
4. **September 2012**
   Launch of "smart beta" funds – life and non-life
5. **June 2013**
   Launch of Securis Opportunities Fund
6. **November 2014**
   Lloyds Corporate Member Fund operational
7. **November 2015**
   Launch of Lloyd's SPS 6129 with Novae
8. **March 2016**
   Launch of Securis Catastrophe Bond Fund (UCITS)



Source: Securis

Punt on primary risks

The launch of a landmark primary insurance distribution facility was among the highlights of the first half of 2017 for ILS fund managers, as they continued on their diverging paths to growth.

Nephila Capital continued to spearhead expansion into the US primary insurance market, as it set up a distribution agreement with broker Marsh. The facility involves Nephila picking up a 10 percent share of the broking firm's large US commercial property portfolio, writing cover at a 7.5 percent discount to market rates.

The ILS manager's fronting partner, Allianz, will retain attritional exposures in the policies while catastrophe risk will be ceded to Nephila. The premiums are thought to be worth $100mn-$200mn annually, making the facility a more significant replacement for a previous distribution agreement with wholesale broker Amwins.

Meanwhile, Nephila also agreed a deal with a major US insurer to assume coastal exposure, broadening its access to primary risk.

Many nationwide homeowners' carriers limit their exposure in coastal states such as Florida, but distribute business coming in through their agency networks to other carriers.

This is often transferred to parties with a lower rating than the fronting insurers that write business on Nephila's behalf.

Steady asset growth

The top 10 ILS managers lifted their assets under management by 8 percent in the first half of 2017, taking the group's collective capital base to $56.5bn, according to *Trading Risk* records.

This was generally in line with the growth rate the group recorded over the past year.

Credit Suisse Asset Management led the way, adding $1.1bn to reach $8.6bn, narrowing the gap to Nephila's market-leading $10.5bn.

New Ocean and Munich Re received significant new allocations from one of the largest ILS investors, Dutch pension fund PFZW.

Meanwhile, new entrants continued to join the market, with London-based asset manager Tenax Capital setting up in the cat bond sector.

But the challenges of competing with industry incumbents was highlighted by Deutsche Asset Management's decision to close its ILS fund after two years in operation, in a development revealed by *Trading Risk*.

> "[The Marsh facility is] a strategic and innovative structure that enables Nephila to give insurance clients choice"
> Frank Majors

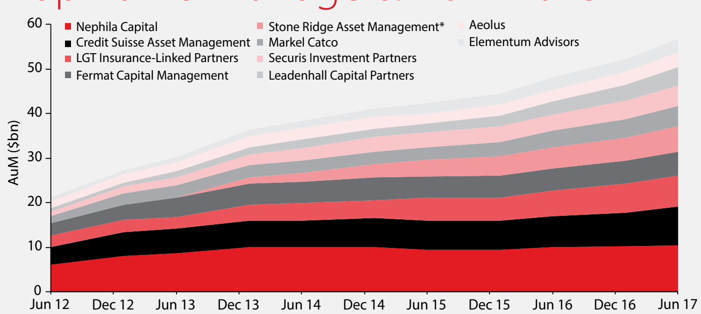
At a personnel level, the first half of the year has also been an active one for changes.

Blue Capital's CEO Adam Szakmary resigned and was replaced by Endurance chief financial officer Michael McGuire.

In other moves first revealed by *Trading Risk*, Twelve Capital's head of investment management John Butler resigned from the company after five years, with a senior former Barbican underwriter expected to replace him.

Hiscox Re ILS also lost its chief investment officer Michael Jedraszak.

Top 10 ILS managers: AuM 2013-17



*Latest Stone Ridge AuM is reported on trailing quarterly basis, most recent disclosure as of 30 April
Source: *Trading Risk*

ILS entries and exits

In

Manager	Launched	Strategy
Tenax Capital	May-17	EUR50mn UCITS cat bond fund
IBI ILS Partners	Jan-17	Cat bond fund
GT ILS fund	Dec-16	ILS fund of funds strategy
City National Rochdale Select Strategies	Dec-16	Allocates to ILS manager Iris Re
Hudson Structured Capital Management	May-16	Mixed range of reinsurance risks/ instruments
Lombard Odier	Apr-16	UCITS cat bond fund

Out

Manager	Exited	Strategy
Deutsche Asset Management	mid-2017	~$100mn cat bond fund
JPMorgan	Q4 2016	$400mn cat bond portfolio
AQR Re	Q1 2015	$445mn collateralised retro/reinsurance funds

Source: *Trading Risk*

ILS returns set off at slower pace

Average ILS returns for the first half of 2017 trailed slightly behind gains recorded in the same period of last year, reflecting the impact of rate softening in the past year, as catastrophe activity has been relatively benign.

The Eurekahedge ILS Advisers index, which averages out performance from a group of 34 ILS funds, showed a gain of 1.65 percent (net of fees) for the first half of this year.

> "Strong levels of new issuance this year have helped to rebalance strong demand"

This was slightly behind the 1.93 percent gain reported for the first six months of 2016, despite the generally modest catastrophe loss experience to date this year.

In the public cat bond market niche, softer rates and lower risk levels have lowered available yields this year (see pages 12-13 for a fuller review of the liquid ILS market). Cat bond returns, gross of fees, came to 1.93 percent for the half-year, the Swiss Re global cat bond total return index shows. This compared to a 2.84 percent gain in the first half of 2016.

But cat bonds still offer a "healthy premium" to US corporate high-yield debt, Swiss Re Capital Markets has said (see graph for comparison).

Moreover, during the first half of 2016, a limited supply of new transactions had pushed cat bond prices up to offset the usual depreciation caused by the hurricane season approaching.

In contrast, strong levels of new issuance this year have helped to rebalance strong demand and investors have not had the same mark-to-market benefit in their liquid portfolios.

Reinsurers have escaped lightly from a relatively active first-half for US tornadoes, as losses have generally been contained within the primary insurance market – although ILS Advisers reported some funds had taken losses in May.

However, claims will have brought aggregate contracts that cover storm risks nearer to their trigger.

Debbie impact

Meanwhile, Australian cyclone Debbie had a slight impact on ILS funds, ILS Advisers said earlier this year.

Exposure to Debbie claims is likely to have come through reinsurer quota shares or aggregate covers bought by Australian insurers, some of which are set to make payouts for a second consecutive year.

Industry insured catastrophe losses for the half-year reached $19.5bn, down 39 percent from the first half of 2016, according to estimates from Munich Re's NatCat service.

The costliest insured loss of H1 was a $1.8bn US thunderstorm that struck in early May, followed by Cyclone Debbie with $1.4bn of losses.

However, for US catastrophes alone, Property Claim Services reported that losses were up 10 percent year-on-year at $15bn.

This made it the most expensive first half for US losses since H1 2011, which produced claims of $24bn.

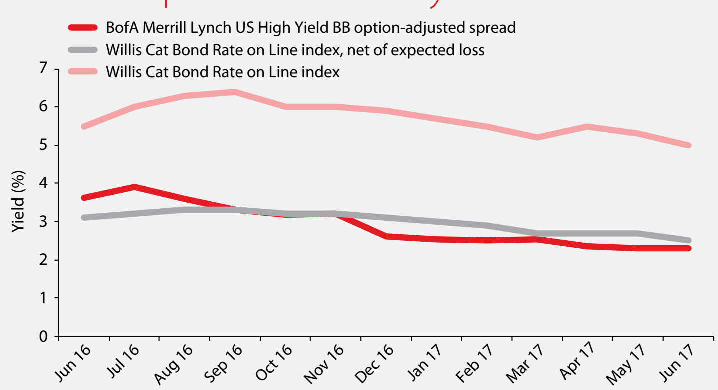
Swiss Re's Sigma loss estimates came out slightly higher than the Munich Re figures, as the reinsurer put half-year natural catastrophe claims at $20bn. It said US losses accounted for $16bn, or 70 percent of the total insured losses.

H1 ILS returns: ILS Advisers index

	Jan	Feb	Mar	Apr	May	Jun	H1
2017	0.36	0.32	0.21	0.15	0.19	0.4	1.65
2016	0.21	0.53	0.4	0.4	0.04	0.26	1.93

Source: ILS Advisers

ILS vs corporate BB bond yields



Source: Bank of America Merrill Lynch, Willis

H1 2017 natural catastrophe losses

Date	Type	Location	Insured loss ($bn)
27 Feb - 2 Mar	Severe weather	US	1.4
6 Mar - 10 Mar	Severe weather	US	1.6
26 Mar - 28 Mar	Severe weather	US	1.6
27 Mar - 31 Mar	Cyclone Debbie	Australia	1.4
8 May - 11 May	Severe weather	US	1.8
11-Jun	Severe weather	US	1
Total major losses			**8.8**
All catastrophe losses			**19.5**

Source: Impact Forecasting (US losses) and Munich Re NatCat (ex-US and global losses)

'Double-dip' rate drop in Florida renewals

Florida reinsurance buyers were able to obtain heftier discounts on their renewals this year than in 2016, reflecting depressed demand for new cover and vigorous competition from underwriters.

Beyond this localised market, the mid-year renewal season showed rates for catastrophe business fell in the low single-digit range. However, there were isolated instances of rate increases on loss-affected reinsurance layers.

Florida rate reductions averaged around 5 percent and ranged up to 8 percent or more on loss-free business, according to market sources polled by *Trading Risk*. This was steeper than the 2.5 to 5 percent range observed at last year's June renewal.

Coverage conditions broadened to offer cover for any one event across the timespan of a named storm, rather than a set period.

Broker JLT Re calculated that Florida reinsurance prices are now about 40 percent below levels recorded in 2012, and only 10 percent above the previous cyclical low of 1999/2000 (see graph).

The fall in demand for cover came as major local insurers, such as Florida Citizens and UPC Insurance, sought to consolidate their reinsurance arrangements.

"When demand goes down in a soft market you tend to get a bit of a feeding frenzy," a senior reinsurance broker observed.

On the modelling side, updates to the RMS Atlantic hurricane model – which showed a lower view of risk – also proved to be a factor in the renewal dynamics, adding to downward pressure on rates.

Meanwhile, on the underwriting side, there was "renewed vigour" from ILS markets to deploy capital this year, as JLT Re phrased it.

After a degree of retrenchment from the Florida homeowners' market last year, Bermudian ILS fund giant Nephila is believed to have been among the ILS players willing to deploy huge lines on select large accounts.

On the international side, Willis Re observed increasing convergence between ILS market pricing and traditional reinsurance rates.

The reinsurance broker put rate reductions on loss-free Australian property layers at 2.5 to 5 percent, with some loss-hit business seeing increases of as much as 5 percent.

Reinsurers have been pulling back capacity for aggregate covers and low-attaching layers in Australia, it added.

Property rate movements at June and July renewals

Territory	Risk loss free % change	Risk loss hit % change	Cat loss free % change	Cat loss hit % change
Australia	-5% to -12.5%	Varies	-2.5% to -5%	-2.5% to -5%
UK	n/a	n/a	-2.5% to -7.5%	n/a
US	-2.5% to -7.5%	0% to 5%	-2.5% to -7.5%	5% to 20%
US – Florida	-5% to -15%	0% to 5%	-5% to -10%	3% to -3.5%
Non-marine retro	-5% to -10%	0% to 10%	-5% to -10%	0% to 10%

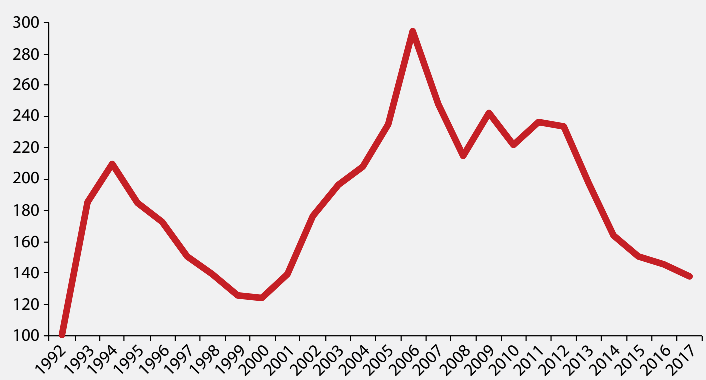
Source: Willis Re. Movements are risk-adjusted

The mid-year renewals

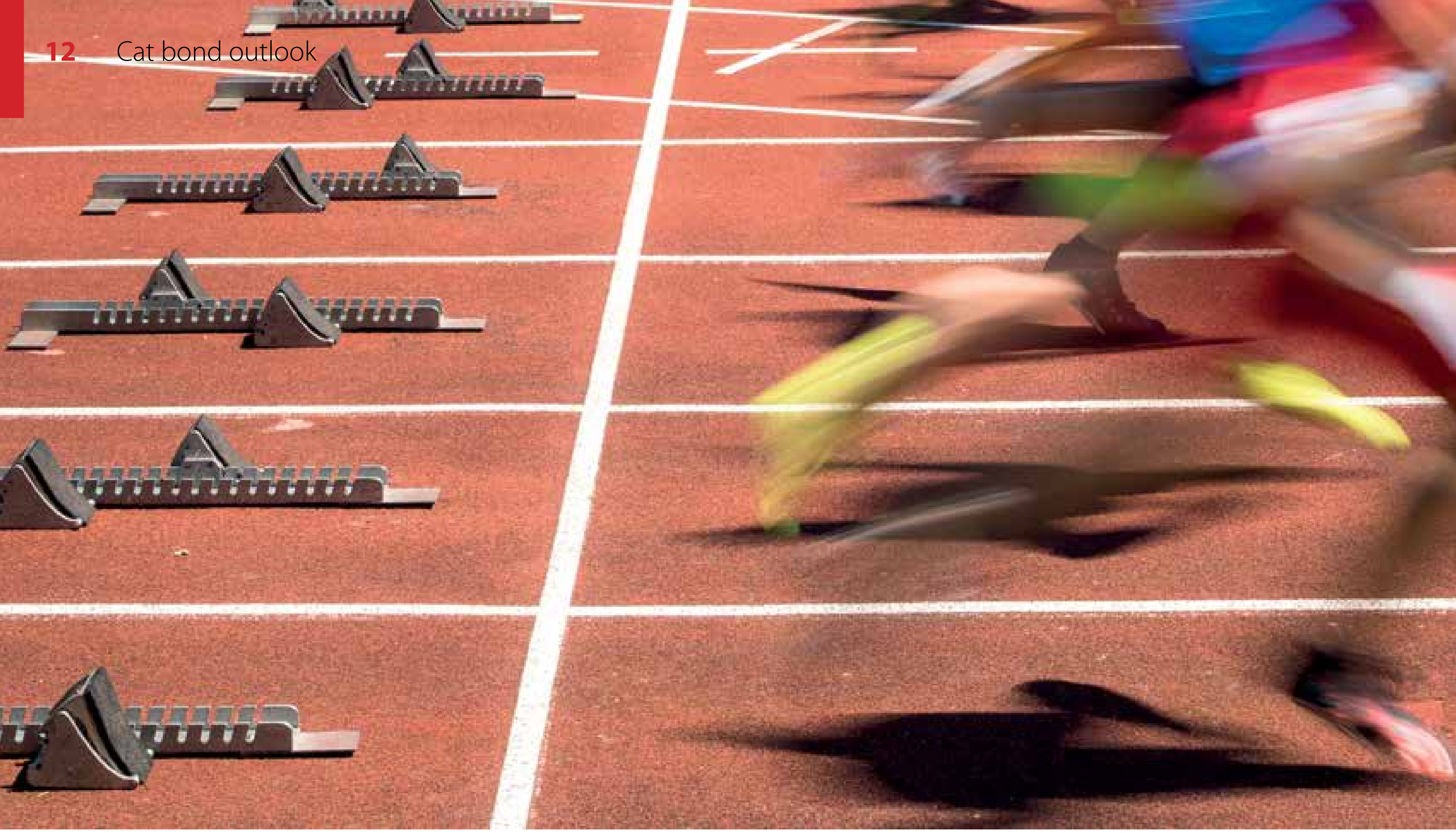
The rollover date for Florida reinsurance programmes is 1 June, while a small number of US insurers renew their cover midway through the year.

A portion of the retro market is also placed on 1 July, along with some Australian covers.

Florida reinsurance rates: Back to the 90s



Source: JLT Re



Surging cat bond market tops records

2017 has already set a new record for annual cat bond volumes, after competitive market conditions drew a flurry of deals in the second quarter to take half-year issuance to $9.08bn.

This year was always expected to be a big one for the market, with $7.8bn of issuances from the last bumper vintage for cat bonds in 2014 due to mature.

Renewals were expected to create strong deal flow, but volumes exceeded expectations as sponsors of new bonds responded to aggressive price points on offer from investors, says Paul Schultz, CEO of Aon Securities.

For reinsurance buyers, cat bond premiums were looking noticeably more competitive against traditional reinsurance rates throughout the various layers of programmes they were seeking to fill, he explains. A year earlier, cat bonds were only competitive at certain risk levels.

Swiss Re Capital Markets calculates that spreads on cat bonds with an equivalent risk level to B or BB rated corporate debt have fallen by 7 percent and 10 percent respectively during the first half of 2017, and by 13-14 percent since mid-2016.

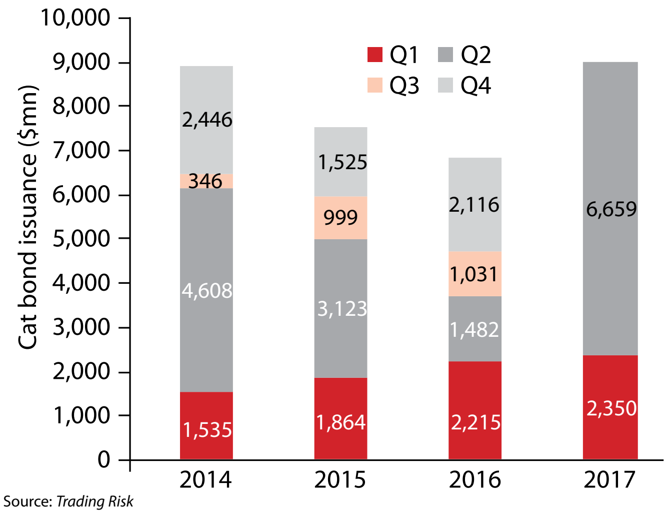
Another measure of cat bond market rates, the Willis Towers Watson Securities rate-on-line index, also shows how ILS margins have shrunk.

The index, which provides a weighted average view of rates across all non-life deals issued in the preceding 12 months, showed ILS spreads were averaging 5 percent by the end of July, with a 2.6 percent margin above the expected loss.

This compared to a 6.1 percent no-loss average yield a year earlier, when risk levels were correspondingly higher, but margins were still fatter at 3.2 percent.

In terms of individual landmark deals in the past half-year, Louisiana Citizens Property Insurance

Strong start for 2017 cat bond market



Source: *Trading Risk*

Corporation set a new pricing low for a US hurricane bond at the beginning of Q2 2017 with its $100mn Pelican Re transaction, for which it will pay investors an insurance-linked premium of 2.25 percent.

This record was overtaken as the quarter progressed, however, reflecting high demand for bonds that offer diversification from Florida or nationwide US risk. The Massachusetts Property Insurance Underwriting Association raised $350m for its single-state Cranberry Re cat bond, as the spread on the low-risk deal settled at just 2.0 percent.

Switching gears

Rising momentum in the cat bond sector comes after several years of more rapid growth in private collateralised reinsurance contracts.

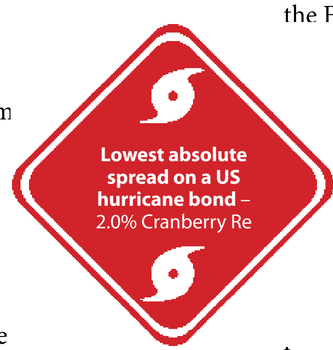
"Relatively more sponsors placed their faith in syndications to find true market-clearing structu[r] explains Bill Dubinsky, head of ILS at Willis Towe[r] Watson Securities.

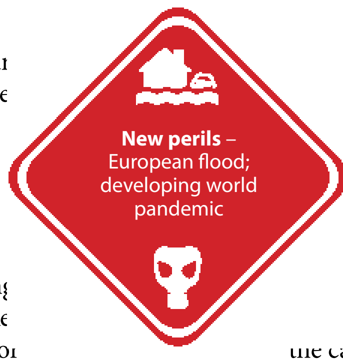
As well as price discovery, the cat bond market's unique ability to offer up large volumes of cover drew some sponsors to the market this year, Aon's Schultz suggests.

The half-year saw several deals that rank amon[g] largest transactions ever cleared on the ILS mark[e] including two concurrent Kilimanjaro Re deals fo[r] reinsurer Everest Re that raised $1.25bn altogether, and a $925mn Ursa Re issuance from the California Earthquake Authority.

However, the current pace of cat bond growth is unlikely to overturn the ILS market's overall balance,

Cat bond market milestones set in 2017:





Schultz notes. "I still think in the long-term, the rough balance will be two-thirds of the market in collateralised reinsurance and one-third will be made up of cat bonds."

First-time cat bond issuers came primarily from the Florida insurance market, including Avatar [Prop]erty and Casualty and American Integrity [Insur]ance.

[B]ut rates have as yet failed to entice back large global carriers such as Zurich, Travelers and Allianz.

New diversifying risks included a cat bond for Generali that featured European [flo]od risk for the first time, and two bonds done [in as]sociation with the World Bank covering global [pand]emic and Mexican catastrophe risk.

[Mom]entum continues

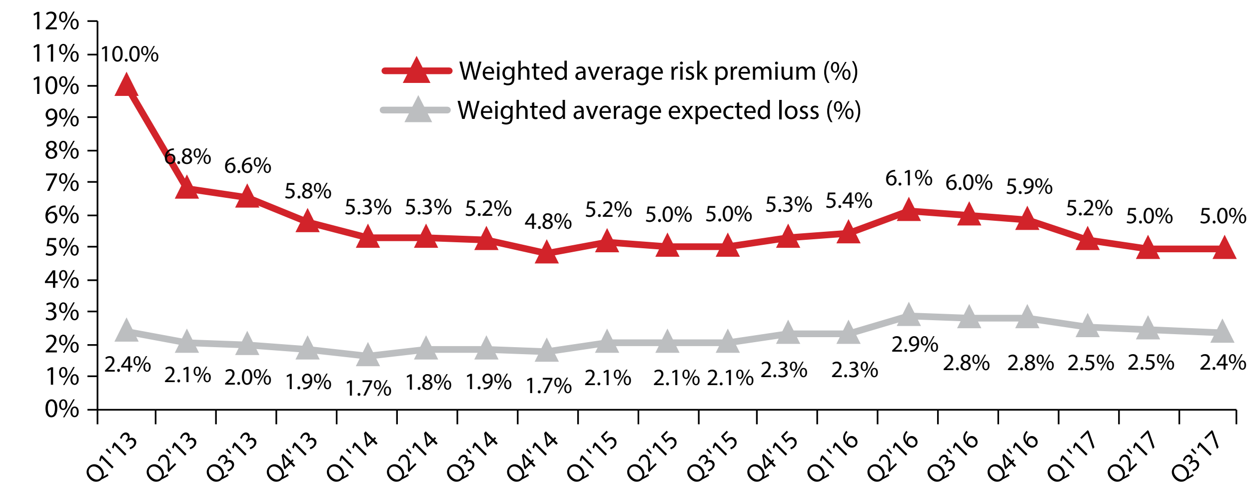
[There] is a general consensus from broker-dealers [that] the cat bond market's momentum is likely to [c]arry into the latter half of the year and beyond.

"We believe there is still significant momentum for further new issuance during the second half of 2017 based on current [sec]ondary trading activity," says Swiss Re's co-head [of ILS] Judy Klugman.

[Wil]lis Towers Watson's Dubinsky forecasts that the cat bond market will pick up more renewals of bilateral deals with ILS investors, adding that some of the new innovations seen in 2017 boded well for 2018.

"Further expansion of risks and perils will also grow the market," he says.

ILS premiums: WTW Securities rate-on-line index



Source: Willis Towers Watson Securities Transaction Database as of 31/07/17 and may be subject to change. Information based on sources believed to be reliable. No representation is being made as to the accuracy or completeness of such information

Leadenhall: scaling up doesn't mean compromising granularity

Reinsurers and ILS managers alike have been on a quest for greater size and scale in recent years, as "tiering" of the market becomes a hot topic at industry events.

Tiering essentially means that reinsurance buyers are becoming increasingly choosy about who to buy cover from and that top-tier reinsurers – those with the might to offer huge capacity – are getting increasingly preferential cover.

But Leadenhall Capital Partners CEO Luca Albertini argues that being in the top tier of providers does not mean an ILS fund has to build a highly concentrated portfolio of large-ticket bets.

Leadenhall has more than doubled its assets under management (AuM) in the three years since MS Amlin increased its shareholding in the London-based ILS manager to a majority stake.

The London-based manager's AuM stood at $1.8bn in October 2014 when Amlin exercised its option to increase its stake in the manager, and Leadenhall's portfolio is now valued at $4.2bn.

It could have been still higher, but the firm had to turn away around $200mn of subscriptions that came in too late to be put to work during the 1 June and July renewals in a manageable way.

Meanwhile, Albertini says that the firm's average participation on a reinsurance programme per fund has barely changed since it began in 2008 with seed capital from the insurer.

The ILS manager's average capital deployed on a single investment used to be $2mn-$3mn in its earliest days, but even now it has moved up to just $3mn-$5mn for each fund.

"We believe in the importance of a more granular group of relationships with reinsurance buyers," he says. "We kept targeting granularity as we grew."

Leadenhall was able to achieve this as it scaled up due to its relationship with Lloyd's reinsurer MS Amlin, which has a broad network of clients that reaches down to small regional insurers.

"It gives us access to a wide range of buyers including regional clients who don't have more than five or six lead carriers on their reinsurance programmes," Albertini says.

The first advantage of this approach is that it creates more diversification and reduces the potential damage to the portfolio from a large-scale disaster – or the "tail risk", in industry jargon.

Luca Albertini, CEO, Leadenhall Capital Partners

The second, he argues, is that it gives the ILS manager more flexibility to walk away from difficult renewal negotiations if premium levels on offer drop too low.

"The granularity means you can say no to a buyer and walk away without a major impact on our cash levels."

Trying to build a broad range of smaller positions might sound like the antithesis of behaviour that works in the context of reinsurer "tiering". Typically, the industry debate on this trend focuses on the idea that the large-scale carriers putting down major lump sums of limit will win out.

But Albertini suggests that a more granular approach still works for Leadenhall because it is positioned within the bigger MS Amlin net.

"The broader, the more complete your relationship with a protection buyer, the more relevance you have," he asserts.

"The result of the combination of MS Amlin and LCP is that it is helping key clients to see a sustainable, relevant counterparty that should be one of the prime actors on their programme."

In the competitive current market, where buyers are able to pick and choose their counterparties, Leadenhall is currently winning about 80 percent of its bids to deploy capital on reinsurance programmes.

Fronting up

Leadenhall is one of the largest reinsurer-owned ILS managers, each of which has its own spin on how to share and where to separate underwriting resources.

MS Amlin writes business on behalf of Leadenhall, in a practice known as "fronting" risk, but the two have independent underwriting teams.

The ability to borrow MS Amlin's rated paper is critical when Leadenhall is approaching a portfolio of protection buyers who prefer to face a rated carrier instead of a collateralised structure, Albertini says.

But where it is particularly crucial for the manager is in providing the ability to offer reinstatable cover, which offers buyers a second limit within the same contract year if the first lump sum of cover is fully drawn down.

At present leverage is not a core feature in Leadenhall's funds and the ILS manager generally fully collateralises the first limit of risk it assumes via the insurer.

But MS Amlin will bear the risk of a delay in the collateralisation of the second limit if a reinstatement is triggered when the relevant Leadenhall fund does not have immediate access to liquidity. The ILS investors are also entitled to the reinstatement premiums due in this case.

Albertini says that negotiating this arrangement was helped by the setting up of a rated cat bond retrocession structure that benefits Leadenhall vehicles.

The arrangement secured a BBB+ rating from Standard & Poor's last September, which provided an independent view of the creditworthiness of Leadenhall's fronted portfolio and its ability to repay its liabilities in full.

Whilst Leadenhall cooperates with MS Amlin in the execution of its investment strategy, particularly for the fronted business, it retains an independent decision-making process and this is made known to the buyers.

"It's important for us to have a dialogue with the client, and it's important for MS Amlin too – they wouldn't want our decisions to reflect on them," the executive comments.

Allocation policies have been set in place to cover any situations where the amount of risk transfer approved to the group falls short of what both parties want.

"We have not had to get out the calculators to work it out yet," Albertini says. "The relationship is going well and we make sure we proactively address conflicts of interest with both investors and regulators."

Preparing for diversification

Leadenhall has hired a portfolio manager that will join the firm in September to support its medium-term ambitions to move further into the specialty and facultative insurance sectors.

Whether or not ILS managers like it, more cyber and terrorism risk is creeping into mainstream property catastrophe treaties, Albertini notes.

But investors are also beginning to push for broader exposure to insurance risk, as some of the early adopters have reached their target allocation to catastrophe business.

One alternative insurance area where Leadenhall has already deployed significant capital is life ILS.

With some $1.8bn of AuM in life portfolios, it is the largest life specialist of the four ILS firms active in this segment. Again, the company has pushed this strategy in order to diversify its risk exposures.

The life ILS market is currently surging, which Albertini attributes partly to demand from cedants. "We are seeing some very large transactions where in order to participate you need to have scale."

A more stable regulatory environment has favoured greater use of life ILS for funding and capital raising purposes, although mostly in the private markets. Regulatory arbitrage is less of a feature of life ILS in Europe, while funding and risk transfer are the prime motivations.

> "The broader, the more complete your relationship with a protection buyer, the more relevance you have"

Life ILS are becoming an accepted tool in the corporate finance toolbox for life insurers, whether for mature books or new InsurTech initiatives and start-ups.

In this sector the manager is also looking to add new offerings by seeking to raise longer-term commitments for five- to 10-year lock-ins.

This will suit the life segment's longer maturity profile, with lower liquidity and longer repayment period deals being the two major challenges of the sector compared to non-life business.

However, it is also a more stable sector, Albertini adds.

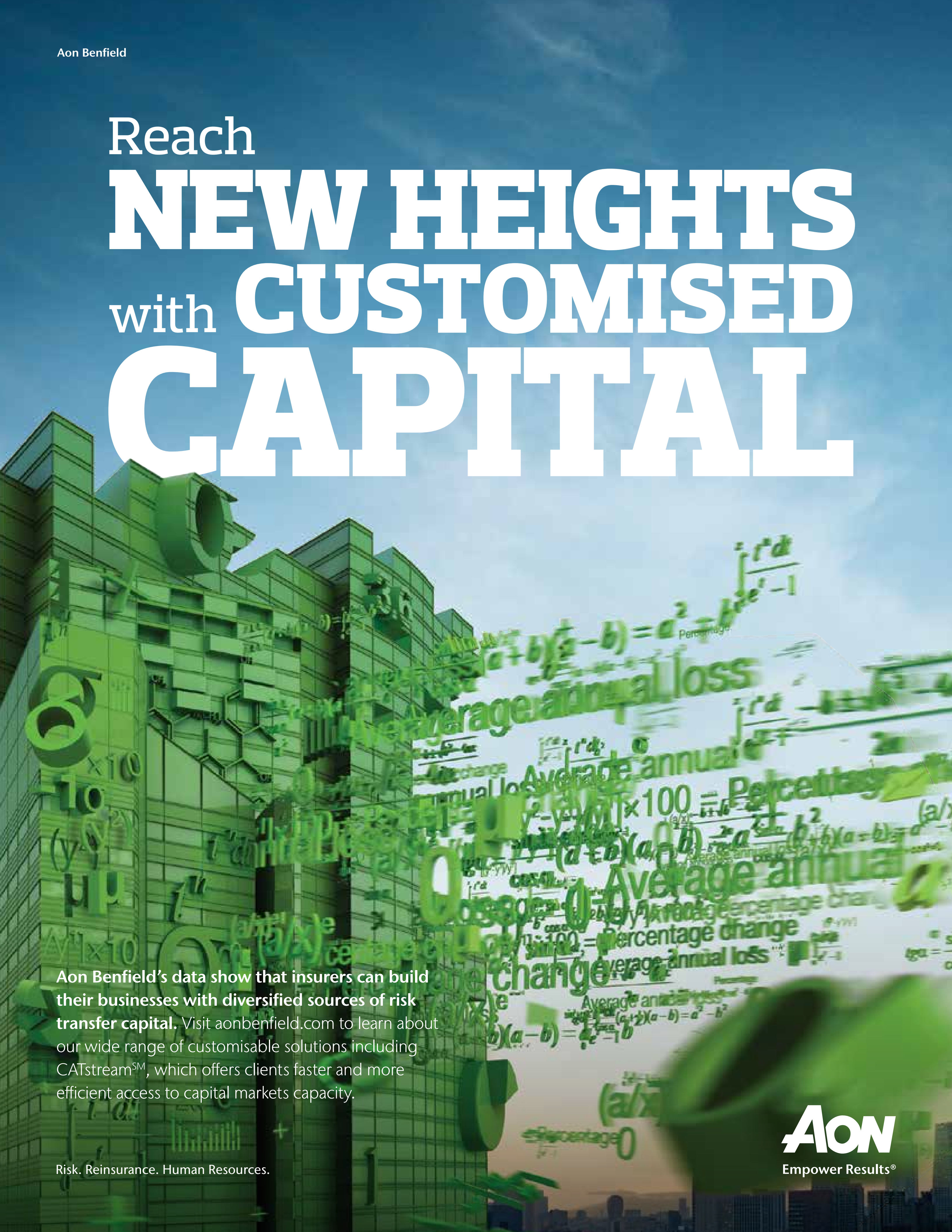
Spreads on extreme mortality or health-linked catastrophe bonds have suffered the same type of compression as non-life cat bonds. But premiums in the embedded value market have been more resistant to pressure and have frequently even been improving, as life insurers entering into long-term business relationships increasingly value relationships over price.

Future growth

As one of two London-grown ILS managers, Leadenhall has been involved in industry groups that have helped UK regulators get to grips with the industry as they plan to launch a local ILS issuance framework.

Though the London insurance market is sometimes criticised for being an expensive place to do business, Albertini says MS Amlin's dominance in the local market means that staying in the UK heightens Leadenhall's relevance and access to quality business.

"We look forward to seeing shape of the final regulations, and we welcome the UK government's efforts to give the London market another tool to transact domestically. There is every reason why Lloyd's and the London market continue to attract a vast talent pool and overseas capital market players are seeking to establish a footprint in the London market," Albertini concludes.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ILS markets support Florida growth

Competition between alternative capital and traditional reinsurance has created an abundance of reinsurance capacity relative to demand. This has opened up cost-effective risk transfer options for primary insurers, especially in Florida – a state that has often driven reinsurer margins for US named storm coverage.

In Florida, increases in reinsurance demand have been historically driven by depopulations from state-backed insurer Citizens, opportunistic reinsurance purchases, and the privatisation of capacity previously offered by the Florida Hurricane Catastrophe Fund.

Eight new companies have entered the Florida market over the past five years, significantly increasing the competition for premium. The Florida homeowners' market has remained robust even as rates across the US have continued to compress, with 10 percent[1] of 2016 direct written premium in the US homeowners' market attributed to the state of Florida.

As such, reinsurer margins are higher in a state with a greater amount of hurricane and property value exposure. Return times being equal, a minimum rate-on-line in Florida is still higher than a comparable nationwide programme.

ILS participation

The ILS market has increased its participation in the Florida market through catastrophe bonds. For example, the Everglades Re 2014-1 deal issued on behalf of Citizens Property Insurance Corporation remains the largest catastrophe bond on record, at $1.5bn.

Additionally, collateralised reinsurance has seen the largest increase for alternative capital in the state. In 2017, collateralised reinsurance limit as a percentage of total limit placed by Aon Benfield increased from 5 to 10 percent, with Florida programmes accounting for nearly 30 percent of the collateralised limit placed.

The need for additional sources of capacity is driven by rating agencies, and single-limit reinsurance is often purchased to satisfy the rating requirements of Demotech. A primary insurer purchasing single limit to satisfy in excess of the 1-in-100-year event, or not rated by rating agency AM Best, will need direct access to collateral that is often satisfied by the alternative market.

Floridians broaden scope

There continues to be limited organic growth opportunities within the state of Florida for primary insurers. Options include entering other lines of business beyond homeowners' insurance, or expanding their current business model into additional states. When a primary insurer chooses to expand into additional states, a reinsurer must consider how the modified reinsurance programme will fit into the scope of their portfolio.

As they continue to expand, Florida-domiciled primary insurers have been able to structure their programmes in a way that merges their risk across multiple states. (Re)insurers are able to evaluate each company's risk profile by state or region, and within these combined programmes, rating and regulatory requirements for any given state may create a need for a single state or a regional standalone layer. This creates an opportunity both for the reinsurer and primary insurer, as multiple risk appetites can be satisfied within one risk transfer programme.

> "As Florida insurers have sought innovative growth opportunities, the market has been able to respond accordingly"

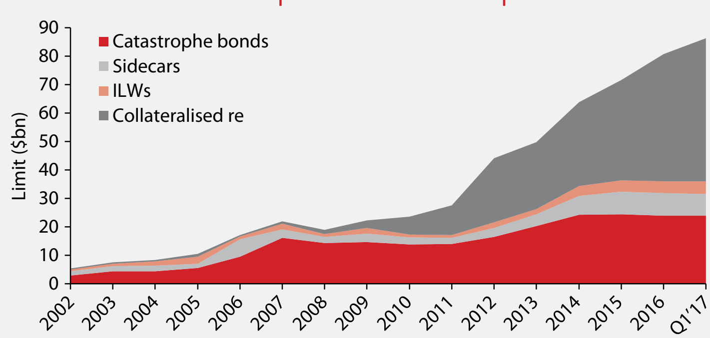
In the catastrophe bond market, investors have largely accepted the expansion into additional states. Heritage Property and Casualty Insurance Company has expanded its Citrus Re transactions from Florida-only named storm coverage to US named storm coverage in subsequent offerings, as the company itself has expanded outside of the state. Similarly, Safepoint Insurance Company has been able to do the same with its Manatee Re programme as it expanded into Louisiana.

As Florida insurers have sought innovative growth opportunities, the market has been able to respond accordingly, driven by the abundance of capacity in the current market.

Author:
Paul Schultz,
CEO, Aon Securities

[1] SNL: 2016 Florida Homeowners Multi-Peril DWP; Aon Benfield Analytics

Alternative capital development



Source: Aon Securities

GARETH ABLEY

The head of alternative strategies at Australian investment firm MLC tells ILS investors to be aware of today's market reality

Q: How long have you been investing in ILS and what has your approach been?
We have been investing since July 2007, which was luckily an attractive entry point given spreads were still wide following Katrina, Rita and Wilma.

In 2007, the ILS world was very different. There were only a handful of managers and a "pioneer return premium" as a nascent asset class… so paying 1.5 + 15 fees to an ILS manager seemed OK. Our evolution since has been informed by our view that the exposure is more "alternative beta" than "alpha".

We've evolved our strategy through three distinct iterations over the last eight years, which has helped us lean against yield compression. Today our strategy consists of a tailored quota share, combined with some opportunistic direct deals and cat bonds managed via the investment arm of a reinsurance firm. We are currently working on our "fourth generation" ILS strategy.

Q: Have your ILS investments performed in line with your expectations?
Performance has been good and uncorrelated, albeit we're mindful it has been a benign period.

Q: What was the biggest challenge for you in dealing with the ILS sector?
Stakeholder scepticism focused on why the reinsurance industry offloads these risks; whether we are compensated for model risk; and the obvious "tail risk" of major losses.

Attention is naturally skewed to the latter in ILS. But when people step back and visually compare the ILS return distribution against that for equities (and credit), the left tail is actually similar (albeit more empirically tested), so the case for adding this uncorrelated risk is compelling.

Q: What advice would you give to investors considering their first allocation to ILS?
Firstly, returns from today's starting point will likely be worse than the last 10 years, so prepare stakeholders accordingly. Secondly, given the nature of the asset class – largely syndicated and with infrequent events – I'd be sceptical about giving much weight to past returns. Higher returns are probably due to taking higher risk. Thirdly, size the allocation so that you have the ability to add to it after a major event.

Q: How would you like to see ILS managers evolve in the future?
We have been impressed with the level of innovation and responsiveness we've seen from players in the industry. Given the number of ILS players and the structural logic for institutions allocating to this space, there is plenty of incentive for this evolution to continue. New non-natural catastrophe risk is one obvious angle.

MLC manages A$100bn of assets on behalf of its clients, mainly superannuation investors. A number of diversified portfolios including the flagship MLC MySuper Fund (the largest retail super fund in Australia) allocate to the ILS portfolio, currently A$500mn+.

Select pension funds invested in ILS, stakes of $100mn+

Pension fund	ILS allocation (US$mn)	Total funds (US$bn)	% ILS allocation	Managers employed	Date of initial allocation
PGGM	4,000	177	2.26%	Fermat, LGT, Nephila, Elementum, AlphaCat, New Ocean, Munich Re	2006
Pensionskassernes Administration (PKA)	1,370	37	3.70%	Twelve Capital, Nephila, Catco	
RBS	1,230*	56	2.20%	Nephila; Leadenhall; *total also includes unspecified stake in insurance litigation fund	2012
Pennsylvania Public School Employees	650	49	1.33%	Nephila; Aeolus; RenaissanceRe	2011
AP2	639	40	1.60%	Fermat; Elementum; Credit Suisse	2012
New Zealand Super Fund	439*	25	1.76%	Elementum; Leadenhall; *also includes life settlements with Apollo	2010
MLC	392	78	0.50%	AlphaCat Managers	2007
AP3	325	40	0.81%	In-house and external allocations	
Ontario Teachers' Pension Plan	236	138	0.17%	Da Vinci Re and in-house vehicles; Catalina and Kyobo stakes not included in ILS assets	2005
IBM UK	229	9	2.54%	Nephila; Securis	2013
Maryland State Retirement and Pension	200	46	0.44%	Nephila	2014
Oregon Investment Council	145	70	0.21%	Nephila	2011
University of Minnesota	136	2	6.18%	Not disclosed	2015
Indiana Public Retirement System	100	38	0.27%	Aeolus; Nephila (initial capital to work only $40mn)	2015

Source: *Trading Risk*

MATTHEW SWANN

The portfolio manager at Hiscox Re ILS talks about preparing for losses

Q: What level of catastrophe loss would cause a market-disrupting event today?
A market disruption obviously arises from significant capital destruction, but also from the urgent need to rethink the risk landscape. Those are both necessary ingredients to cause fear.

The 2005 hurricane season ticked both boxes, the Christchurch and Tohoku earthquakes only the latter – they weren't big enough in dollar terms.

Today, Katrina on its own would probably tick neither, although a much higher proportion of the loss would be ceded to the reinsurance and retro space and we would likely see some impact on pricing.

However, at least for US hurricanes, reinsurance is a better understood product than it used to be, and fear is less likely. This is a substantial achievement by modellers and reinsurers which we tend to overlook.

Q: How long would investors have to react to reinvest at higher rates following an event before the market normalises?
If the loss is simply large, but not unexpected, then it seems likely the rate reaction would be expressed over a shorter period and would be smaller in magnitude. If the loss has unexpected components, then it is reasonable to assume that the time taken to achieve full re-capitalisation (however that is redefined) would depend in part on the satisfactory implementation of a new view of risk.

Historically, the modelling agencies have taken several years to update models in response to unexpected losses – as an investor it's worth considering whether to work with a manager who has expertise beyond just running the models, and so can potentially move faster.

To reiterate, we suggest that the likelihood of a sustained global market disruption is less likely than it used to be, for various reasons. The imperative is to get the pricing as correct as possible, and to offer investors efficient structures and access to market before and after the big loss.

Q: What do you think it would take to draw capital off the sidelines after a loss?
Well, the capital would have to come from somewhere, and we agree that the potential post-loss supply seems to be substantial. Really, it comes back to the nature of the loss to inform this supply.

The great majority of investors who are currently in the ILS space deploy a small allocation, and perhaps would increase if the opportunity arose. Three or four years ago, with rates around 20 percent higher than at present, a capital-efficient, diversified portfolio would generate expected returns which look substantially more attractive than most alternatives today.

While current returns are still attractive, one has to suppose that a 20 percent increase in rates, for example, would bring an increased level of interest.

Q: Assuming we're talking about a major US hurricane loss, what kind of buying demand would emerge post-loss?
Industry loss warranties (ILWs) could be a quick fix for post-loss hedging. But at the same time, most ILW portfolios are heavily exposed to US hurricane, so assuming these are severely impacted there may be limited capital supply, particularly if collateral is locked up.

The common theme is that retro and ILW pricing will likely respond more sharply post-loss, as the market is shallower and the risk more concentrated.

Q: How should investors prepare to respond if collateral is locked up?
The amount of collateral locked up through a renewal period obviously depends on the timing of the loss, adding volatility.

Hurricane works quite well if it's placed at mid-year, because you would be likely to have at least six months of development to achieve some reasonable clarity about the ultimate size of the loss.

The retro/ILW space may be the most susceptible to collateral lock-up – for instance, a US hurricane loss in the $25bn-$50bn range could initially trap between 30 and 50 percent of the retro/ILW market, which may well have a meaningful impact on available capacity and pricing through 1 January.

Because the impact of collateral lock-up is somewhat unpredictable, we would recommend a diverse strategy, with the ability to deploy collateralised limit and also via a balance sheet.

Q&A

ANDRE PEREZ

ILS investors should push for improved governance, the Horseshoe Group CEO tells us

Q: What kind of growth do you think is in store for the ILS market?

From what we are seeing, this market doesn't show much sign of stopping – we're still seeing a considerable amount of money flowing in. I think achieving a market size of $100bn for ILS by 2020 is somehow realistic.

Moreover, the ILS sector is now very much entrenched within the traditional reinsurance placement process. Until about five or six years ago, collateralised reinsurance was typically placed by specialised brokers, but now this has broadened out. Traditional brokers have realised this is another market for them – this trend alone is going to bring more business to the ILS sector.

Q: How far can it achieve diversification beyond US catastrophe perils?

So far there hasn't been a massive increase in the diversification of perils, but we're starting to see other lines of business creep into the market – we're seeing more crop, weather, a little bit of marine risk, and a few other examples such as workers' compensation or auto.

Leaving aside new perils, we have more chance of seeing diversification in other regional catastrophe risks – European and Japanese use of ILS is increasing.

We're also seeing increased use of leverage, which is contributing to more diversification and expansion of the ILS market. When you look at a list of new ILS funds, they're almost all "grafted" structures within reinsurance companies – reinsurers are realising there is some value in providing investors with leverage.

Q: What do you think the UK's new ILS framework will bring to the market?

I think it's a very exciting initiative and a huge step forward for the UK.

The real attraction is that there are a lot of countries where regulators are more comfortable with London as a domicile. We'll have an easier task convincing companies that haven't done ILS transactions before to consider doing deals from a UK base.

Also, when you consider why Bermuda was so successful in attracting ILS business, it wasn't just the regulatory regime, but it was the island's talent base and origination skills. London has the talent base and origination skills as well – when you have that, you have two of the three main ingredients for success. The third one is a relevant regulatory regime.

There's still some uncertainty as we haven't seen the final regulations, but if the UK regulator comes up with ILS regulations which make sense, Horseshoe will definitely consider having a presence in London sooner rather than later.

Q: What variations in valuation practices do you see within the ILS market?

This is probably one of the biggest improvements needed in our industry.

We see a lot of inconsistency on valuation practices among ILS funds. Horseshoe is planning to release in the next year some advisory guidance notes on ILS valuation methodologies.

To add to this, there's still a lot of fund administrators who don't have any real expertise in this asset class, especially collateralised reinsurance, and therefore have to rely on the investment manager's valuation. In a post-2008 environment, it is surprising that investors are not being more demanding on this topic as they would be if this was a bond or an equity fund they invested in.

Q: Where else do you see a need for more independent controls?

We are seeing an increasing trend for ILS structures – cat bonds and collateralised reinsurance – being managed by broker/ banker-owned insurance managers or transformers. In some instances, we have seen brokers demanding from ILS investors that they use the broker's transformer in order to participate in a specific collateralised reinsurance deal.

These kinds of trends worry me a little. Not only are they endangering good governance and independence principles, they are not the best practices to protect ILS investors.

While some checks and balances are in place for most ILS structures, I have my doubts that the broker-owned insurance manager or transformer will be at all times impartial to serve ILS investors' best interests rather than siding with their ultimate client, the cedant.

At the end of the day, investors will decide whether it is acceptable to them, but we feel that it may not be in their best interest.

Cyber risk: the new frontier

There are few new classes of insurance business which have attracted as much attention as cyber risk.

Demand for the cover is booming due to an ever-growing list of high-profile cyber attacks.

And in a prevailing soft market, the product has been held up as a rare pocket of profitable growth for carriers looking to maintain their bottom line.

US cyber insurance delivered a combined ratio of 76.6 percent on a loss ratio of 47.6 percent in 2016, according to an Aon Benfield study, with standalone products performing better than "package" products that offer bolt-on cyber cover to broader policies.

Cyber insurance traditionally indemnifies companies for the costs associated with a cyber breach, such as client notification, public relations and emergency IT response costs. However, the remit of the cover is widening, with some insurers now offering to cover property damage and business interruption costs after an attack.

Major writers and pioneers of cyber insurance include insurance giants AIG, Chubb and Zurich. However, smaller London-based players such as Beazley, Novae and Brit have also established a solid reputation in the space.

Aon recently estimated the global standalone cyber insurance market at $1.7bn in premium, based on 2015 data. Some 90 percent of this premium stems from the US.

Growth projection figures vary, although one of the most widely used estimates is that from Allianz Global Corporate & Specialty, which expects global cyber insurance premiums to climb to $20bn by 2020.

However, a big opportunity also brings major challenges. The insurance market is feeling its way in terms of what exactly cyber insurance should cover, and how best to price it.

With so many new entrants to the class in recent years, intensified competition has caused double-digit rate falls, particularly in the most saturated market of the US. All the while, the industry is all too aware that cyber insurance losses can be systemic, with the potential for one breach to rack up billions of losses.

A study by Lloyd's published in July this year showed that a single organised attack on several cloud service providers could generate an economic loss of $53bn – as much as Superstorm Sandy.

And cyber risk modelling capabilities are in their infancy due to the lack of reliable and relevant data available for data breaches.

While the major risk modelling firms have models to assess the aggregate cost of a cyber breach across an insurer's book, there is no probabilistic model yet for cyber risk.

The market is also working out how best to tackle the issue of "silent" cyber exposures, or exposures which are unknowingly written into non-cyber policies, such as property cover.

Hence, reinsurers have been cautious to date in offering cyber reinsurance cover to cedants.

Aon estimates global cyber reinsurance premiums were $525mn as of the end of 2015.

Around 15 reinsurers, including Swiss Re, Munich Re and PartnerRe, actively write standalone cyber treaties, though the market is still in its infancy.

Some reinsurers have chosen to access the cyber market by placing their capacity behind a reputable cyber insurer. Munich Re and Beazley, for example, offer one of the London market's largest cyber line sizes at $100mn.

Some commentators believe that the ILS market will ultimately be well suited to assuming peak cyber risks. However, to date few ILS managers have made steps into the market.

One that has is Credit Suisse-backed Arcus Syndicate, which has reinsured cyber business written by fellow Lloyd's insurer Barbican, while recent start-up Hudson Structured has also said it would consider cyber investments.

RICK PAGNANI

The Mt Logan CEO says using the right kind of leverage is critical for ILS investors

Q: Mt Logan has enabled significant growth at Everest Re in the past few years – what's the main benefit to the carrier from this third party platform? Has it changed the way the outwards underwriting team operates?

Everest derives both strategic and economic value from the Logan platform. Logan creates several competitive advantages for Everest and has enabled it to grow its footprint in the property cat market while concurrently maintaining its conservative risk management standards.

The additional capacity has translated into better and larger signings, in addition to new business opportunities with current and new cedants.

It's no secret – large line capacity and a high-quality balance sheet result in lead underwriting opportunities and serve to enhance the relationship that Everest has with its cedants, many of whom Everest has been doing business with for decades.

In terms of the behaviour of the outward underwriting teams – the answer is both yes and no. Underwriters have seen their capacity increase and they have been able to use that to their strategic advantage to write larger lines on deals that have an attractive risk-adjusted return. Everest underwriters maintain their strong gross line underwriting standards around the globe, as they have for over 40 years as a leading global reinsurer.

The risk selection for Logan takes place at the portfolio level, where we run our genetic algorithms to construct optimised portfolios that meet our investors' risk/return targets.

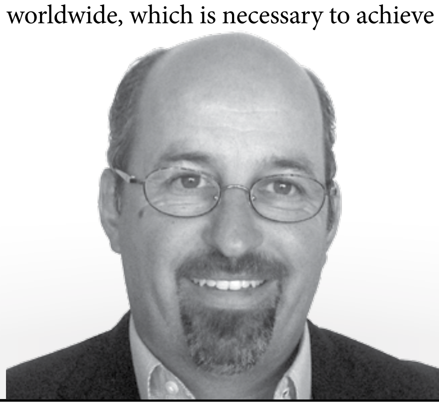
With regard to economic value, Logan enables Everest to match pools of capital to congruous risk portfolios to allow the best type of capital to be matched with each risk to the cedant's and Everest's benefit. Additionally, Logan provides long term indemnity retro capacity and a way to dynamically manage the sources of that capacity. Lastly, the fee revenue associated with Logan serves to diversify Everest's bottom line.

> "Leverage by itself does not make bad business good"

Q: Not all uses of leverage are beneficial to investors, how can leverage from a rated reinsurer be used to enhance the ILS offering to an investor?

First principles: leverage by itself does not make bad business good, or undiversified business diversified. The critical component is access to profitable and diversified business.

Without Everest's global distribution network built up over the last 45 years, we would be hard pressed to find and write the broad spectrum of diversified risk, across thousands of treaties worldwide, which is necessary to achieve the upside/downside metrics that our investors are demanding.



Given that, leverage enables us to generate more units of premium for the same ultimate downside for our investors. In this instance, the use of reinsurance leverage fundamentally improves the risk-adjusted returns of the portfolio while also allowing us to assume more of the diversifying risk; which in turn has a beneficial impact on downside exposure. So, having the right portfolio, right leverage and right partner improves the upside and downside.

Q: What are your concerns regarding disclosure standards in the industry? How do you think they can be standardised?

We in principle support the notion of a standardised reporting framework, but think there are challenges to achieving this goal. Valuation methodologies vary between managers, including which accounting principles they have adopted and which factors are used to recognise premium earnings and establishment of loss estimates.

Disclosure standards also vary in how each manager forecasts returns, including their "view" of risk and how conservative that is. For example, does that view include all "non-modelled" risk and what loads are applied to the standard commercial models?

Our net asset value calculations are determined in accordance with US fair value GAAP principles. We go to great lengths to ensure that our investors understand how we function at all levels of our operation. We are interested in attracting long term capital partners, and in our view that starts with transparency and results in trust.

Hurricane scientists divided on post-Katrina transition

The infamous trio of Katrina, Rita and Wilma marked the culmination of a highly active hurricane phase back in 2004-2005.

But after a string of quiet years for storm activity, scientists are now debating whether the era of heightened activity that has prevailed since the mid-1990s has finally come to an end.

The question of whether a more inactive phase is on the horizon was raised by Philip Klotzbach and Christopher Landsea from Colorado State University in an academic paper in 2015, which noted a decreasing trend in Category 4 to 5 hurricanes.

Klotzbach told *Trading Risk* that data continues to indicate that for the last three years there has been a negative Atlantic Multidecadal Oscillation (AMO) – a climate cycle which can reduce the likelihood of hurricane formation.

A negative AMO results in cooler ocean temperatures associated with less rainfall, whereas warmer ocean temperatures help bring about more tropical storms.

But Klotzbach says two or three more years of data is needed in order to be sure the AMO is in a negative phase, which can last from 25 to 40 years.

Moreover, it is possible to have two-to-four year periods in an active or inactive era which run counter to the prevailing trend, he notes.

The last such inactive AMO phase is considered to have lasted from the early 1970s to the mid-1990s.

Landfall rates may set wrong steer on data

Modelling agency AIR Worldwide disputes the idea that there has been a hurricane "drought" in recent years.

The firm points out that while few hurricanes have made landfall in the US, there has been no shortage of storms in the Atlantic basin.

During the 11 years following 2005, there were 16.4 named storms per year – well above the norm of 11.7.

Peter Sousounis, assistant vice president and director of meteorology at AIR, explains that different climate factors control the path of a hurricane than those which influence storm formation in the first place.

Meteorologist Dan Kottlowski from AccuWeather agrees that the fact that storms such as Katrina are now a distant memory is playing into perceptions of storm activity.

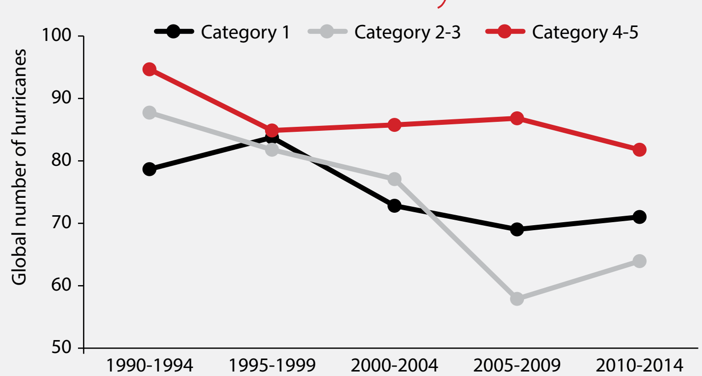
"In many ways, the US has just been very lucky," he says.

Another key factor in determining how many storms there are in the Atlantic is the current state of the El Niño-Southern Oscillation (ENSO) weather pattern – the variation in winds and sea surface temperatures which produce what are popularly known as the El Niño-La Niña cycles.

During an El Niño, strong vertical wind shear inhibits tropical cyclone formation, whereas the reverse is true of La Niña.

At the moment, the ENSO is thought to be near neutral, although CoreLogic models predict an increased chance of El Niño conditions towards the end of 2017.

Historical hurricane activity



Source: Klotzbach and Landsea (2015)

It only takes one…

Regardless of whether there is a shift in underlying patterns of hurricane activity, it remains the case that it only takes one storm to create major damage and losses – no matter how quiet the overall season.

Research by modelling company Karen Clark & Co shows that of the historical storms that would cause insured losses of $50bn or more in today's terms, almost all occurred during periods of low hurricane activity.

"Hurricane losses, particularly the losses that will result in defaults on cat bonds, are driven by landfall location and severity, not frequency," said CEO Karen Clark. "The link between storms forming in the Atlantic and insured hurricane losses is weak."

What would it cost: Miami hurricane

Downtown Miami is the zenith of the reinsurance sector's peak zone exposure – how much would it cost if a hurricane struck the city?

Trading Risk asked several modelling agencies to estimate insured industry losses from this scenario for both a Category 3 storm and the worst-case Category 5 event. The results highlight just how sensitive insured losses are to the track of a potential storm, with a huge spread in the range of projected outcomes.

Diverging cat bond impact

Surprisingly, storm track can also be a critical factor in determining how many losses could flow to the cat bond market.

AIR Worldwide modelled several storm tracks throughout Miami-Dade county.

The results ranged from a relatively benign Category 5 storm that could produce insured losses of just $22bn in the south Florida counties of Miami-Dade, Palm Beach and Broward. In this scenario there was a relatively small impact on the cat bond market – with just 0.2 percent of the market's principal being wiped out based on the $23.2bn in force at 1 June 2017. But a lower-strength Category 3 hurricane with a different track causing relatively similar overall levels of insured losses – $18.1bn in south Florida – could actually have a higher impact on the cat bond market, AIR found.

This scenario resulted in nine catastrophe bonds triggering, eroding 1.5 percent of outstanding cat bond limit or $348mn based on mid-year 2017 volumes.

The reason for this divergence is that the Category 3 hurricane track passed through areas with a higher concentration of modelled exposure in cat bonds covering Florida, explains Adil Imani, senior risk consultant at AIR Worldwide.

"While there is a positive correlation between industry insured loss and principal loss to the catastrophe bond market, this relationship is not perfectly correlated," he added.

The costliest Category 5 Miami storm simulated by AIR showed insured losses of $347.3bn and affected 60 cat bonds, wiping out 36.5 percent of the outstanding cat bond market principal.

Meanwhile, CoreLogic analysis produced $15bn of insured losses for a Category 3 hurricane making landfall along the Miami-Dade county shoreline and losses of about $80bn for a Category 5 storm.

Given that cat bonds are generally structured to pay out for severe industry losses around the $20bn level, a Category 3 storm would be unlikely to trigger full losses on most of the affected bonds, said Tom Larsen, senior director of content strategy at CoreLogic.

"A Category 5 event is much more closely aligned with the types of losses that bond issuers are seeking indemnification for, so the expectation would be that most of the Florida hurricane bonds would suffer large losses," he added.

Downtown risk

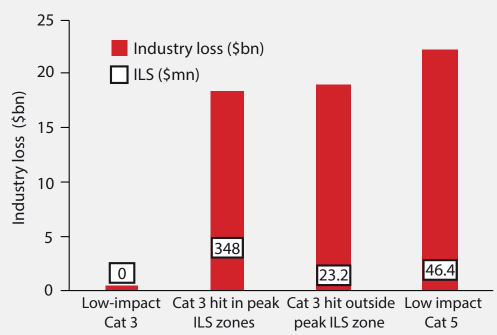
According to modeller Karen Clark & Company (KCC), the "hotspot" for Miami is a storm path through Key Biscayne, the barrier island located southeast of the city. A strong Category 5 hurricane with this landfall point tracking perpendicular to the coast would produce the highest winds in downtown Miami, leading to $300bn in insured losses.

A Category 3 hurricane with the same track would result in a $40bn insured loss, KCC estimated.

The impact on cat bonds in each scenario would be uneven due to the variation in insurer portfolios.

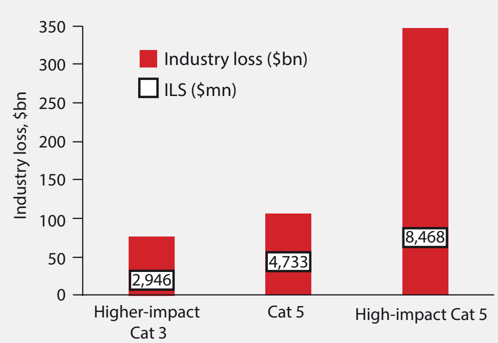
"Many insurers – even large ones – write very little in Miami," said KCC CEO Karen Clark.

Sub $30bn events



Source: Air Worldwide figures, all industry losses for three South Florida counties

Worst-case scenarios



Source: Air Worldwide figures, all industry losses for three South Florida counties

ILS market primer: from disaster frontline to pension portfolio

What is the insurance-linked securities (ILS) market? As the name suggests, it consists of financial instruments that provide insurance cover – some of which might be tradeable securities, while other instruments are less liquid.

The ILS market first emerged in the mid-1990s but it wasn't until after the 2008 financial crisis that it began to take off.

That's largely due to its major selling point as a source of diversifying, or non-correlating risk. The industry is predominantly exposed to natural catastrophe events such as hurricanes or earthquakes – acts of God that won't be triggered by financial market turmoil.

Despite its name, the ILS market has largely made its home within the reinsurance sector – a wholesale industry that provides insurance to insurers to help them bear claims when disasters produce a spike in losses.

The ILS sector has also been labelled the "alternative reinsurance" market, and contrasted with the so-called "traditional" reinsurance market, which refers to rated, often listed companies such as Swiss Re or Munich Re, to cite two of the longest-standing industry brands.

That's because instead of simply buying reinsurance equities, the emergence of ILS market asset managers has given investors an alternative entry route into reinsurance risk, and one that carries several key advantages.

An ILS portfolio provides a theoretically purer source of diversification, because a reinsurer's shares are subject to the swings of market fortunes while their sizeable – albeit typically conservative – investment portfolios add a degree of asset risk.

In contrast, investing via an asset manager isolates underwriting risk. Without a rated equity base, ILS managers have to pledge cash-equivalent collateral against their reinsurance liabilities. Alternately, they can pay a fee to a rated company to essentially borrow their rating.

This structure also cushions investors against inflation risk, because their returns are derived from fixed-rate insurance premiums on top of floating investment rates earned from their collateral, which is typically held in short-term US Treasuries.

In addition, ILS managers have focused traditionally on the catastrophe market, compared to the broader sweep of reinsurance risks that might be covered by traditional companies – some of which may involve more correlation to financial market fortunes.

However, since its early days, this simplistic distinction between the two segments has eroded as the ILS segment has broadened and melded into the wider reinsurance markets.

For one, many traditional reinsurers have set up asset management platforms to compete with ILS managers, while a number of ILS managers have set up or are closely tied to rated reinsurance vehicles that give them more freedom to take on a broader range of underwriting risks.

In recent years, the ILS market has expanded into segments such as marine and energy or aviation reinsurance. Meanwhile, for a select group of ILS managers, life (re)insurance risk is a major part of their business.

Despite blurring the boundary with the broader reinsurance industry, ILS still offers investors a distinct route into taking reinsurance risk while skirting the equities market.

Why catastrophe risk?

There are various reasons why the ILS market is

ILS Primer: Market timeline

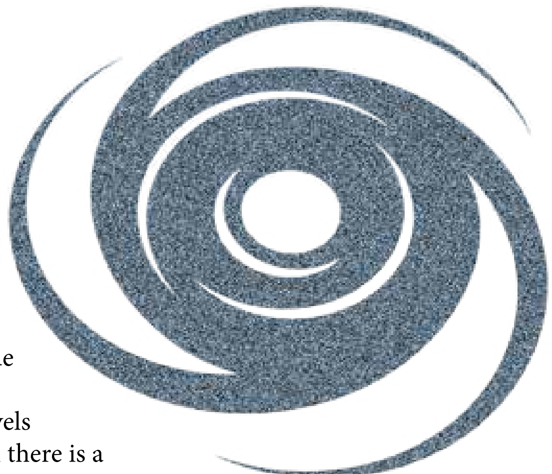
1996 George Town Re, widely cited as the market's first cat bond, is launched by St Paul Re, followed a year later by the first Residential Re deal from USAA and a Swiss Re deal

1997 Nephila Capital, which is now the industry's largest asset manager, is founded by Frank Majors and Greg Hagood within broking house Willis. It later shifts to Bermuda and becomes independent

2005 The hurricane season of Katrina, Rita and Wilma sets off a spike in reinsurance rates and a spate of new start-ups

2008 Lehman Brothers collapses – it had managed collateral for four cat bonds that defaulted – cat bond structures shift to invest collateral largely in Treasury money market funds

2011 The cat bond market records three full defaults in one year: the $300mn Muteki deal triggers after the Tohoku earthquake in Japan and $200mn is paid out under two Mariah Re deals in response to US tornado claims



predominantly exposed to property catastrophe risks, besides the non-correlation benefits.

The segment's well-developed risk models help to provide a strong statistical analysis of the risk levels being taken, although there is a relatively limited range of well-modelled perils.

The reinsurance market's top risks are US hurricane or wind, US earthquake, Japanese earthquake and European wind. Australian storm and earthquake, often bundled with New Zealand earthquake, follows these four peak perils.

All of these risks also feature on the ILS market, although its risk profile is even more highly skewed towards the peak peril of US hurricane events.

However, underwriters might also provide cover for "all natural perils", which will include exposure for any catastrophe event, modelled or otherwise.

Historically, unmodelled catastrophe perils that have caused surprise losses for the reinsurance market include the Canadian wildfires that burned through Fort McMurray in 2016 or the Thailand floods that hit in late 2011.

Beyond the models, however, there was a more financial rationale that led the ILS market to colonise catastrophe risk. US hurricane offered higher rates than other types of risk, as it was the reinsurance industry's biggest source of exposure and required companies to set aside more capital to write than if they were providing a small amount of Colombian earthquake cover, for example.

This offered a chance for ILS managers to target the market's prime source of income, since for their pension fund capital providers, hurricane risk was a minor source of diversifying income to their own peak peril of equity market risk.

As ILS managers grabbed more market share in the property catastrophe market, the ensuing competition has over the past few years eroded some of the premium previously attached to hurricane risk.

However, it remains the market's peak exposure with a corresponding price advantage compared to the types of catastrophe business that diversify a reinsurer's portfolio – such as the smaller market for European wind or Australian cat risk, for example.

Continental European catastrophe margins are often said to be little better than break-even, which is one of the reasons why ILS market participation in this sector is relatively limited – cash collateralising limit for such margins would be highly inefficient.

Imagine the mathematics of it as a kind of gambling game where reinsurers have piled their catastrophe chips onto the "US hurricane" slot on their roulette wheel.

Hence, the ratings agencies that supervise their gaming to ensure they're good to meet any payouts insist on reinsurers holding more collateral against every dollar gambled on this risk. Conversely, the stakes on a Colombian quake loss are so much lower, that they can add this bet into their game at a much lower regulatory cost.

Sizing up the market

Brokers estimate that total reinsurance capacity is about $320bn-$420bn, with the alternative reinsurance segment providing about $70bn-$80bn of this sum.

Within this segment, there are several distinct product types, including the catastrophe bonds that kicked off the market's development (confusingly, the term ILS can sometimes be used to refer to these tradeable securities specifically, as well as the broader segment overall).

But although the market began with cat bonds, at $22bn in size they are no longer the dominant force in the industry. Instead, so-called "collateralised reinsurance" has driven growth over the past few years to stand at roughly $40bn. These are effectively just traditional reinsurance contracts. However, while traditional reinsurers with a credit rating from Standard & Poor's or AM Best can use that stamp of creditworthiness to guarantee any reinsurance obligations they take on, ILS asset managers typically have no such security to offer reinsurance buyers.

Instead, they either pledge cash-equivalent collateral against any reinsurance cover that they provide, or pay a reinsurer a fee to stand in their stead and cede on the risk – a practice known in the industry as "fronting".

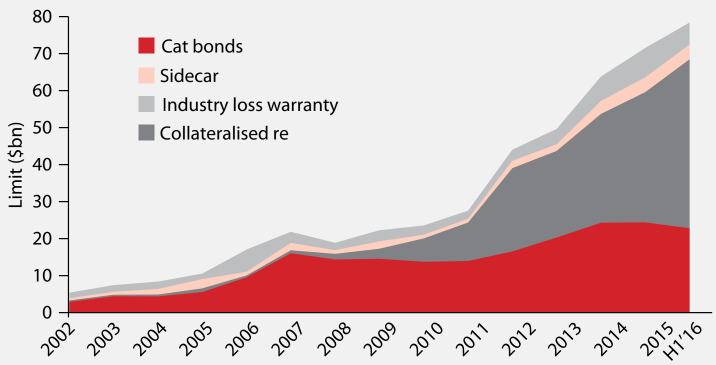
Industry loss warranties, or ILWs, are a niche market segment that provide reinsurance cover based not on a buyer's actual losses but on the insurance industry's overall loss from a specified disaster or disasters – for example, a $50bn US hurricane ILW or a $5bn Florida hurricane ILW.

The "sidecar" market refers to vehicles run by reinsurers, which sit alongside their balance sheets to provide them with additional capacity. Sidecars typically involve a reinsurer ceding a share of their underwriting portfolio to external investors under reinsurance agreements known as "quota shares" (because they involve the counterparty taking a set percentage, or quota, of losses and income from the portfolio).

However, there are several "market-facing" sidecars – so called because reinsurers use these pools of capital to write specific portfolios on behalf of the sidecar vehicles, in a similar structure to a managed fund.

Finally, the retrocession segment is a subset of the reinsurance market that has a relatively high share of capital market participation – it is believed to make

Alternative capital deployment



Source: Aon Securities Inc

What is a cat bond?

A catastrophe bond transaction involves a sponsoring insurer paying investors a premium for reinsurance cover against defined catastrophe losses. If a cat bond triggers, investors' capital is used to reimburse a sponsor's losses. There is no requirement for insurers to later repay such sums to investors. However, if no qualifying event occurs, then investors recoup their capital at the end of the transaction (typically three to four years).

up around half the $12bn or so of capacity available.

Retrocession is simply reinsurance cover written for a reinsurance portfolio, which may include quota shares or ILW instruments.

Weighing up returns

So far during its short history the ILS market has delivered strong returns for investors. Its most difficult years were 2011 and 2005, as a result of the Tohoku earthquake in Japan and Hurricane Katrina, respectively. These were both testing, but by no means worst-case, catastrophe scenarios for the largely Florida-exposed market.

There are a couple of benchmarks of returns that are often cited within the industry, although neither is without its quirks and limitations.

The Eurekahedge ILS Advisers index has returned annualised gains of 6.36 percent and a Sharpe ratio of 2.19 in the decade from 2006 to 2015. The index tracks the performance of 34 ILS funds all equally weighted, which cover a wide range of strategies from high risk-return retro vehicles down to low-risk cat bond-only funds. Its worst year to date was in 2011, when it finished 0.14 percent down.

Meanwhile, the Swiss Re Cat Bond Total Return index – which solely tracks performance of the cat bond segment – returned 6.64 percent last year. It delivered annualised returns of 7.03 percent over the three previous years, from 2013 to 2015. However, the Swiss Re index will typically deliver stronger gains than ILS managers as they often attempt to build more diversified cat bond portfolios for investors than the US-centric market index.

It is also important to note that competition over the past few years has eroded the kind of returns that were available to ILS investors in the market's early years before spreads began falling in 2013.

How do the reinsurance and ILS industries measure rate adequacy and changes?

Traditional reinsurance premiums are quoted in terms of rate-on-line, whereby premium income is expressed as a percentage of the amount of limit available to meet losses. In other words, if a buyer pays a $4mn premium on a $100mn contract, they are paying a 4 percent rate-on-line.

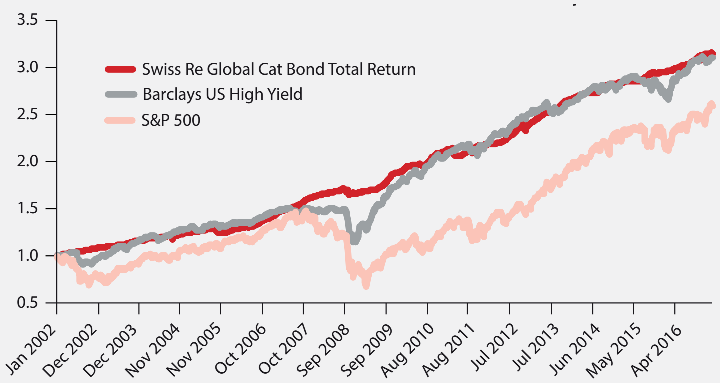
The major reinsurance brokers release rate-on-line indices to show how rates are moving over time.

In the cat bond market, investors receive a fixed coupon above a floating rate. The floating portion is linked to the investment return from the bond collateral – typically held in short-term US Treasury money market funds – with the fixed coupon or spread above the floating rate being the insurance premium due to investors.

Cat bond investors are also typically given the "expected loss" of a deal, a figure that expresses the likelihood of capital loss in any given year. For example, a 1 percent expected loss means investors could lose that amount of their principal in any year – or looked at another way, is roughly similar to the prospect that a 1-in-100-year disaster would wipe out all their capital.

Cat bond spreads are often cited as a multiple of the deal's expected loss, which is an easy way of referencing the margin of premium earned in relation to potential losses. Typically, cat bonds in the 1-2 percent expected loss range now offer investors around a 3x multiple (or spreads of 4-5 percent), depending on the risk profile.

Cat bonds vs alternative benchmarks 2002-16



Swiss Re Total Return Cat Bond index vs Barclays BB US High Yield index and S&P500 index, all based at 1 as of 4/1/2002
Source: Swiss Re Capital Markets

How does reinsurance work?

Typically, a broker will put together a "reinsurance programme" for their insurer client by obtaining capital commitments from numerous different underwriting companies. This is known as "subscription market" business, although some larger insurers might also buy bilateral private deals.

Reinsurance programmes are often stratified into several different "layers" of cover, with all parties on each layer generally receiving the same premium. However, some reinsurance buyers may offer to pay higher premiums to the counterparties that are setting terms for the deal – also known as "lead underwriters" – who will play the main role in settling any claims that arise on behalf of the companies that are putting up smaller amounts of "following" capacity.

Two of the major types of reinsurance cover are "excess of loss" reinsurance, where an underwriter simply picks up any losses within a set band above a fixed threshold (or deductible); and "quota share" or "proportional" cover, which entitles them to a set share of premiums and losses, in effect taking a slice of the portfolio's results. Both are "indemnity" covers where underwriters commit to reinsuring a company's actual incurred losses.

Investor list

Manager by type	Total AuM in ILS $mn (estimated)	AuM within UCITS funds	AuM within '40 Act funds	Type	Notes	ILS strategies	Established in ILS	Base
Specialist ILS manager								
Nephila Capital	10,500			Specialist ILS manager	Part-owned by KKR and Man Group	Various multi-instrument funds and single-investor mandates, also invests in weather	1998	Bermuda
Credit Suisse Insurance-Linked Strategies	8,600			Specialist ILS manager	Bank's asset management arm offers Iris suite of ILS funds	Various funds with different risk levels	2003	Switzerland
LGT ILS Partners	7,000	Y (n/d)		Specialist ILS manager	Former Clariden Leu ILS team moved to Swiss alternatives manager in 2012	Various funds and bespoke mandates	2005	Switzerland
Stone Ridge Asset Management	5,706		5,706	Mutual fund manager	Net assets as of 30 April (most recent disclosure)	Cat bond and sidecar funds	2013	US
Fermat Capital Management	5,400	1,500		Specialist ILS manager	Pioneering dedicated manager	Cat bond focus	2001	US
Securis Investment Partners	4,565	53.3		Specialist ILS manager	Northill Capital owns majority stake	Life, non-life and mixed strategy funds	2005	UK
Markel Catco	4,500			Specialist ILS manager	Runs a public listed fund and private funds	Retrocession writer	2011	Bermuda
Leadenhall Capital Partners	4,200	200		Specialist ILS manager	Now majority owned by MS Amlin after buy-up in late 2014	Non-life and mortality funds, life/non-life mandates	2008	UK
Aeolus Capital Management	3,200			Specialist ILS manager	Began as private reinsurer; transformed into fund manager in 2011	Retro and collateralised re	2006	Bermuda
AlphaCat Managers	3,075			(Re)insurer	Validus subsidiary. AuM from 30 June filing	$1.31bn lower-risk ILS fund, $981mn higher-risk fund, $144mn BetaCat fund, $535mn direct mandates, $6mn sidecars. $195mn Validus capital	2008	Bermuda
Elementum Advisors	2,800-3,100			Specialist ILS manager	Managing ILS funds since 2002; team investing since 1995	Multi-instrument funds	2009	US
Schroders (Secquaero Advisors)	2,636	1,225		Specialist ILS manager	Schroders owns 50.1% of asset manager. AuM data as of 31 December	Two cat bond funds and three multi-instrument funds, of which two include life risk. Four segregated mandates	2008	Switzerland
Renaissance Underwriting Managers	1,981			(Re)insurer	Runs two rated sidecars: DaVinci Re (~$1,274mn including 23% RenRe share) and Top Layer Re ($4bn, not included in AuM as capital is largely stop-loss reinsurance)	$307mn Medici ILS fund; $400mn Upsilon funds. All include significant RenRe capital		Bermuda
Pioneer Investments	1,650			Mutual fund manager	Diversified high income trust mutual fund strategy includes ILS	Direct investor in diversified ILS, sidecars	2007	US
Twelve Capital	1,500	494		Specialist ILS manager	Spun out from Horizon21; team in ILS since 2007	Cat bond and multi-instrument ILS funds (insurance debt fund not tracked)	2010	Switzerland
Hiscox Insurance-Linked Strategies	1,350			Reinsurer-backed manager	Hiscox-owned asset manager; Hiscox capital $55mn	Two co-mingled diversified funds; single-investor funds; one insurance sidecar	2014	Bermuda
Mt Logan (Everest Re sidecar)	949			Reinsurer-backed manager	Includes some Everest Re capital	Quota share of Everest Re book		
Scor Investment Partners	945			Reinsurer-backed manager	Asset management affiliate of reinsurer; established in 2011	Multi-instrument	2011	France
Axa Investment Management	830	26		Specialist ILS manager	Affiliate of insurer; invests third-party funds only	Various funds and mandates, new UCITS fund added 2017	2007	France
Coriolis Capital	700	25		Specialist ILS manager	Team operating since 1999; established after MBO from Societe Generale	Multi-instrument including weather	2003	UK
Cartesian Re	>650			Specialist ILS manager	Backed by private equity firm Cartesian Capital	Focus on index strategies via ILWs, cat bonds and other ILS. Investment vehicles include: open-ended funds in Cayman Islands and Delaware, Luxembourg SICAV, Bermuda-listed shares of segregated account and managed accounts	2009	Bermuda
Aspen Capital Markets	600			Reinsurer-backed manager	Runs $130mn Silverton Re sidecar (including $20mn Aspen capital)	Declined to comment on other strategies		
Arch Underwriters	500			Reinsurer-backed manager	Also underwrites for rated $1.13bn casualty-focused Watford Re (assets not included here)		2014	Bermuda
Tokio Marine Asset Management	500			(Re)insurer	Third-party assets; has expanded significantly in past couple of years	Largely ILS, some collateralised covers		Japan
TransRe Capital Markets	500			(Re)insurer	Pangaea Re and other sidecars			
Blue Capital Management	461			(Re)insurer	Sompo International subsidiary. Runs two listed funds ($387mn total), open-ended fund and $74mn private sidecars. AuM as of end May	Collateralised reinsurance (regional focus)	2012	Bermuda
New Ocean Capital Management	450			Reinsurer-backed manager	XL and Stone Point seeded; Mitsui & Co bought 15% share in 2016	Three funds: Diversified (QS of XL Re property cat book); Market Value (super remote risk); Focus (directly written short-tail reinsurance). Also individual accounts	2014	Bermuda
Pillar Capital Management	375			Specialist ILS manager	Previously Juniperus; TransRe owns 50%	Collateralised re focus, runs two funds and mandates	2008	Bermuda

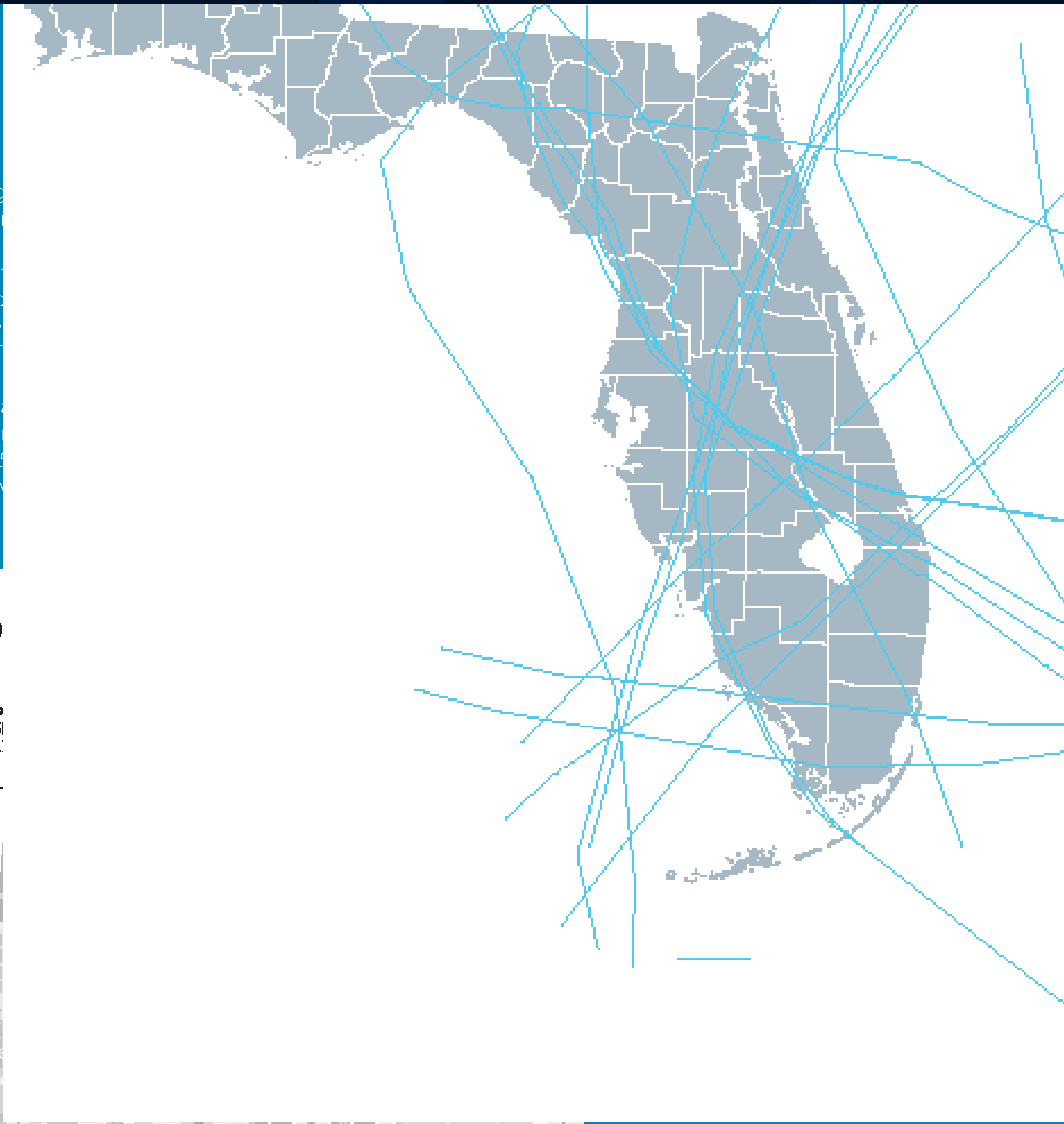
Manager by type	Total AuM in ILS $mn (estimated)	AuM within UCITS funds	AuM within '40 Act funds	Type	Notes	ILS strategies	Established in ILS	Base
Oppenheimer Funds	366		332	Institutional investor	Includes capital from retail mutual and institutional funds	OFI Global Cat Bond Strategy open to external investors	1997	US
PG3	360			Family office	Family office; invests in QS sidecars, ILWs and ILS across wide range of reinsurance including nat cat, non-nat cat, life and health, legacy	Largely family office funds, may take third-party capital		Switzerland
Kinesis Capital Management	~272-306			Reinsurer-backed manager	Lancashire subsidiary established mid-2013	Kinesis Re I vehicle writes multi-class reinsurance and retro. Wrote $340mn limit	2013	Bermuda
Hudson Structured Capital Management	274			Specialist ILS manager	Start-up led by Michael Millette; backing from Blackstone	Reinsurance AuM listed; transport fund not included. Invests across natural catastrophe, life/health, casualty, property, financial and distribution risks and various instruments	2016	US/Bermuda
ILS Capital Management	250			Specialist ILS manager	Don Kramer-backed manager	Specialty focus	2014	Bermuda
Eskatos Capital Management	235			Specialist ILS manager	Azimut Group subsidiaries Eskatos and Katarsis Capital Advisors manage and advise the ILS fund respectively	One fund: Eskatos AZ Multistrategy ILS fund; small longevity exposure	2008	Luxembourg
Plenum Investments	190	Y (n/d)		Specialist ILS manager		Cat bond focus, long only strategies	2010	Switzerland
Leine Investments	150			(Re)insurer	Anchor investor Hannover Re has committed up to $150mn	Cat bonds and collateralised re		
Lombard Odier	~145	105		Specialist ILS manager	Swiss private bank launched ILS fund in 2016	Cat bond funds	2016	Switzerland
PartnerRe	140			(Re)insurer	Internal cat bond fund. L Re sidecar of $132mn			US
Axis Ventures	92			Reinsurer-backed manager	Crop and nat-cat facilities; capital from Stone Ridge		2014	Bermuda
Sumitomo Mitsui Asset Management (Tokyo)	70			Reinsurer-backed manager	ILS fund launched July 2014; advised by Mitsui Sumitomo Insurance	Diversified, low-risk portfolio – yen-denominated	2014	Japan
Tenax Capital	58	58		Generalist manager	Launched UCITS ILS fund in May 2017 with EUR50mn capital	Cat bond funds	2017	London
Eastpoint Asset Management	50			Specialist ILS manager	Backed by Japanese manager Asuka Asset Management	Cat bond focus	2012	Bermuda
Mercury Capital	45			Specialist ILS manager	Seed funding from Lloyd's syndicate Ark	ILW tracker fund	2013	Bermuda
Entropics Asset Management	25	25		Specialist ILS manager	Newly operational fund; still raising capital	ILS	2015	Sweden
IBI ILS Partners	Not disclosed			Specialist ILS manager	Joint venture between Roman Muraviev and IBI Investment House		2017	Israel
Solidum Partners	Not disclosed			Specialist ILS manager		Cat bond and multi-instrument funds	2004	Switzerland
Munich Re	Not disclosed			(Re)insurer	Internal ILS fund of up to $1bn		2006	Germany
Swiss Re	Not disclosed			(Re)insurer	Internal ILS portfolio, invests in cat bonds, ILWs and swaps			
Funds of ILS funds								
K2 Advisors	587			Institutional manager	Hedge fund of funds manager; $10.3bn AuM	Invests with multiple ILS funds; buys cat bonds directly	2003	US
ILS Advisers	178			Institutional manager	Index tracker fund tracking ILS Advisers index	Fund of funds	2014	Hong Kong
GT ILS fund	150			Institutional manager	Texas-based advisory firm offering ILS fund of funds solution	Securis and others	2016	US
AIM Capital	20			Institutional manager	Finnish fund of funds manager	AIM Insurance Strategies fund	2011	Finland
City National Rochdale Select Strategies				Fund of funds manager	Allocates to Iris Re	ILWs and cat bonds	2017	US
Multi-strategy fund managers with ILS components								
Pine River Capital Management	300+			Hedge fund	Hired Al Selius to start investing in ILS within fixed income fund	Multi-strategy, direct investor	2013	US
Quantedge	~250			Hedge fund	Hedge fund with ~$1,200mn overall AuM; ILS as of Jan 2016 only	Invests in cat bonds, sidecars, ILWs	2013	US
Baillie Gifford	500			Institutional manager	Scotland-based asset manager; one multi-asset fund invests in ILS – much less active in ILS through 2015 than 2014	Buys ILS directly. Also holds stake in listed ILS funds Catco/DCG Iris		UK
Aberdeen Asset Management	8			Institutional manager	3.9% of £190mn Diversified Growth fund at end May 2016			UK
Blackstone Alternative Asset Management				Institutional manager	$266bn asset manager; allocates to Nephila Capital through mutual fund	Blackstone Alternative Multi-Manager Fund		US
DE Shaw	Not disclosed			Hedge fund	Has $40bn+ total AuM; ILS holdings not disclosed	Writes collateralised re/retro	2007	US
Guggenheim Capital	Not disclosed			Institutional investor	Broker-dealer with portfolio management arm			US
Tiaa-cref	Not disclosed			Institutional investor	Manages $800bn overall AuM	Buys cat bonds directly		US

Source: *Trading Risk*

CATASTROPHE COUNT

Florida hurricanes – tracking losses within the Sunshine State

In 2016, after escaping
decade, Florida was st
But its good fortune h
represented a serious
having veered off a po
before coming ashore
Historical Hurricanes T
National Oceanic and
illustrates the course t
by major hurricanes si
Andrew, Wilma in 200
major hurricanes to sw



Florida has been the le
by New York in terms
compared to Florida's

Source: Insurance Institute

In association with
Aon
Empower Results®

GLOSSARY OF TERMS

KEY PHRASE	DEFINITION
Aggregate exceedance probability (AEP)	Probability of total annual losses of a particular amount or greater
Alternative risk transfer	Transferring risk through methods other than traditional insurance or reinsurance, for example utilising capital markets capacity through the issuance of insurance-linked securities
Attachment point	The point at which excess insurance or reinsurance protection becomes operative; the retention under an excess reinsurance contract
Attachment probability	Likelihood of losses exceeding the attachment point over the course of a one-year term
Administrator	Assumes all operating and reporting protocols for a special purpose insurer/entity
Basis risk	Risk that losses in a non-indemnity trigger differ from indemnity losses
Capacity	The largest amount accepted on a given risk or, sometimes, the maximum volume of business a company is prepared to accept
Catastrophe bond	Securities that transfer catastrophe risks from sponsors to investors
Cedant	Party to an insurance or reinsurance contract that passes financial obligation for potential losses to another party
Collateralised reinsurance	Reinsurance contract that is fully collateralised to the limit
Earned premium	The portion of premium (paid and receivable) that has been allocated to the (re)insurance company's loss experience, expenses and revenue
Excess of loss	System whereby a (re)insured pays the amount of each claim for each risk up to a limit determined in advance, while the (re)insurer pays the amount of the claim above that limit up to a specified sum
Exhaustion probability	Likelihood of losses exceeding the exhaustion point, causing a full loss on a reinsurance layer
Expected loss	The expected loss is the modelled loss within the layer divided by the layer size
Extension period	Time period after the scheduled maturity used to calculate losses for events which took place during the risk period
Extension spread	Spread paid during the extension period (typically a reduced rate from the initial risk spread)
Gross premiums	Premium before subtracting direct costs
Indemnity trigger	Type of trigger that most closely resembles the traditional market ultimate net loss cover, and offers ceding insurers (a.k.a. sponsors) the ability to recover based on actual losses
Industry loss index trigger	Type of trigger where payouts are determined by a third party estimate of industry losses
Industry loss warranty (ILW)	Form of reinsurance or derivative contract that covers losses arising from the entire insurance industry rather than a company's own losses from a specified event
Incurred losses	The total amount of paid claims and loss reserves associated with events from a particular time period
Insurance-linked security (ILS)	Financial instruments whose value is affected by an insured loss event
Limit	The maximum amount of (re)insurance coverage available under a contract

KEY PHRASE	DEFINITION
Loss ratio	Incurred losses divided by earned premiums (earned premiums include reinstatement premiums)
Modelled loss trigger	Type of trigger where payouts are determined by inputting event parameters into a predetermined and fixed catastrophe model to calculate losses
Net premiums	Premium less direct costs
Quota share	Reinsurance where the cedant transfers a given percentage of every risk within a defined category of business
Occurrence exceedance probability (OEP)	Probability that any single event within a defined period will be of a particular loss size or greater
Parametric trigger	Type of trigger where recoveries are triggered by a formula that uses measured or calculated parameters of an actual catastrophe event (e.g. wind speed, magnitude of an earthquake)
Peril	A specific risk or cause of loss covered by an insurance policy
Probable maximum loss (PML)	The anticipated maximum loss expected on a policy
Profit commission	A provision that provides the cedant a share of the profit from business ceded
Proportional reinsurance	System whereby the reinsurer shares losses in the same proportion as it shares premium and limit
Rate on line	Reinsurance premium divided by reinsurance limit
Reinsurance	A transaction whereby the reinsurer, for a consideration, agrees to indemnify the ceding insurer against all or part of the loss which the insurer may sustain under a policy or policies that it has issued
Reinsurer	Company that provides financial protection to an insurance company
Reset	Adjusting a layer of a multi-year catastrophe bond to maintain a bond's probability of loss at the level defined at issuance
Retention	The net amount of risk the ceding company keeps for its own account
Retrocession	A transaction whereby a reinsurer cedes to another reinsurer all or part of the reinsurance it has previously assumed
Risk period	Time period for which a reinsurance agreement covers events taking place
Sidecar	A structure to allow investors to share in the profits and losses of an insurance or reinsurance book of business
Special purpose insurer/entity (SPI/SPE)	A company created by (but not owned by) a (re)insurer for the purpose of raising capital for a specified programme
Treaty	An agreement between a cedant and a reinsurer stating the types or classes of businesses that the reinsurer will accept from the cedant
Underwriting profit	Earned premium minus incurred losses and incurred commissions (earned premiums include reinstatement premiums)
Variable reset	Adjusting a layer of a multi-year catastrophe bond up or down within a pre-defined range of probability of loss, with a corresponding update in risk spread
Vendor models	Software that estimates expected loss and probability of occurrence for specified exposure sets and predefined peril scenarios. The three largest vendors by market share are AIR Worldwide, Risk Management Services and Eqecat
Written premiums	Premium registered on the books of an insurer or a reinsurer at the time a policy is issued