Aon Benfield

Insurance-Linked Securities

Year-End 2016 Update

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2016 Year-End Catastrophe Bond Transaction Review

Catastrophe bond issuance in the third and fourth quarter of 2016 was USD2.8 billion, contributing to a calendar year total of USD5.8 billion—a reduction compared to the 2015 calendar year, due to the competitive landscape within the (re)insurance market. This lighter primary issuance, coupled with a meaningful level of late 2016 and early 2017 catastrophe bond maturities, resulted in strong market demand towards the end of the year, with many Q3 and Q4 transactions upsizing to reach significant capacity. Looking ahead to 2017, the current market environment suggests the prevalence of a competitive alternative reinsurance market and potentially strong levels of primary issuance.

In the catastrophe bond market, 2016 began with a robust level of Q1 issuance, as a record USD2.2 billion of bonds were launched – USD521 million more than the previous all-time record for Q1 issuance set in 2015. Despite the strong start to the year, lower issuance volume was recorded throughout the remainder of 2016; most noticeably in the second quarter, which historically witnesses higher issuance levels given its concurrence with the start of the North America hurricane season. In total, just over USD3.0 billion of issuance was witnessed during Q1 and Q2 of 2016, while USD4.5 billion of catastrophe bonds came off risk during the period.

Third and Fourth Quarter 2016 Catastrophe Bond Issuance

Beneficiary	Issuer	Series	Class	Size (millions)	Covered Perils	Trigger	Rating	Expected Loss[1]	Interest Spread
Third Quarter									
Allianz Risk Transfer (Bermuda) Limited	Blue Halo Re Ltd.	2016-2	C	$225.0	US HU, EQ	Industry	Not Rated	4.49%	8.25%
National Mutual Insurance Federation of Agricultural Cooperatives	Nakama Re Ltd.	2016-1	1	$550.0	JP EQ	Indemnity	Not Rated	0.49%	2.2%
			2	$150.0				1.47%	3.25%
Fourth Quarter									
United Services Automobile Association	Residential Reinsurance 2016 Limited	2016-II	2	$80.0	US HU, EQ, ST, WS, WF, VE, MI and OP	Indemnity	Not Rated	6.35%	N/A
			3	$150.0			B-	3.29%	5.25%
			4	$170.0			B	1.72%	3.50%
California Earthquake Authority	Ursa Re Ltd.	2016-1	A	$500.0	CA EQ	Indemnity	Not Rated	2.18%	4.00%
American Strategic Insurance Group	Bonanza Re Ltd.	2016-1	A	$150.0	US HU and ST	Indemnity	Not Rated	1.80%	3.75%
			B	$50.0				2.69%	5.00%
XL Bermuda Ltd	Galilei Re Ltd.	2016-1	A-1	$75.0	US HU and EQ; EU Wind; AUS TC and EQ	Industry	Not Rated	9.55%	13.25%
			B-1	$125.0				4.98%	8.00%
			C-1	$175.0				3.02%	6.25%
			D-1	$175.0				2.03%	5.25%
			E-1	$200.0				1.45%	4.50%
First Quarter[2]									
XL Bermuda Ltd	Galilei Re Ltd.	2017-1	A-2	$50.0	US HU and EQ; EU Wind; AUS TC and EQ	Industry	Not Rated	9.55%	13.25%
			B-2	$50.0				4.98%	8.00%
			C-2	$150.0				3.02%	6.25%
			D-2	$150.0				2.03%	5.25%
			E-2	$125.0				1.45%	4.50%
Total Closed During Q3 and Q4 2016				$2,775.0					

1 Expected loss represents initial one-year figures on a sensitivity basis
2 Galilei Re Ltd. Series 2017-1 priced in December 2016, but closed in January 2017 and is therefore excluded from 2016 issuance total

Source: Aon Securities Inc.

Legend

AUS – Australia
EU – Europe
US – United States
EQ – Earthquake
HU – Hurricane
MI – Meterorite Impact
OP – Other Perils
ST – Severe Thunderstorm
TC – Tropical Cyclone
VE – Volcanic Eruption
WF – Wildfire
WS – Winter Storm

At the end of a quiet third quarter, National Mutual Insurance Federation of Agricultural Cooperatives (known as "Zenkyoren") came to market with the fifth issuance from its Nakama Re Ltd. program, again covering Japan earthquake. The sponsor was able to capitalize on the strong market demand as the Series 2016-1 notes were upsized from an initial guidance of USD250 million to reach USD700 million and become the largest transaction of the year at that point.

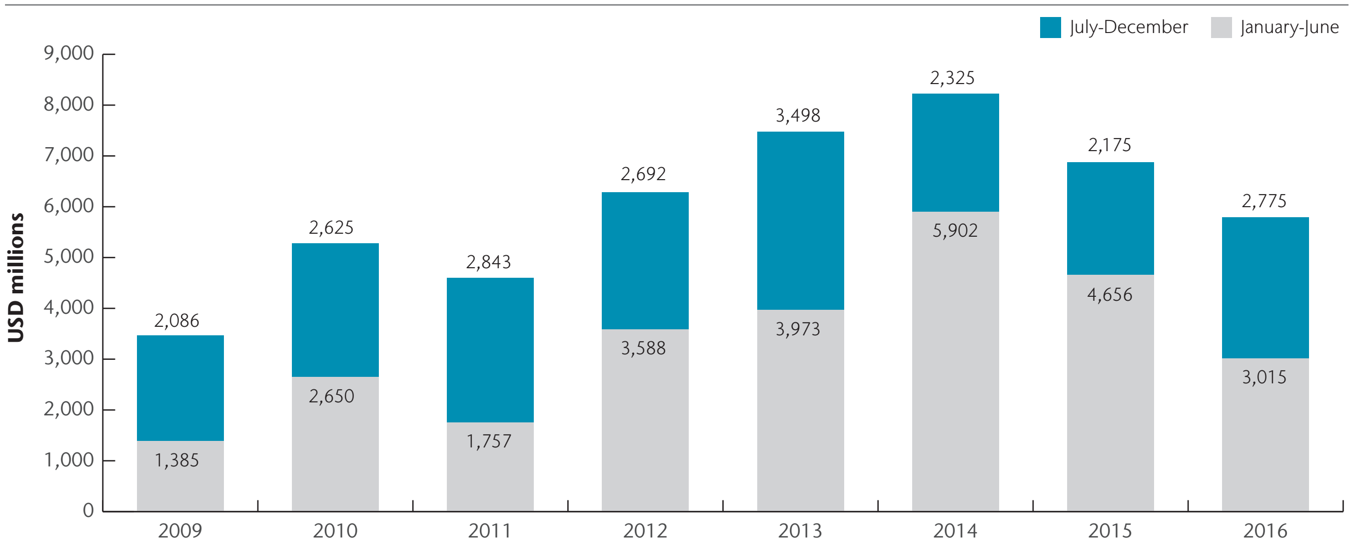
During the fourth quarter, five catastrophe bond transactions came to market totaling USD2.4 billion, including the largest transaction of the year, Galilei Re Ltd., whose Series 2016-1 issuance secured USD750 million on behalf of XL Bermuda Ltd ("XL"). In total, deals completed during Q3 and Q4 were upsized by more than USD1 billion, highlighting the strong primary issuance demand at the close of the year. The Galilei Re Ltd. issuance further included a second series, Galilei Re Ltd. Series 2017-1, which offered investors a post-December issuance date and secured an additional USD525 million for XL, bringing the total transaction size to USD1.3 billion. This was the largest catastrophe bond transaction since the record-setting USD1.5 billion Everglades Re Ltd. Series 2014-1 which came to market in Q2 2014, the current peak of the catastrophe bond market.

The table to the left summarizes the terms of the deals that priced during the second half of 2016.

On September 29, 2016, Aon Securities priced the USD700 million Nakama Re Ltd. Series 2016-1 transaction on behalf of National Mutual Insurance Federation of Agricultural Cooperatives (known as "Zenkyoren"). The transaction was upsized from an initial target of USD250 million. Both the Class 1 and Class 2 notes issued under the program provide rolling three-year aggregate protection over a five-year term. The transaction was the fifth issuance under Nakama Re Ltd., and brought the total outstanding size of the program to USD1.7 billion.

The California Earthquake Authority ("CEA") came to market for the third year in a row under its Ursa Re Ltd. program, seeking coverage for its California earthquake exposure on an annual aggregate indemnity basis. The Series 2016-1 notes upsized from an initial target of USD300 million to reach USD500 million and replace the expiring USD400 million Series 2014-1 issuance. Pricing for the latest transaction also compared favorably, offering investors a 1.9x multiple over expected loss, compared to the 2.0x multiple seen in the two prior issuances at similar risk levels.

Catastrophe Bond Issuance by Half Year



Source: Aon Securities Inc.

To end the year, XL Bermuda Ltd priced its USD1.3 billion transaction, Galilei Re Ltd. Series 2016-1 & 2017-1. The transaction was upsized from an original target of USD1 billion in total across 10 tranches. The Series 2016-1 notes issued under the program provide annual aggregate protection against world-wide weighted industry insured losses over a three-year term and the 2017-1 notes provide the same for a four-year term. This was the second deal from the sponsor in 2016 and the first from the new program, Galilei Re Ltd., which expanded coverage to include Australia tropical cyclone and earthquake. Upon the close of the Series 2017-1 notes in early January, 2017, the USD1.3 billion transaction combined with XL Bermuda Ltd's (and predecessors) prior outstanding deals to make the sponsor the largest issuer in the catastrophe bond market.

Looking ahead, and during the first half of 2017 a record amount of catastrophe bonds will mature, with USD6.4 billion coming off-risk. Given the positive market response already witnessed in late 2016, we expect investors to reinvest available capital and continue to support large competitive alternative reinsurance transactions. As more capital continues to come off-risk, the momentum established by Nakama Re Ltd. and Galilei Re Ltd. is expected to continue in 2017. In the context of the macroeconomic environment, we see investors finding continued value in the alternative ILS asset class given the diversification benefit, and expect continued sector growth regardless of bull or bearish equity markets. Aon Securities' preliminary view for 2017 primary catastrophe bond issuance is USD8 billion.

Aon ILS Indices

The Aon ILS Indices are calculated by Bloomberg using month-end price data provided by Aon Securities.

Aon ILS Indices returned positive results during the 12 months ending December 31, 2016. The Aon All Bond and BB-rated Bond Indices posted gains of 7.03 percent and 4.97 percent, respectively. The U.S. Hurricane and U.S. Earthquake Indices also yielded positive results for the year of 7.05 percent and 4.84 percent, respectively. The Aon All Bond Index outperformed relative to comparable fixed income benchmarks, but was slightly lower than the 3 – 5 year BB U.S. High Yield Index which returned 11.66 percent and the S&P 500 Index which returned 9.54 percent during the period under review.

The annual returns for all Aon ILS Indices outperformed the prior year's annual returns, driven by tightening spreads in the secondary market and the absence of a major catastrophe. The 10-year average annual return of the Aon All Bond Index, 8.13 percent, continued the trend of outperforming comparable benchmarks and reinforces the value of a diversified book of pure insurance risks for investors' portfolios over the long term.

Aon ILS Indices[3]

Index Title	Return for Quarterly Period Ended December 31		Return for Annual Period Ended December 31	
Aon ILS Indices	2016	2015	2016	2015
All Bond Bloomberg Ticker (AONCILS)	0.74%	0.46%	7.03%	3.51%
BB-rated Bond (AONCBB)	0.15%	0.31%	4.97%	2.00%
U.S. Hurricane Bond (AONCUSHU)	1.59%	1.17%	7.73%	7.05%
U.S. Earthquake Bond (AONCUSEQ)	0.59%	0.73%	4.84%	2.85%
Benchmarks				
3-5 Year U.S. Treasury Notes (USG2TR)	-2.05%	-1.02%	1.26%	1.60%
3-5 Year BB U.S. High Yield (J2A1)	1.03%	-0.45%	11.66%	-0.16%
S&P 500 (SPX)	3.25%	6.45%	9.54%	-0.73%
ABS 3-5 Year, Fixed Rate (R2A0)	-1.38%	-1.03%	2.85%	1.93%
CMBS 3-5 Year, Fixed Rate (CMB2)	-1.36%	-0.95%	3.04%	1.72%

Source: Aon Securities Inc. and Bloomberg

[3] *The 3-5 Year U.S. Treasury Note index is calculated by Bloomberg and simulates the performance of U.S. Treasury notes with maturities ranging from three to five years.*

The 3-5 Year BB U.S. High Yield index is calculated by Bank of America Merrill Lynch (BAML) and tracks the performance of U.S. dollar denominated corporate bonds with a remaining term to final maturity ranging from three to five years and are rated BB1 through BB3. Qualifying securities must have a rating of BB1 through BB3, a remaining term to final maturity ranging from three to five years, fixed coupon schedule and a minimum amount outstanding of $100 million. Fixed-to-floating rate securities are included provided they are callable within the fixed rate period and are at least one year from the last call prior to the date the bond transactions from a fixed to a floating rate security.

The S&P 500 is Standard & Poor's broad-based equity index representing the performance of a broad sample of 500 leading companies in leading industries. The S&P 500 Index represents price performance only, and does not include dividend reinvestments or advisory and trading costs.

The ABS 3-5 Year, Fixed Rate index is calculated by BAML and tracks the performance of U.S. dollar denominated investment grade fixed rate asset backed securities publicly issued in the U.S. domestic market with terms ranging from three to five years. Qualifying securities must have an investment grade rating, a fixed rate coupon, at least one year remaining term to final stated maturity, a fixed coupon schedule and an original deal size for the collateral group of at least $250 million.

The CMBS 3-5 Year, Fixed Rate index is calculated by BAML and tracks the performance of U.S. dollar denominated investment grade fixed rate commercial mortgage backed securities publicly issued in the U.S. domestic market with terms ranging from three to five years. Qualifying securities must have an investment grade rating, at least one year remaining term to final maturity, a fixed coupon schedule and an original deal size for the collateral group of at least $250 million.

The performance of an index will vary based on the characteristics of, and risks inherent in, each of the various securities that comprise the index. As such, the relative performance of an index is likely to vary, often substantially, over time. Investors cannot invest directly in indices.

Secondary Trading Update

The secondary markets were less active throughout the second half of 2016 in comparison to the first half of 2016. According to FINRA's Trade Reporting and Compliance Engine (TRACE), there were 428 trades totaling USD427.9 million during Q3 and Q4 2016. This represented a decrease in trade volume of 19 percent and dollar volume of nearly 23 percent from the first half of 2016, but was consistent with the activity seen during H2 2015. The reduction in secondary activity was primarily due to the overall decrease in activity on the primary markets throughout 2016, as well as a high level of upcoming maturities scheduled in the first half of 2017. Investors therefore chose to maintain their positions rather than sell on the secondary market without replacements. Additionally, October was a light month for catastrophe bond trading as investors waited for the full impact of Hurricane Matthew to be realized.

Trading activity was highest amongst short-dated off-risk US wind bonds, as several are maturing prior to the 2017 wind season. Catastrophe bonds that reported 10 trades or more were mostly US wind-exposed bonds such as Cranberry Re Ltd Series 2015-1, Everglades Re Ltd. Series 2014-1, Everglades Re II Ltd Series 2015-1, Alamo Re Ltd. Series 2014-1, Alamo Re Ltd Series 2015-1 A and B and Armor Re Ltd. Series 2014-1. The majority of Armor Re 2014-1 trades occurred in the first two weeks of November as the spread became more attractive to buyers of short-dated paper. Opportunistic buyers were able to purchase short-dated bonds at decreased prices as the wind season came to a close and the maturity date approached.

Hurricane Matthew officially made landfall in the US on October 8 in South Carolina, the first landfalling named storm in the US since Hurricane Sandy in 2012. Insured loss estimates were upwards of USD4.0 billion[4], making Matthew the costliest US hurricane since Hurricane Sandy. Several trades occurred at reduced or distressed pricing prior to Matthew making landfall, including all three classes of Laetere Re as well as First Coast Re. However, as the impact from Hurricane Matthew was ultimately less than originally expected, all bonds rebounded and were trading at pre-event pricing levels within the week following landfall.

Loss events throughout 2016 negatively impacted the Gator Re Ltd. Series 2014-1 ("Gator Re"), which filed an extension notice prior to the January 9, 2017 scheduled maturity. While the ultimate loss of Gator is still unknown, the transaction only returned 82.5 percent of its principal at the scheduled maturity date. Gator Re had no FINRA TRACE reported trades in Q4 2016 as a result of the uncertainty surrounding the loss.

Given expectations for a fairly active issuance calendar in the first half of 2017, our firm expects investors with available capacity as well as freed capital from the impending maturities will be able to effectively redeploy capital in a robust primary and secondary market.

4 *Source: Aon Benfield Analytics*

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