

Insurance-Linked Securities

Q1 2018 Update

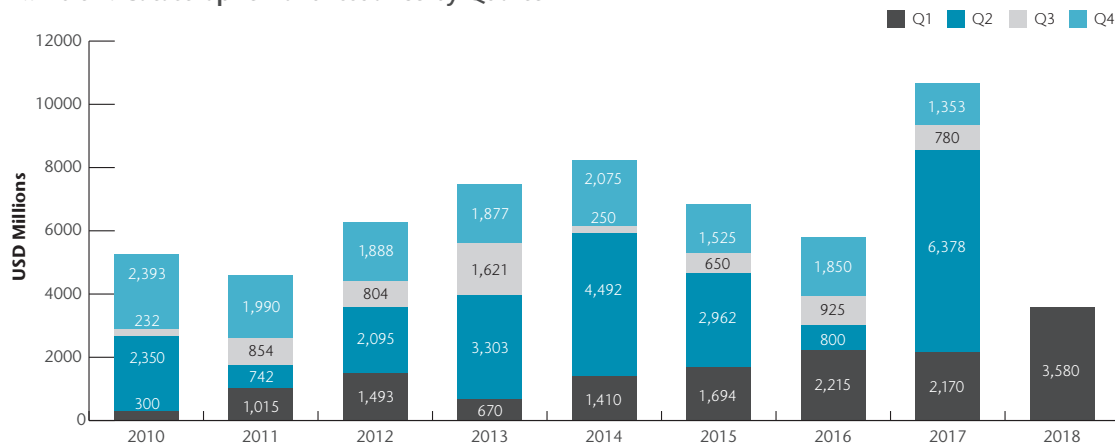


Executive Summary

The first quarter of 2018 was marked by record issuance volumes, new entrants to the market, and strong support from investors. The \$3.58 billion of catastrophe bonds placed represented the highest ever first quarter issuance tally, and far exceeded the 2016 and 2017 first quarter issuance volumes, which were each approximately \$2.2 billion.

As the Insurance-Linked Securities (“ILS”) market digested the implications from 2017 loss-causing events, catastrophe bonds continued to demonstrate value both to sponsors and investors alike, and there remained strong demand for issuance on both sides. Maturities for the quarter totalled \$1.37 billion of property catastrophe bonds – which was not only easily replaced, but also significantly expanded, bringing the market to a new high of \$29.0 billion of catastrophe bonds on-risk as at March 31, 2018, of which \$27.3 billion were property transactions. In short, in Q1 the market remained strong, and we feel this momentum will carry into the second quarter and beyond.

Exhibit 1: Catastrophe Bond Issuance by Quarter



Source: Aon Securities Inc.

First Quarter 2018 Catastrophe Bond Transaction Review

Repeat sponsors led Q1 in terms of issuance volume, with \$2.28 billion in property catastrophe issuance, which alone exceeded the total first quarter 2017 issuance. Further, the market expanded into a previously unrepresented region in ILS – Latin America – through the International Bank for Reconstruction and Development (“IBRD”) CAR program issuances. Investor

appetite remained healthy, as reflected in spread compression along with the repeated upsizing of transactions from initial guidance.

Below we provide an overview of the transactions coming to market during the quarter.

Table 1: First Quarter 2018 Catastrophe Bond Issuance

Beneficiary	Transaction	Size (million)	Covered Perils	Trigger	Rating	Expected Loss	Risk Interest Spread
First Quarter 2018							
Aetna Life Insurance Company	Vitality Re IX Ltd 2018-1 Class A	\$140.0	MBR	Indemnity	BBB+ (S&P)	0.01%	1.60%
	Vitality Re IX Ltd 2018-1 Class B	\$60.0	MBR	Indemnity	BB+ (S&P)	0.16%	1.75%
Republic of Chile	IBRD CAR 116	\$500.0	Chile EQ	Parametric	Not Rated	0.86%	2.50%
Republic of Columbia	IBRD CAR 117	\$400.0	Columbia EQ		Not Rated	1.56%	3.00%
The Fund for Natural Disasters	IBRD CAR 118	\$160.0	Mexico EQ		Not Rated	0.79%	2.50%
	IBRD CAR 119	\$100.0	Mexico EQ		Not Rated	6.54%	8.25%
Republic of Peru	IBRD CAR 120	\$200.0	Peru EQ		Not Rated	5.00%	6.00%
Zenkoyoren	Nakama Re 2018-1 Class 1	\$500.0	JP EQ	Indemnity	Not Rated	0.48%	2.00%
	Nakama Re 2018-2 Class 2	\$200.0			Not Rated	1.44%	3.00%
Tokio Marine & Nichido Fire Insurance Co	Kizuna Re II Ltd Class A	\$150.0	JP EQ	Indemnity	Not Rated	0.12%	1.88%
	Kizuna Re II Ltd Class B	\$50.0	JP EQ		Not Rated	0.99%	2.50%
MS&AD Insurance Group Holdings	Akibare Re Ltd 2018-1 Class A	\$220.0	JP TY, EQ, FLD, EQFF	Indemnity	Not Rated	0.73%	1.90%
	Akibare Re Ltd 2018-1 Class B	\$100.0	JP TY, EQ, FLD, EQFF	Indemnity	Not Rated	0.99%	1.90%
State Farm Fire and Casualty Company	Merna Re Ltd 2018-1 Class A	\$300.0	US (New Madrid) EQ	Indemnity	Not Rated	0.52%	2.00%
Allstate Insurance Company	Sanders Re Ltd 2018-1 Class A	\$500.0	US, NS, EQ, SW, FI, OT	Indemnity	Not Rated	0.71%	5.50%

- In January, health insurer Aetna returned to the life ILS market with its ninth Vitality Re deal, issued by a new Cayman Islands-based vehicle. The \$140 million Class A and \$60 million Class B notes provided Aetna with cover against medical benefit claims, on the basis of an attachment medical benefit ratio of 100 percent and 94 percent respectively. Tranche A presented an expected loss of less than 0.01 percent and priced at 1.6 percent, below the starting guidance of 1.75 percent to 2.25 percent. Tranche B launched with an expected loss of 0.16 percent and priced at 1.75 percent, the midpoint of the initial guidance range of 2 percent to 2.75 percent.
- In February, the IBRD returned to the market with a landmark transaction providing earthquake coverage to Chile, Colombia, Peru and FONDEN/AGROASEMEX in Mexico. The transaction was the largest parametric earthquake transaction in the history of the ILS market and the second largest ILS deal ever, with a total size of \$1.36 billion across all covered countries. The IBRD issued as five separate classes of notes (two for Mexico and one Chile, Colombia, and Peru) which were well received by investors, with pricing consistently settling at the bottom of reduced price guidance. This demonstrated the continued appeal of parametric transactions covering diversifying perils, and solidified the IBRD’s position as a major cedant in the market.

- In March, regular market participant Zenkyoren returned with Nakama Re Ltd. 2018-1, providing three-year aggregate coverage against Japanese earthquake, with perils also including tsunami, fire, sprinkler-related water damage, flood and earthquake-induced shaking. The deal was offered in two tranches, A and B, which were significantly upsized from their original offering of \$200 million and \$50 million, to \$500 million and \$200 million respectively. The transaction was well received and the tranches both priced at the bottom range of their respective price guidance – at 2 percent and 3 percent for expected losses of 0.48 percent and 1.44 percent respectively.
- Also in March, the fourth Akibare Re catastrophe bond was offered to the market. Whereas previous Akibare transactions had covered Mitsui Sumitomo Insurance, the Series 2018-1 also provided protection to Aioi Nissay Dowa Insurance Co. This was an indemnity transaction, structured in two tranches, with each tranche providing cover to one of the ceding companies against losses from typhoons, floods and earthquake-related fire events across Japan. Once again, the deal encountered strong investor demand and the tranches both priced at 1.9 percent, at the bottom of an already reduced price guidance, with expected losses of 0.73 percent and 0.99 percent respectively. The transaction was also upsized from \$150 million to \$320 million.
- Tokio Marine and Nichido Fire returned to the market with its third Kizuna Re II Ltd. catastrophe bond, providing \$200 million of collateralised reinsurance protection against Japanese earthquake events. The transaction featured a term-aggregate indemnity trigger, meaning that losses in excess of the deductible would accumulate over each of the three-year risk periods, overlapping with the five-year total term of the transaction. Risk interest spreads were set at 1.875 percent from a range of 1.75 percent to 2 percent for Class A, with a three-year expected loss of 0.35 percent (0.12 percent annualized); and 2.5 percent from a range of 2.5 percent to 3 percent for Class B, which featured a riskier 2.98 percent three-year expected loss (1 percent annualized).
- The Merna Re Ltd. Series 2018-1 transaction on behalf of State Farm Fire and Casualty Company (“State Farm”) was the fourth catastrophe bond transaction from the Merna Re Ltd. program and the seventh overall on behalf of State Farm to exclusively cover New Madrid Earthquake exposure. The single class of notes provided \$300 million of collateralized protection on an indemnity per occurrence basis for losses arising from earthquakes (including fire following), similar to the recent Merna Re Ltd. issuances. The transaction priced at 2.00%, consistent with the initial risk interest spread of the Series 2017-1 Notes.
- Allstate returned to the ILS market with Sanders Re Ltd. 2018-1, which provided per occurrence and annual aggregate protection on an indemnity basis to Allstate’s personal property and auto business. The issuance covered losses arising from all property risks affecting the District of Columbia and 48 states of the U.S. (excluding Florida and initially New Jersey). The coverage terms were among the broadest in the catastrophe bond market, covering not only peak perils (i.e. named storm and earthquake) but also severe weather, fires and other perils, which was consistent with a traditional placement and represented one of the broadest in the ILS market. The transaction included a unique structural feature, with coverage being both on a per-occurrence and annual aggregate basis, in two separate sections of a single class of notes. The transaction priced at 5.5 percent and the transaction was upsized from \$400 million to \$500 million.

¹ Expected loss represents initial one-year annualized figures with WSST sensitivity when applicable
Source: Aon Securities Inc.

Aon ILS Indices

The Aon ILS Indices are calculated by Bloomberg using month-end price data and index membership provided by Aon Securities Inc., the administrator of the indices.

On a quarterly basis, the All Bond and U.S. Hurricane indices posted returns of 1.45 percent and -1.17 percent respectively. The negative return for the U.S. Hurricane index during the period was due to an increase in losses from Hurricane Irma for one of the bonds in the market. The All Bond index outperformed all comparable benchmarks for the quarter, as all benchmarks suffered negative returns.

Aon ILS Indices returned positive results during the 12 months ending March 31, 2018 despite significant natural catastrophic activity. The Aon All Bond and U.S. Hurricane Bond indices produced gains of 1.81 percent and 1.56 percent respectively. The Aon All Bond Index underperformed relative to comparable BB U.S. High Yield and the S&P 500 indices, but outperformed U.S. Treasury Notes, ABS and CMBS indices. The highest return came from equities, as the S&P 500 Index returned 11.77 percent during the annual period ending March 31, 2018.

Figure 3: Comparative Indices and Benchmarking

Index Title	Return for Quarterly Period Ended March 31		Return for Annual Period Ended March 31	
	2018	2017	2018	2017
Aon ILS Indices				
All Bond Bloomberg Ticker (AONCILS)	1.45%	1.03%	1.81%	6.21%
U.S. Hurricane Bond (AONCUSHU)	-1.17%	0.65%	1.56%	6.97%
Benchmarks				
3-5 Year U.S. Treasury Notes (BEUSG2)	-0.74%	0.58%	-0.34%	-0.63%
3-5 Year BB U.S. High Yield (J2A1)	-0.79%	1.26%	2.57%	9.94%
S&P 500 (SPX)	-1.22%	5.53%	11.77%	14.71%
ABS 3-5 Year, Fixed Rate (R2A0)	-0.42%	1.22%	1.78%	2.68%
CMBS 3-5 Year, Fixed Rate (CMB2)	-0.78%	0.67%	0.70%	1.34%

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 ICE Data Indices, LLC (IDI), 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 ABS 3-5 Year, Fixed Rate Index is calculated by IDI 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 IDI 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.

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