



Insurance-Linked Securities (ILS) Market Update Q2 2014

News

6th ILS Round Table in Monte Carlo hosted by Munich Re

Save the Date

To discuss the state and future of the ILS market

15 September 2014
10.00 a.m.-11.00 a.m.
The Fairmont Hotel
Room Salle D'Or II
Rendez-Vous de Septembre,
Monte Carlo



Join us on this exciting and informative event, with a mixed panel of major representatives from the ILS community sharing their individual views on:

- issuance activity in 2014
- new liquidity inflows from pension funds
- major developments in ART structures, pricing, cat modeling and portfolio management
- broadening of the investor base
- outlook for 2015 and specific topics raised by the audience

Participants Panel Discussion

Partners



GENERALI



QBE



Tokio
Solution



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Head of Group Reinsurance and R&D, Assicurazioni Generali SpA

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Chief Executive Officer, Tokio Solution Management

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Risk Trading Unit, Munich Re

Please visit also our website for more information:

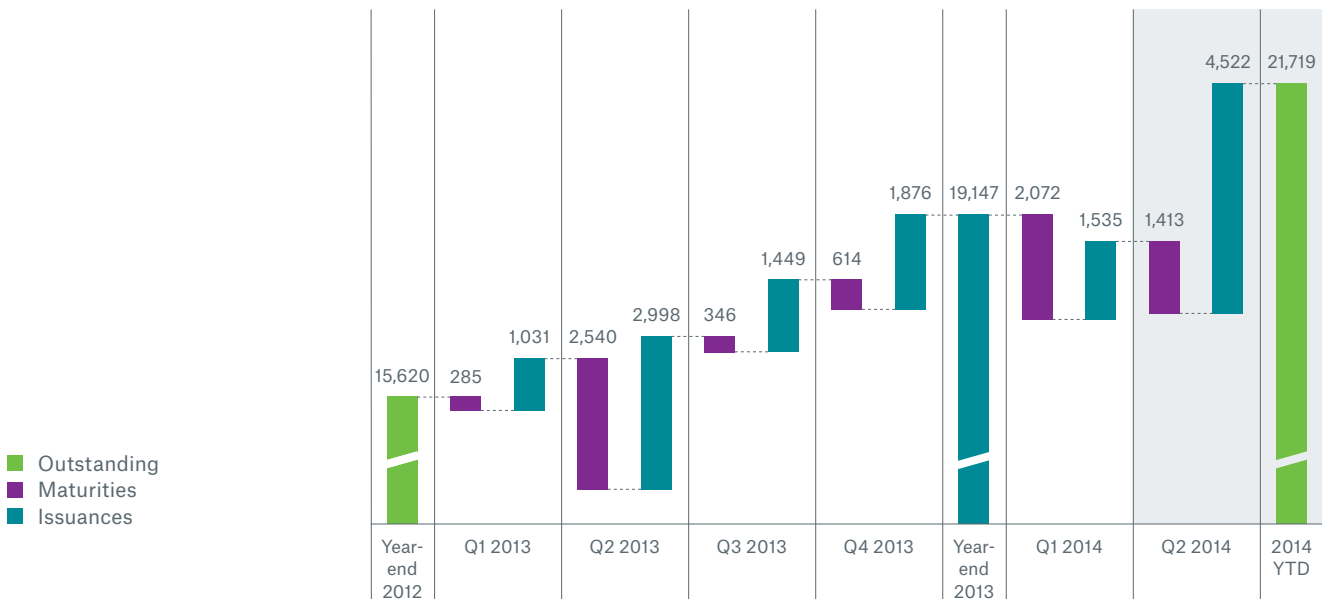
www.munichre.com/rtu

Market Review Q2 2014

Largest issuance in the ILS market's history pushes outstanding cat bond capacity beyond \$21bn

With 12 transactions and a total issuance volume of \$4.5bn during the second quarter of 2014, the cat bond market continued to display strong momentum. Maturing transactions amounted to only \$1.4bn, leading to a net capital inflow of almost \$3.1bn and an increase in total outstanding ILS capacity to \$21.7bn, the highest ever in the history of the cat bond market.

ILS Market Inflows and Outflows (\$m)*

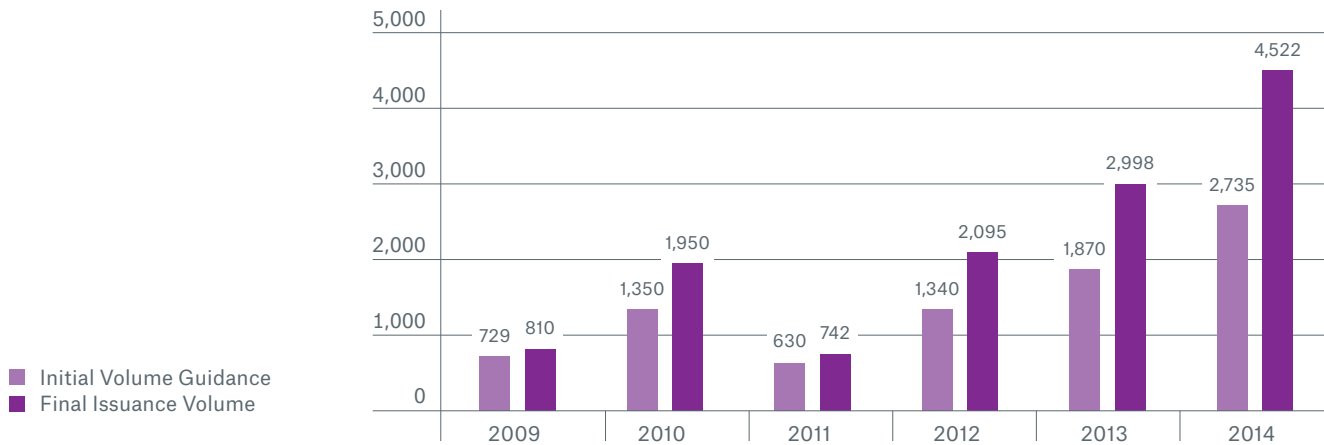


* Excluding mortality transactions; cat bonds with Euro-denomination were converted into \$-amounts using the exchange rate on the respective day of issuance

As usual during the second quarter, issuance was dominated by US sponsors, who bought large capital markets-based cover for US peak perils. Allstate and USAA underscored their strategic stance in the market by placing out large earthquake and wind-exposed tranches, while Heritage Insurance, Everest Re and the Texas Windstorm Insurance Association (TWIA) each tapped the ILS market for the first time with successful transactions. Most notably however, Florida's Citizens Property Insurance Co. pushed the boundaries in terms of deal size by sponsoring its third transaction, Everglades Re Series 2014-1, \$1.5bn dollars in one single tranche. This was by far the largest cat bond ever issued and was the key driver for the highest Q2 issuance volume in history. Without this transaction, the second quarter in 2014 would not have surpassed the year-ago quarter.

Market Review Q2 2014

Q2 ILS Issuance Volume (\$m)*



* Excluding mortality transactions; cat bonds with Euro-denomination were converted into \$-amounts using the exchange rate on the respective day of issuance

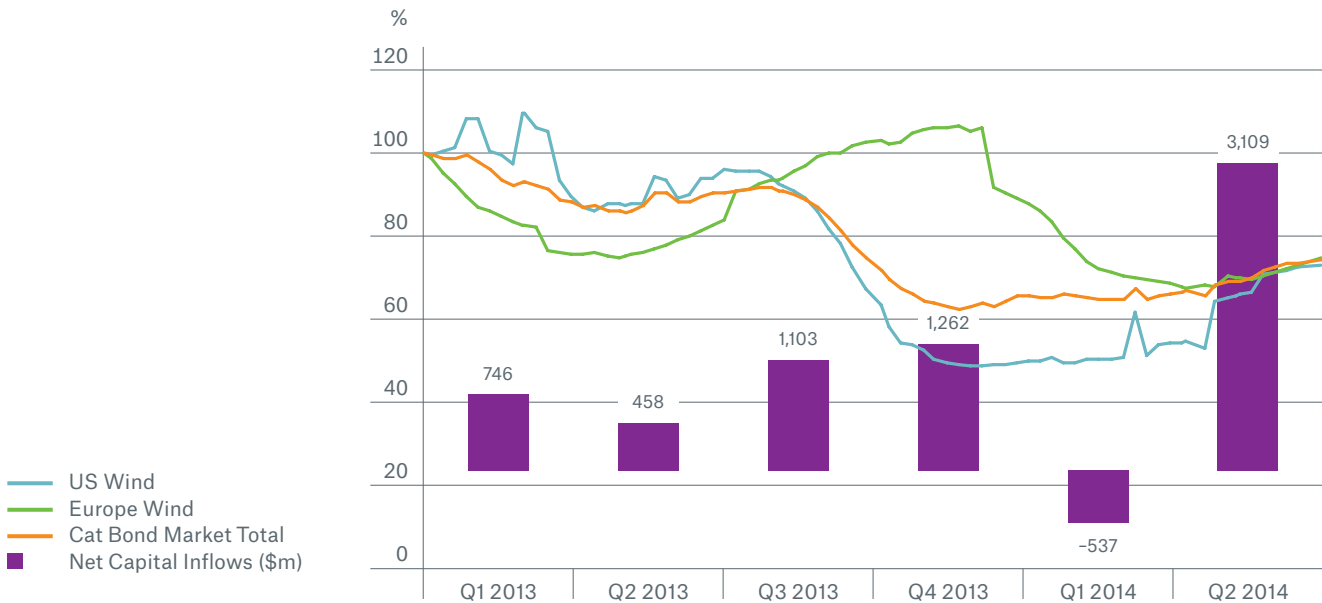
Outside the US, Generali sponsored the first competitively priced, indemnity-based European wind bond, Lion 1 Re. The €190m transaction – co-structured by Munich Re – was Generali's inaugural cat bond. Furthermore, Zenkyoren and Sompo Nipponkoa brought some additional diversification to the market with the issuance of Nakama Re and Aozora Re, respectively. Nakama Re provides \$300m of indemnity-based Japanese earthquake cover. Aozora Re is the first Yen-denominated cat bond transaction, securitizing JPY 10.125bn (~\$100m) of indemnity-based Japanese Typhoon coverage. Finally, issuance in Q2 2014 was topped off by the first cat bond for a Caribbean sponsor, a \$30m private cat bond placed via the World Bank's innovative Global Debt Issuance Facility for the benefit of the Caribbean Catastrophe Risk Insurance Facility (CCRIF). Munich Re acted as co-structuring advisor of this transaction.

Market Review Q2 2014

Stressed ILS capacity leads to slight turnaround in pricing

ILS issuance has outstripped expiring volumes over the last two years. As ILS funds had ample capital on the sidelines to support this growth, pricing even tightened further during 2013. In Q2 2014 however, issuance has now exceeded maturities by a record \$3.1bn, which put some strain on ILS capacity. Rising secondary market yields indicate that return requirements of ILS investors have reached a floor. Due to this development, Munich Re pulled its Queen Street X Re transaction from the market, as pricing targets for the desired capacity could not be achieved at the end of the second quarter.

Indexed Secondary Market Risk Spreads vs. Net Capital Inflows



Market Outlook 2014

Pension fund inflows stagnating? Wider spreads for US perils expected

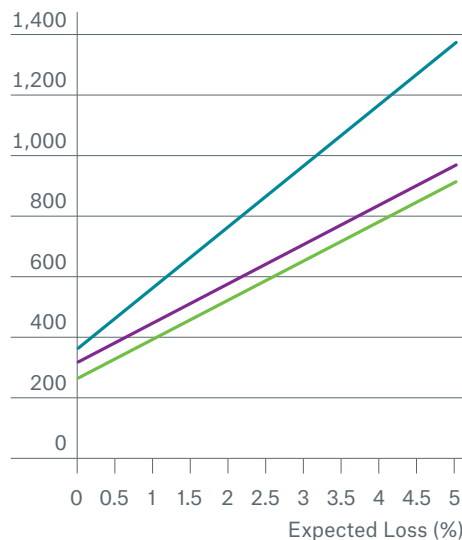
The influx of pension fund capital into the ILS market over the last two years was triggered by the recent return experience of dedicated cat funds, which was a result of the higher-yielding cat bonds the funds had purchased between 2009 and 2012. With excess liquidity leading to reduced risk spreads for cat bond transactions since 2012, the performance of ILS portfolios has been gradually deteriorating. Cat funds have worked to counteract this development by shifting their focus to other alternative risk transfer formats with higher pricing, such as collateralized reinsurance. But for pension funds and traditional asset managers seeking a direct investment in catastrophe risk, these markets will remain more difficult to enter than the less private cat bond market.

Munich Re therefore expects investors to limit some of their future allocations to the ILS sector. In particular, the excess of US wind and earthquake exposure is expected to induce a slight hardening for ILS transactions covering US perils. Despite the placement of some diversifying bonds over the last months, more than 70% of the risk in the market is still attributable to US wind and earthquake. This distribution of exposures is mirrored by the development of secondary market risk spreads. While European wind and Japanese earthquake/typhoon spreads have seen a further tightening in 2014 YTD, this was not the case for US-exposed cat bonds. Munich Re expects growth in the ILS market to dwindle over the coming months.

Secondary Market Spreads

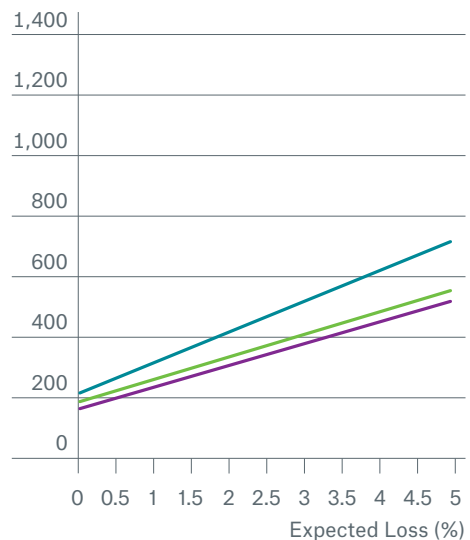
US Multi-Peril

Risk Spread (bps)



Europe Wind/Japanese Perils

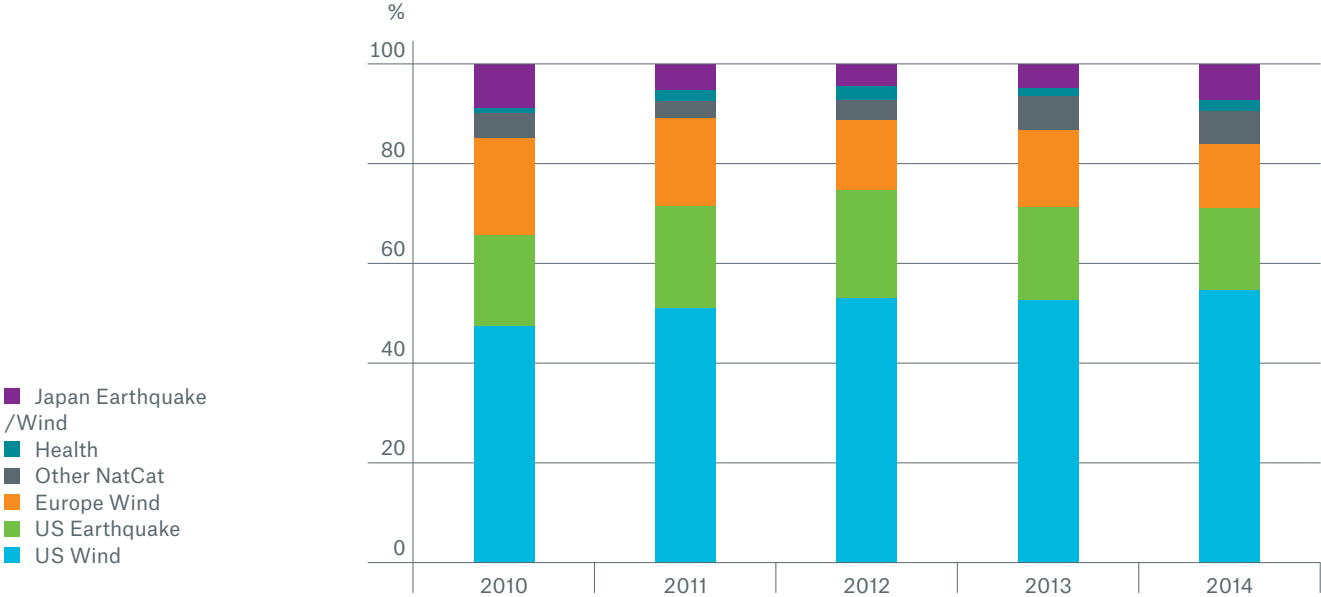
Risk Spread (bps)



* Fitted curves based on implied yields of recent secondary market trades

Market Outlook 2014

Outstanding Cat Bond Capacity Split Into Perils



Market Outlook 2014

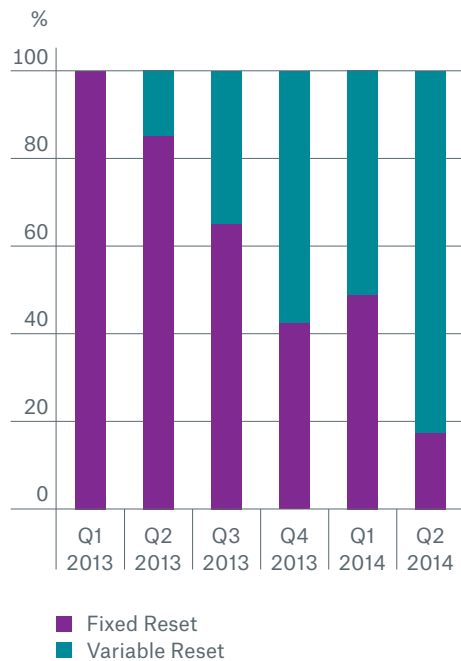
Market standards continue to shift towards cedent-friendly structures

Despite the expected stagnation in capital inflows, the existing investor base has become increasingly open to a higher variability of structural features within ILS transactions. Over the last several years, the market had already moved away from standardized synthetic covers towards customized, indemnity-based solutions. In addition, some sponsors have tested the market with the inclusion of non-modeled risks.

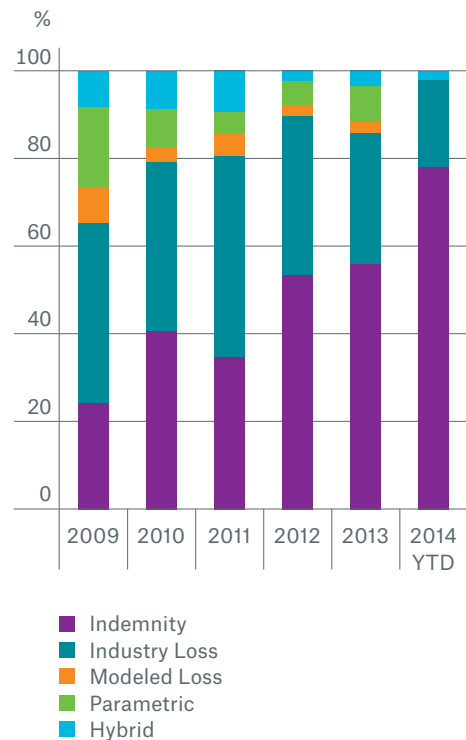
The shift towards more cedent-friendly terms is now being further underscored by the use of annual resets with variable risk and return features, as opposed to earlier fixed reset market standards. Variable resets were first introduced to the market during the second quarter of 2013 but have been the predominant reset mechanism in ILS issuance during this year's second quarter. Given the increased flexibility this provides the cat bond within the sponsor's reinsurance program, variable resets are expected to continue drawing more and more attention from sponsors. This report's Knowledge Box section intends to shed light on the structural mechanics of the variable vs. the fixed reset (see page 10).

ILS Issuance Split

Fixed Reset vs. Variable Reset



Trigger Formats

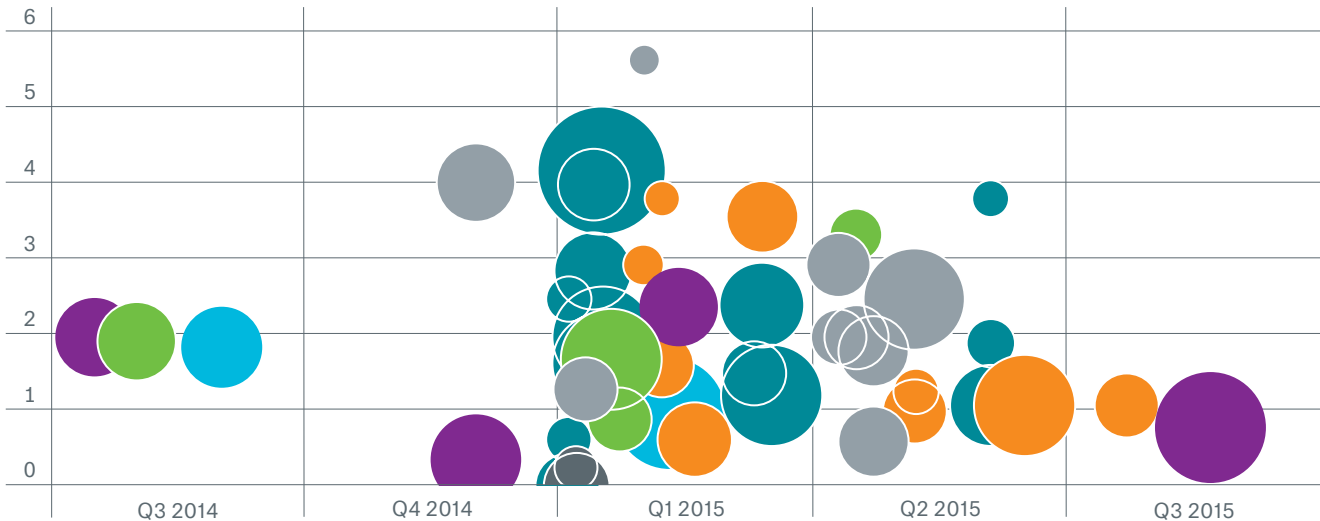


* Excluding private placements and mortality transactions; cat bonds with Euro-denomination were converted into \$-amounts using the exchange rate on the respective day of issuance

Market Factsheet

Upcoming Cat Bond Maturities (\$m)*

Expected Loss (%)



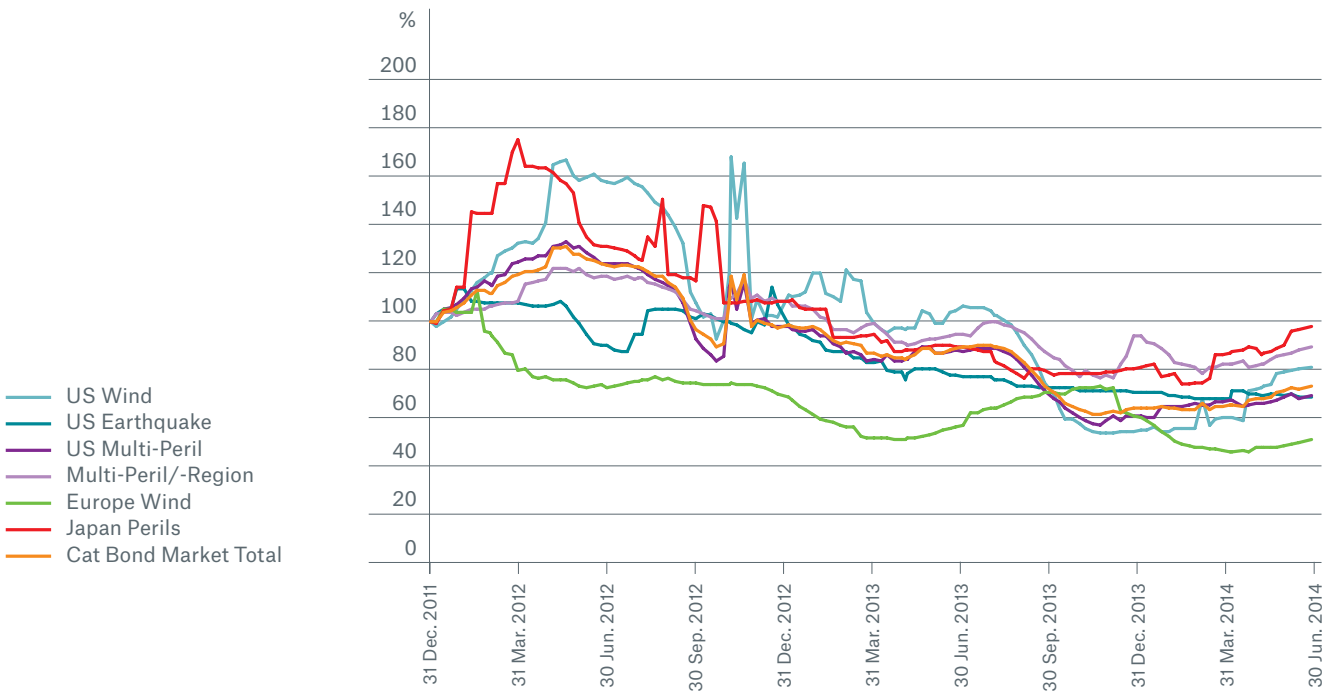
US Earthquake	150	US Earthquake	200	US Wind	430	US Wind	400	US Wind	100
Europe Wind	150	Multi-Peril/-Region	150	US Earthquake	150	US Multi-Peril	250	US Earthquake	300
Japan Wind	160			US Multi-Peril	1,970	Multi-Peril/-Region	765		
				Multi-Peril/-Region	123	Europe Wind	67		
				Europe Wind	347				
				Japan Earthquake	300				
				Health	150				
Total	460	Total	350	Total	3,470	Total	1,482	Total	400

- Japanese Perils
- US Multi-Peril
- US Wind
- US Earthquake
- Europe Wind
- Multi-Peril Multi-Region
- Health

* Cat bonds with Euro-denomination were converted into \$-amounts using the exchange rate on the respective day of issuance

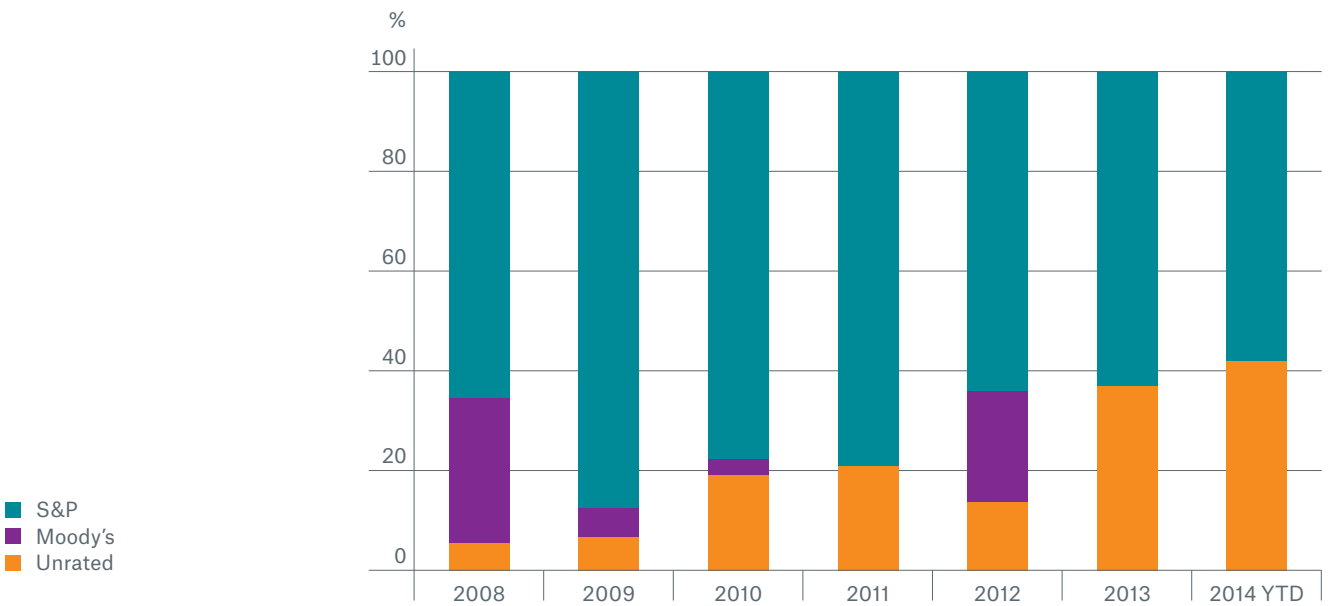
Market Factsheet

Cat Bond Risk Spreads



* Based on spreads derived from secondary market trades

ILS Issuance Split - Rated vs. Non-Rated Transactions



Market Factsheet

ILS Issuances 2014 YTD

Transaction		Cedent	Size (\$m)	Covered Perils	Trigger	Coverage Structure	Pricing (bps)	Exp. Loss (%)	Issuance	Maturity		
Q1 2014	Skyline Re Ltd. 2014	Series 2014-1 Class A	Cincinnati Insurance	100	US Earthquake, Severe Thunderstorm	Indemnity	Per Occurrence & Annual Aggregate	MMF + 1400	-	January 18, 2014	January 18, 2017	
	Vitality Re V Ltd.	Series 2014 Class A	Aetna	140	Health	Medical Benefit Ratio	Annual Aggregate	MMF + 175	0.01	January 24, 2014	January 19, 2017	
		Series 2014 Class B		60				MMF + 250	0.21			
	Omamori Re		Tokio Millenium	25	US Named Storm, Severe Thunderstorm	Indemnity	-	-	-	January 2014	-	
	Queen Street IX Re Ltd.		Munich Re	100	US Named Storm, Australia Cyclone	PCS/Modeled Loss	Per Occurrence	MMF + 550	2.92	February 26, 2014	June 8, 2017	
	Gator Re Ltd.	Series 2014-1 Class A	American Strategic	200	US Named Storm, Severe Thunderstorm	Indemnity	Per Occurrence & Annual Aggregate	MMF + 650	1.12	March 10, 2014	January 9, 2017	
	East Lane Re VI Ltd.	Series 2014-1 Class A	Chubb	270	US Named Storm, US Earthquake, Severe Thunderstorm & Winter Storm	Indemnity	Per Occurrence	MMF + 275	0.89	March 7, 2014	March 14, 2018	
	Kizuna Re II Ltd.	Series 2014-1 Class A	Tokio Marine & Nichido Fire	200	Japan Earthquake	Indemnity	Per Occurrence	MMF + 225	0.37	March 14, 2014	April 5, 2018	
		Series 2014-1 Class B		45				MMF + 250	0.78			
	Merna Re V Ltd.		State Farm	300	US Earthquake	Indemnity	Per Occurrence	MMF + 200	0.4	March 31, 2014	April 7, 2017	
	Riverfront Re Ltd.		General American	95	US Named Storm, US Earthquake, Severe Thunderstorm & Winter Storm	Indemnity	Per Occurrence	MMF + 400	1.34	March 31, 2014	January 6, 2017	
	Q2 2014	Citrus Re Ltd.	Series 2014-1 Class A	Heritage Property & Casualty	150	US Named Storm	Indemnity	Per Occurrence	MMF + 425	1.53	April 17, 2014	April 18, 2017
		Kilimanjaro Re Ltd.	Series 2014 Class A	Everest Re	250	US Named Storm	PCS	Per Occurrence	MMF + 475	1.83	April 24, 2014	April 29, 2018
			Series 2014 Class B		200	US Named Storm, US Earthquake		Annual Aggregate	MMF + 450	1.65		
Citrus Re Ltd.		Series 2014-1 Class B	Heritage Property & Casualty	150	US Named Storm	Indemnity	Per Occurrence	MMF + 375	1.17	April 24, 2014	April 24, 2017	
Lion I Re Limited		Generali	260*	Europe Windstorm	Indemnity	Per Occurrence	EURIBOR + 225	1.08	April 25, 2014	April 28, 2017		
Everglades Re Ltd.		Series 2014-1 Class A	Citizens	1,500	US Named Storm	Indemnity	Per Occurrence	MMF + 750	2.68	May 2, 2014	April 28, 2017	
Armor Re Ltd.		Series 2014-1 Class A	American Coastal	200	US Named Storm	Indemnity	Per Occurrence	MMF + 400	0.54	May 7, 2014	December 15, 2016	
Residential Re 2014 Limited		Series 2014-1 Class 10	USAA	80	US Named Storm, US Earthquake, Severe Thunderstorm, Winter Storm, Wild-fire, Volcanic Eruption and Meteorite Impact	Indemnity	Annual Aggregate	MMF + 1500	11.31	May 22, 2014	June 6, 2018	
		Series 2014-1 Class 13		50				MMF + 350	0.63			
Sanders Re Ltd.		Series 2014-1 Class B	Allstate	330	US Named Storm, US Earthquake	PCS	Per Occurrence	MMF + 300	0.79	May 25, 2014	May 24, 2018	
		Series 2014-1 Class C		115				MMF + 325	0.97			
		Series 2014-1 Class D		305				MMF + 390	1.28			
Aozora Re Ltd.		Series 2014-1 Class B	Sompo Nipponkoa	99.58**	Japanese Typhoon	Indemnity	Per Occurrence	MMF + 200	0.52	May 30, 2014	April 7, 2017	
Nakama Re Ltd.	Series 2014 Class 1	Zenkyoren	150	Japanese Earthquake	Indemnity	Per Occurrence	MMF + 225	0.59	May 30, 2014	April 13, 2018		
	Series 2014 Class 2		150			Annual Aggregate	MMF + 250	0.61				
Alamo Re Ltd.	Series 2014-1	TWIA	400	US Named Storm	Indemnity	Annual Aggregate	MMF + 635	3.09	June 26, 2014	June 7, 2017		
World Bank - CCRIF 2014-1		CCRIF	30	Caribbean Wind, Caribbean Earthquake	Modeled Loss	Annual Aggregate	-	-	June 30, 2014	June 7, 2017		

Knowledge box

Basic considerations for an annual reset

At issuance of a cat bond the sponsor and the participating investors agree on an annual risk spread depending on the cat bond's underlying risk, which is quantified by the initial modeled expected loss and attachment probability of the layer to be covered by the bond. During the term of the bond, portfolio growth, M&A and changes in the regional distribution of the sponsor's portfolio will lead to changes in the program's risk profile and the bond's risk metrics. A "layer reset" is hence implemented annually to compensate for this change in underlying risk.

A model-based update, i.e. remodeling the underlying risk during the term of the bond with an updated release of the agreed-upon nat-cat model, can also lead to a change of modeled expected loss and attachment probability. However, because of concerns about large changes between model releases, most sponsors avoid a "model reset" by escrowing the most recent vendor model and limiting the term of the cat bond to three years.

Former market standard: fixed (portfolio) reset

A fixed reset mechanism has long been the market standard. Under this mechanism, the attachment and exhaustion point, the insurance percentage and the size of the layer are adjusted in order to ensure that the modeled expected loss and attachment probability do not exceed their initial values, whereas the allowed reduction of the insurance percentage (i.e. the share of the cat bond capacity in the sponsor's layer) is often capped. This ensures a stable risk level for investors and hence a constant risk spread over the bond's entire lifetime, which historically has helped investors to obtain sufficient comfort with investing in insurance risk.

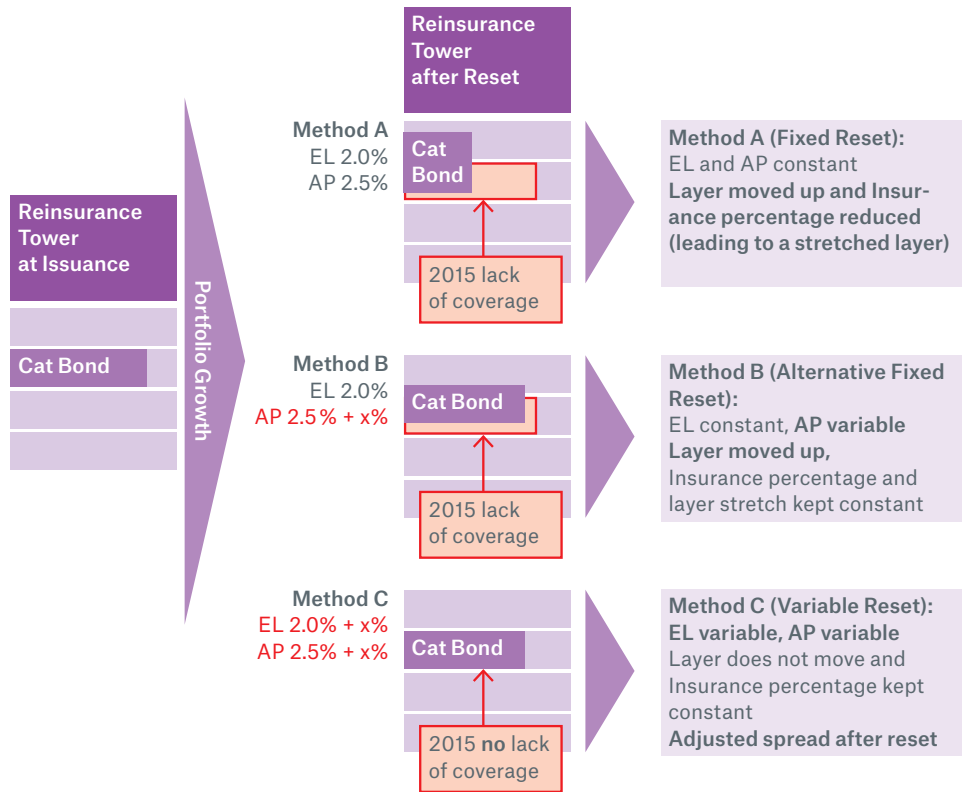
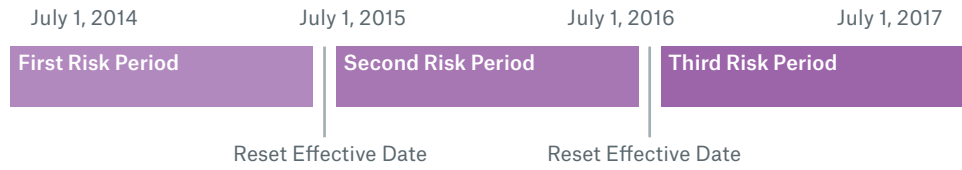
In the figure below Method A illustrates this mechanism. At left, the cat bond cover's position in the sponsor's reinsurance tower is shown at the date of issuance, with the expected loss and the attachment probability of the cat bond equaling 2.0% and 2.5%, respectively. In the course of the first risk period the underlying portfolio grows substantially. Without applying a reset the attachment probability and the expected loss would increase. Method A shows how the attachment point of the cat bond layer can be raised in order to keep the attachment probability constant. Furthermore, the exhaustion point is also raised to keep the expected loss of the cat bond constant. As a result of the increased limit of the layer, the insurance percentage must be reduced in this example.

Method B is often used in the market as an alternative fixed reset mechanism. In this case the insurance percentage cannot be changed following the reset. Therefore, only the attachment point and exhaustion point can be moved to ensure that the initial modeled expected loss is not exceeded. In our example the attachment probability increases.

Both methods make it necessary for the sponsor to adjust the traditional coverage within the reinsurance tower at each renewal, to close coverage gaps or avoid overlaps after the reset. For that reason, the bond's reset is generally applied some weeks prior to the renewal of the sponsor's traditional reinsurance program.

Knowledge box

Annual Reset - Different Approaches to Manage Portfolio Growth



Knowledge box

New approach: variable reset

In 2013, cat bonds were introduced to the market that provide the sponsor with the unilateral authority to move the cat bond layer, regardless of the modeled expected loss and attachment probability. In a growing portfolio scenario, this feature allows the sponsoring cedent to hold the cat bond layer constant, resulting in an increased expected loss and attachment probability (cp. Method C in figure above). However, the allowed difference between the initial modeled expected loss and the updated modeled expected loss is contractually limited, in order to reduce the extent of uncertainty for the investor. From the cedent's perspective, holding the layer constant within a variable reset mechanism has the advantage that no coverage gaps or overlaps occur within the term of the bond, which reduces complexity around the alignment of the cat bond with the traditional part of the sponsor's reinsurance tower.

In case the sponsor opts to increase the expected loss during the reset, a higher risk spread is due to investors subsequent to the reset. The updated risk spread is computed based on a predefined formula specified in the offering circular of the bond. The reset factor in the formula is applied to account for the expected incremental return requirement of investors for an additional unit of risk. In general, this factor is derived from current secondary market yields to reflect investor appetite for the bond's particular risk / covered peril.

Variable Reset: Illustrative Risk Spread Calculation

$$\text{updated risk spread} = \text{initial risk spread} + \text{reset factor} \times \left[\text{updated expected loss} - \text{initial expected loss} \right]$$

Market Review Q2 2014

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