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Bermuda Insurance-Linked Securities (ILS) Market Report

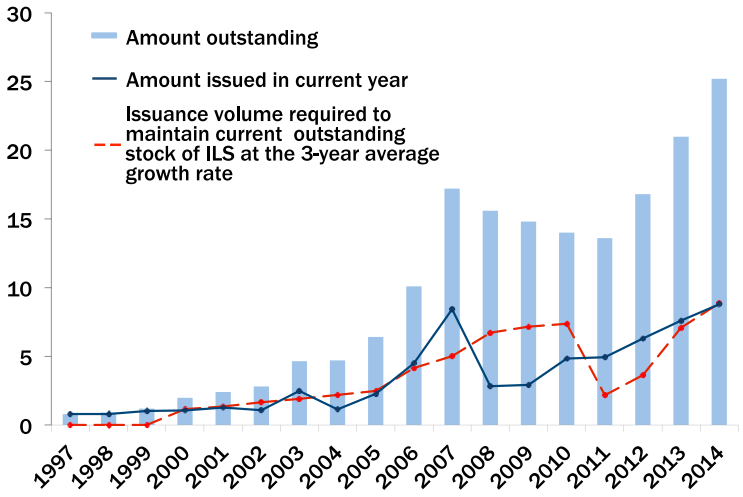
SUMMARY

The final quarter of 2014 ended on a strong note for the ILS market. Nine bonds were issued totaling $2.2 billion dollars. The total outstanding volume of ILS cat bonds rose 9% over the previous quarter and 20% year over year.

Bermuda issued ILS represents 60% ($15.1 billion) of total outstanding ILS capacity. The global stock of ILS rose to $25.2 billion during the quarter (Figure 1). Since 2010 the BMA has licensed 137 SPIs. Those that have issued cat bonds cover predominantly North American and European loss events.

Bermuda is also host to foreign ILS listings, which augment the depth of the secondary market. There are 63 ILS deals (81 tranches) listed on the Bermuda Stock Exchange (BSX)*, with an aggregate nominal value of approximately $14.9 billion dollars of which $463 million (3%) are issued by non-Bermuda entities. Eight new ILS deals were listed on the BSX during the quarter. At the end of Q4-2014, the BSX reported 118 ILS notes and programmes.

Figure 1. Global Capacity Issued and Outstanding by Year (In US$ bln)



Source: Swiss Re, Artemis, and BMA staff calculations.

* Notes programmes are excluded from the number of BSX listings. Moreover, the aggregate nominal value of listed ILS does not include ordinary shares issued by (re)insurance funds or participatory notes issued by sidecars. The nominal value exceeds $15.0 billion when these are included.

CONTENTS

PRIMARY MARKET: GLOBAL MARKET OVERVIEW

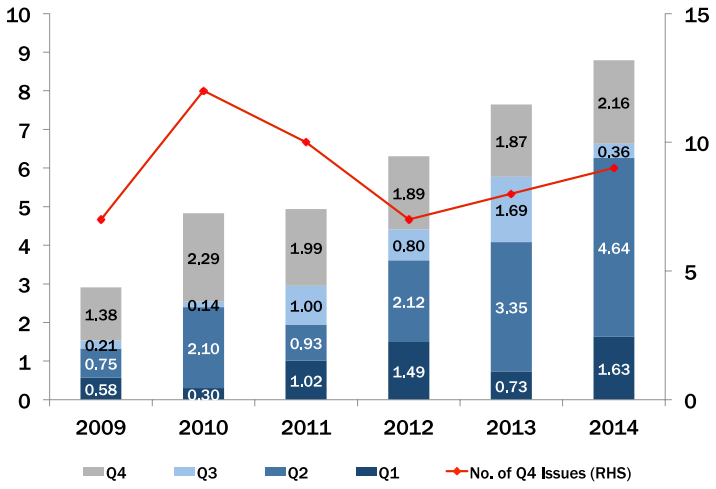
ILS issuances in the fourth quarter increased 15% when compared to activity during the same period last year (Figure 2).[1] There were nine new bonds issued, totalling $2.2 billion. Total outstanding ILS capacity reached $25.2 billion after two ILS deals matured with a notional value of $51 million during the quarter. Q4-2014 issuance volume of $2.2 billion was six times higher when compared to Q3-2014. This is consistent with past experience as Q4 is typically active ahead of the January renewals period (Figure 2).

The average deal size for Q4-2014 is consistent with fourth quarter transactions over the past few years. The average deal during the quarter was approximately $240 million, up from $234 million in the same quarter last year (Figure 3). The two largest deals were issued by Kilimanjaro Re Ltd. 2014-2 and Tradewynd Re Ltd. 2014-1, each valued at $500 million. Both of these vehicles are Bermuda-domiciled SPIs and cover risks in North America and Asia respectively. At the lower end, there were three deals that ranged between $5 and $71 million, all of which were issued by Bermuda-based SPIs.

Annual ILS issuance closed out 2014 on a strong note, growing for a sixth consecutive year. Global ILS issuance rose 15% (compared to 21% in 2013) to $8.8 billion for the year. In 2014 there were 43 deals completed versus 37 in the prior year (Table II). Although 2014 was a record breaking year for Property and Casualty ILS issuances, it is interesting to note that the average size per deal contracted 5%, falling to $204 million from $215 million in 2013. This follows the increased use of 'cat bond light' platforms which issue smaller deals that are often privately placed.

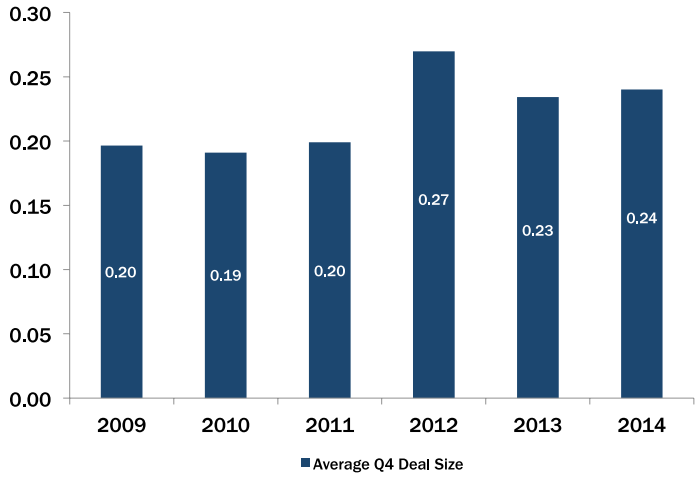
Indemnity triggers account for just over half of the outstanding volume of ILS deals. Insurance linked securities with indemnity triggers account for 51% ($12.9 billion of $25.2 billion) of total outstanding volume of the ILS market (54% in 2013). This is followed by industry loss index at 30% which remains unchanged from last year (Table IV). In 2014, 70% of the deals issued ($6.2 billion of $8.8 billion) used indemnity triggers while 23% used an industry loss index.

Figure 2. Quarterly ILS Issuance by Deal Volume (In US$ bln) and Number of Q4 Deals—Global Market, 2009 to Q4-2014



Source: Artemis and BMA staff calculations.

Figure 3. Global Q4 ILS Issuance (Average Deal Volume), Q4-2009 to Q4-2014 (In US$ bln)



Source: Artemis and BMA staff calculations.

1 Note that the quarter-on-quarter (q/q) change compares the change in a value between the current quarter and the corresponding quarter of the previous year, e.g., Q1-2013 and Q1-2012.

Table I: Summary ILS Issuance in Selected Jurisdictions (Total Issued Deal Volume in US$ bln)

ILS Issuance by Country of Risk (In US$ bln)						
Country	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Bermuda	–	1.2	1.6	2.5	4.7	7.7
Cayman Islands	2.5	2.7	2.0	3.5	1.9	0.7
Ireland	0.4	0.7	0.9	0.2	1.0	0.4
United States	–	0.2	0.4	0.1	–	–
Other	–	0.04	–	–	–	0.03

Table II: Summary ILS Issuance in Selected Jurisdictions (Number of Deals)

Number of Issuances by Country of Risk (SPV)						
Country	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Bermuda	0	3	8	11	25	36
Cayman Islands	13	16	12	15	9	4
Ireland	3	4	6	1	3	2
United States	–	1	2	1	–	–
Other	–	1	–	–	–	1

Table III: Triggers in ILS Issuance in Selected Jurisdictions (Total Issued Deal Volume, Q1-2009 to Q4-2014 in US$ bln)

Trigger (In US$ bln)	Bermuda	Cayman Islands	Ireland	United States
Indemnity	10.2	6.6	0.3	–
Industry Loss Index	5.5	2.6	2.7	0.5
Longevity Index	–	0.1	–	–
Medical benefit ratio index	–	0.8	–	–
Modeled Loss	0.9	0.6	–	–
Mortality Index	–	0.7	0.2	–
Multiple	0.2	0.6	0.3	0.2
Parametric	0.6	0.6	–	–
Parametric Index	–	0.7	0.2	–
Unknown	0.4	0.1	–	–

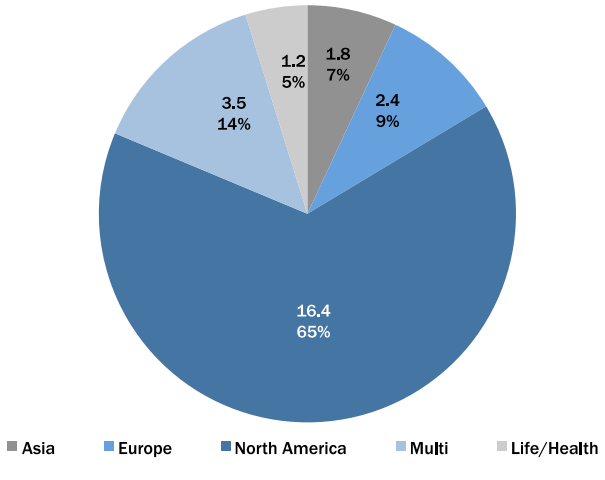
Table IV: Triggers in ILS Issuance in Selected Jurisdictions (Outstanding Deal Volume, end Q4-2014 in US$ bln)

Trigger (In US$ bln)	Bermuda	Cayman Islands	Ireland	United States
Indemnity	8.5	4.2	0.3	–
Industry Loss Index	4.6	1.0	1.8	0.2
Longevity Index	–	0.1	–	–
Medical benefit ratio index	–	0.5	–	–
Modeled Loss	0.9	0.1	–	–
Mortality Index	–	0.6	0.2	–
Multiple	0.2	0.2	0.1	–
Parametric	0.6	0.3	–	–
Parametric Index	–	0.5	–	–
Unknown	0.4	–	–	–

The ILS market remains small relative to traditional (re)insurance business (see tables above). The $25.2 billion of risk covered by ILS represents 4% of global reinsurer capital, which is estimated to be $570 billion.[2] Since 2009, 177 ILS bonds have been issued, of which 119 (69 Bermuda deals) have yet to mature. Bermuda increased its market share as the leading jurisdiction in the ILS industry over the past quarter, accounting for 60% ($15.1 billion of $25.2 billion) of the outstanding volume in the market. Other countries with significant insurance securitisation activity in this area include the Cayman Islands and Ireland, which represent 30% and 10% respectively.

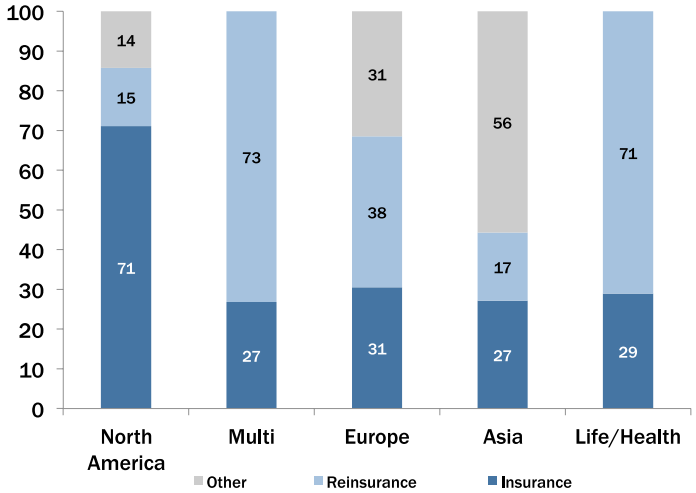
The majority of ILS covers North American perils, which account for 65% of the total outstanding volume (Figures 4 and 5).[3] The multi-region category represents 14% of the outstanding ILS bonds. The remaining categories account for approximately 21% of the market by volume. This may be explained by the fact that the majority of primary insurers in the ILS market are US-based firms, while European sponsors of ILS tend to be reinsurers. Primary insurers sponsored 71% of total coverage for those bonds ($11.6 billion of $16.4 billion). In contrast, reinsurers ceded 73% of the volume for multi-regional bonds ($2.6 billion of $3.5 billion), which comprises portfolios including catastrophic events in two or more regions, and 38% of those in Europe ($905 million of $2.4 billion). Bond volume for the Asian region represents 7% ($1.8 billion) of the overall ILS bond market.

Figure 4. Total Outstanding Volume of ILS by Region/Peril, 2009 to Q4-2014 (In US$ mln)



Source: Artemis and BMA staff calculations.

Figure 5. Coverage per Region/Peril by ILS Sponsor Type, 2009 to Q4-2014 (In %)



Source: Artemis and BMA staff calculations.

2 AON Benfield 2014, "The AON Benfield Aggregate"
3 The proportion of coverage for this region relative to the total market is actually higher given that most multi-regional bonds include US events.

PRIMARY MARKET: DOMESTIC ISSUANCE

ILS activity by companies domiciled in Bermuda led gains in the overall market as domestic ILS surged 65% q/q.[4] Moreover, Bermuda accounted for 95% of ILS issuance volume during the quarter ($2.1 billion of $2.2 billion). Bermuda-issued ILS represented 60% ($15.1 billion) of total outstanding ILS capacity at the end of Q4-2014. During the quarter, Bermuda-based SPIs underwrote $2.1 billion of various property and catastrophe (P&C) risks via eight ILS transactions (Figure 6) (compared to six deals worth $1.3 billion in Q4-2013) covering North American, European and Asian perils. There were also ten new SPIs licensed.

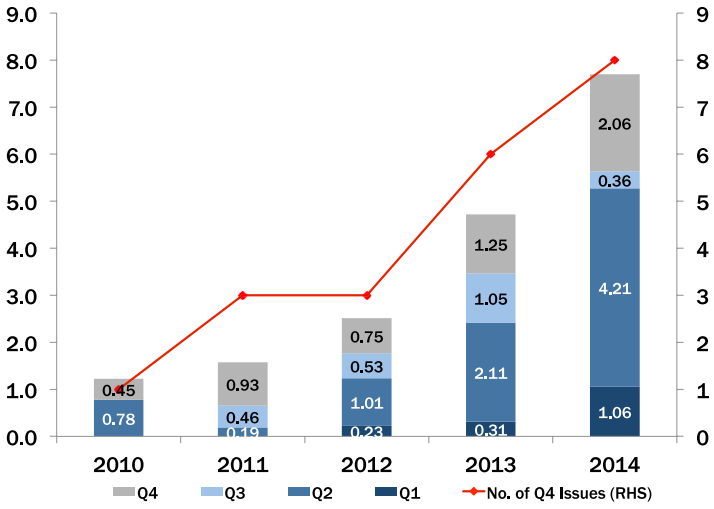
The average deal size for Bermuda-issued ILS in Q4-2014 was $258 million, the highest on record since 2011. This represents an increase of $59 million per deal compared to the same quarter last year which recorded an average deal volume of $209 million (Figure 7). The two largest deals of the quarter were issued by Bermuda-domiciled SPIs, namely Kilimanjaro Re Ltd. 2014-2 and Tradewynd Re Ltd. 2014-1, each in the amount of $500 million.

The eight deals issued by Bermuda-domiciled SPIs during the quarter marks a record number of fourth quarter issuances for the jurisdiction.

Last year saw Bermuda strengthen its position as the leading jurisdiction within the ILS market. This is both in terms of the number of deals issued and total issuance volume. Bermuda-based SPIs issued 36 of 43 deals during 2014 and 88% of total volume ($7.7 billion of $8.8 billion) for the entire ILS market (Table I and II.)

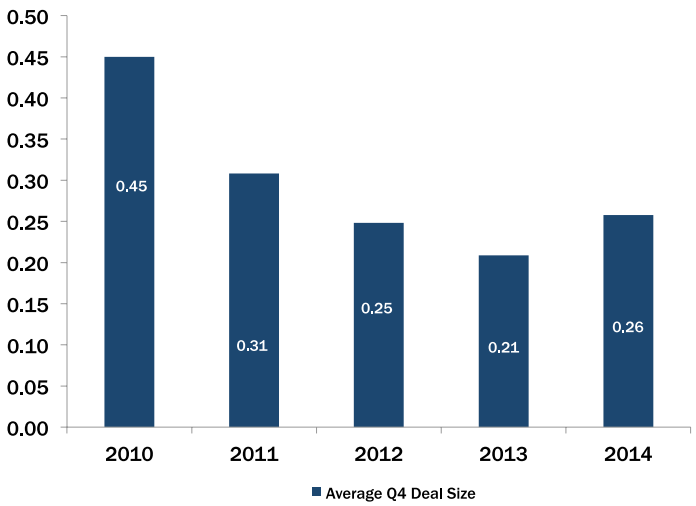
The BSX accounted for 59% of the global market capitalisation of insurance-linked securities at the end of Q4-2014. A total of 63 ILS (comprising 81 tranches) are listed on the BSX with an aggregate nominal value of approximately $14.9 billion[5], of which $463 million (or 3%) are issued by non-Bermuda entities, namely Ireland. Two deals previously listed on the BSX, with a $51 million notional amount, matured during the quarter.

Figure 6. Quarterly ILS Issuance by Volume (In US$ bln) and Number of Q4 Deals - Bermuda only



Source: Artemis and BMA staff calculations.

Figure 7. Domestic Q4 ILS Issuance (Average Deal Volume), Q4-2010 to Q4-2014 (In US$ bln)



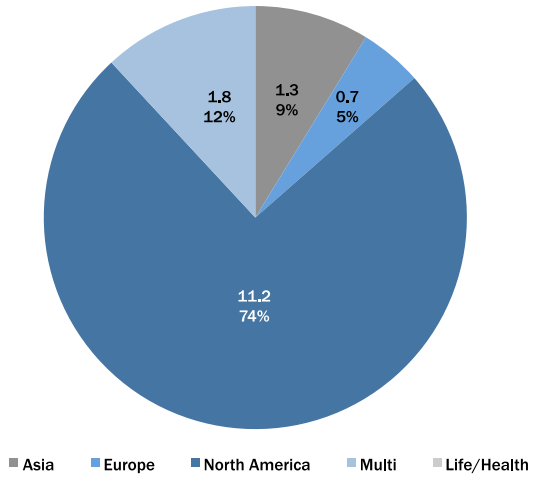
Source: Artemis and BMA staff calculations.

4 Note that the quarter-on-quarter (q/q) change compares the change in a value between the current quarter and the corresponding quarter of the previous year, e.g., Q4-2014 and Q4-2013.
5 This does not include notes programmes, ordinary shares issued by (re)insurance funds and participating notes issued by sidecar vehicles

The Bermuda market shows a specialisation in cat bonds, with the majority of transactions now based on an indemnity trigger. Since the first Bermuda ILS deal issued in 2010 through to end Q4-2014, the indemnity trigger type has accounted for 56% ($8.5 billion of $15.1 billion) of outstanding deal volume for transactions issued by Bermuda-based SPIs. North American perils by direct underwriters claim the largest share of outstanding ILS (Figure 7 and 8). There is some global activity in life securitisation but domestic issuance is motivated by P&C underwriting, given the large footprint of the business line in Bermuda.

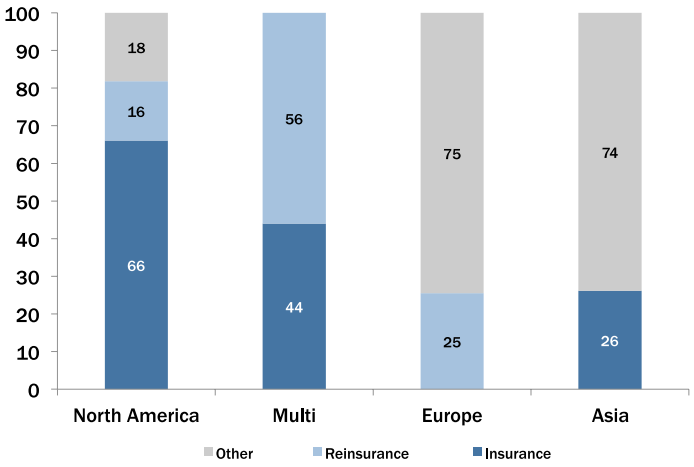
This serves to further explain the prevalence of non-parametric, indemnity-based ILS triggers. Primary insurers sponsored 66% of total coverage for those bonds ($7.4 billion of $11.2 billion). In contrast, reinsurers ceded 56% and 25% of multi-region and European risks, respectively. Other sponsor types (insurance pools/associations) ceded 75% and 74% of European and Asian risks, respectively (Figure 9). Tables I-IV provide a summary of ILS issuance by volume and number of deals in key jurisdictions, as well as the distribution of trigger types.

Figure 8. Total Outstanding Volume of Bermuda-issued Deals by Region/Peril (In US$ mln)



Source: Artemis and BMA staff calculations.

Figure 9. Percent of Coverage per Region/Peril by ILS Sponsor Type for Bermuda-issued Deals, 2010 to Q4-2014 (In %)



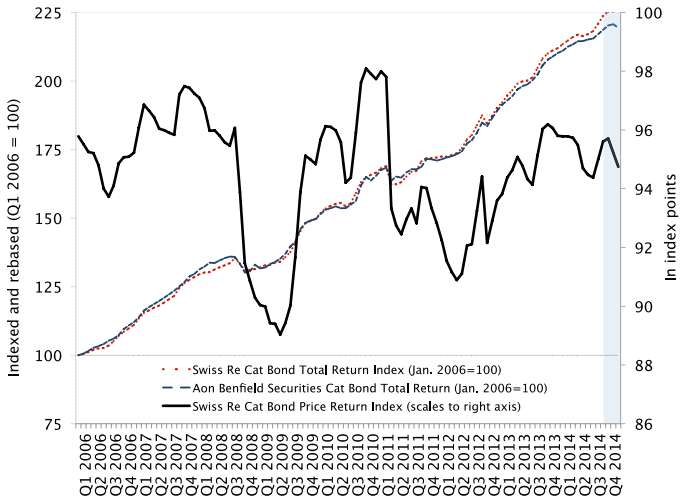
Source: Artemis and BMA staff calculations.

SECONDARY MARKET: PRICE INDICES

Given the large footprint of P&C insurance risk in the ILS market, this section reviews the overall market performance of outstanding cat bonds based on three of the most commonly used benchmark indices (Swiss Re Cat bond Total Return Index, Aon Benfield Securities Cat bond Total Return and Swiss Re Cat bond Price Return Index).

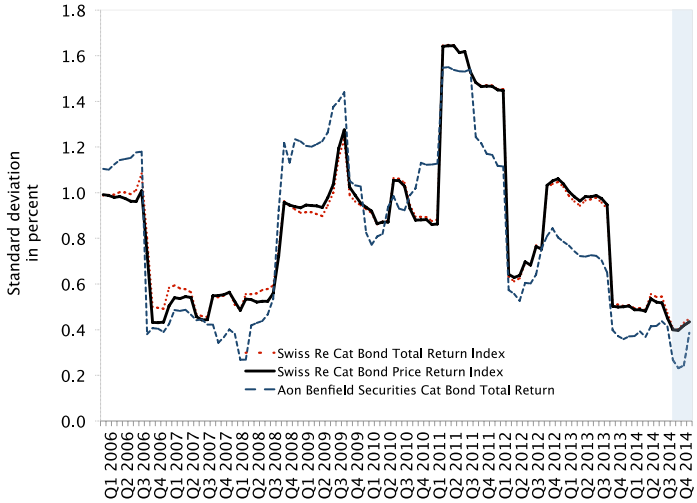
The Swiss Re and Aon Benfield Cat bond indices finished the year with positive returns of 0.28% and 0.11% respectively in the fourth quarter of 2014. The low returns can be a reflection of the tighter spreads and lower yields offered by the securities. Overall it has been a good year for the asset class with record issuance in 2014 and increased investor appetite. Cat bond spreads continue to tighten due to a combination of factors including the absence of large catastrophe events and the influx of alternative capital. With interest rates hovering near all-time lows investors continue to be attracted to catastrophe bonds for the marginal yield enhancement but more importantly for the uncorrelated yield benefits. When the US Federal Reserve decides to normalise interest rates there are concerns that investors may begin to reduce exposure in favour of other investments. However, this does not seem to be taking place given the strong interest for ILS bonds. According to Swiss Re, money managers appreciate the uncorrelated returns offered by the asset class, making it a staple of their overall portfolios and therefore leading to them demanding less of a spread premium over other assets as the ILS sector becomes more main stream.

Figure 10. ILS Total Return and Price Return Benchmark Indices, 2006-2014 (In index points)



Source: Bloomberg LP and BMA staff calculations.

Figure 11. ILS Total Return and Price Return Benchmark Indices: Annualised Return Volatility, 2006-2014 (In %)



Source: Bloomberg LP and BMA staff calculations.

The risk-return trade-off remained favourable despite lower price returns compared to the same quarter a year ago. Table V provides a summary of selected indicators of market performance over the last six quarters (Q3-2013 to Q4-2014) comparing the recent development of the Swiss Re Cat Bond Total Return Index and the Aon Benfield Securities Cat Bond Total Return Index as the global market benchmarks.[6] During the fourth quarter, the two indices recorded a positive return of 0.28% (down from 1.01% during the previous quarter) and 0.11% (down from 0.54%). The annualised return volatility of each index was little changed, down to 0.43% and 0.29% respectively during the quarter. Figure 10 shows the quarterly closing levels of the two total return indices by Swiss Re and Aon Benfield, which illustrate the valuation gain of a broad CAT portfolio since Q1-2006 (as base year), and the corresponding price return index as suitable relative benchmarks to other investments. Figure 11 shows the normalised return volatility over a 12-month rolling window. Figure 10 reflects that while capital gains have been positive since 2006, prices at end Q4-2014 continued to persist beneath the peak levels achieved in early 2011, decreasing for a fourth time in five quarters during the last quarter. Figure 11 highlights that during the same time, the annualised return volatility (as a measure of risk) dropped significantly.

Table V. Selected ILS Market Performance Indicators, Q2-2012 to Q4-2014

Selected ILS Market Performance Indicators *In % unless indicated otherwise*	**2013**		**2014**			
	Q3	Q4	Q1	Q2	Q3	Q4
Price Return 1/						
Swiss Re Cat Bond Total Return Index	1.32	0.60	0.64	0.16	1.01	0.28
Swiss Re Cat Bond Price Return Index (scales to right axis)	0.60	-0.08	-0.02	-0.44	0.40	-0.30
Aon Benfield Securities Cat Bond Total Return	1.16	0.72	0.50	0.29	0.54	0.11
Return Volatility						
Annualised Standard Deviation 2/						
Swiss Re Cat Bond Total Return Index	0.95	0.51	0.50	0.53	0.47	0.43
Swiss Re Cat Bond Price Return Index (scales to right axis)	0.97	0.50	0.49	0.51	0.46	0.42
Aon Benfield Securities Cat Bond Total Return	0.69	0.38	0.38	0.40	0.37	0.29
Normalised Squared Returns (In standard deviations) 3/						
Swiss Re Cat Bond Total Return Index	0.38	-0.81	-0.50	-0.61	0.92	-0.55
Swiss Re Cat Bond Price Return Index (scales to right axis)	-0.12	-0.74	-0.64	0.06	0.44	0.04
Aon Benfield Securities Cat Bond Total Return	0.28	-0.68	-0.69	-0.68	0.03	0.18

Notes:

1/ quarterly average of month-on-month change of last prices.

2/ quarterly average of the 12-month standard deviation of the logarithmic returns of last prices.

3/ quarterly average of the 12-month moving average of squared month-on-month changes of last prices, normalised over a rolling window of 12 months; a positive (negative) value indicates above (below) average performance conditional on return volatility.

Source: Bloomberg LP and BMA staff calculations.

6 The Swiss Re indices were launched in June 2007 and comprise a series of performance indices constructed to track the price return and total rate of return of performance of all outstanding dollar-denominated CAT bonds. The main index is divided into 18 different sub-indices, of which the most important ones are "Single-Peril US Wind Cat Bonds", "Single-Peril California Earthquake Cat Bonds" and "BB Cat Bonds" (Standard & Poor's-rated). The index is based on Swiss Re pricing indications only and base-weighted back to January 2002. Three years after Swiss Re, Aon Benfield Securities, the securities and investment banking operation of Aon Benfield, launched its own ILS indices in 2010. These indices are base-weighted back to December 2000 and track the performance of CAT bonds in four different baskets: "All Bond", "BB-rated Bond", "US Hurricane Bond", and "US Earthquake Bond".

GLOBAL ILS ISSUANCES

Table VI. Transaction Overview of Global ILS Issuance, Q4-2013 to Q4-2014

	Sponsor	Short Name	Issue Date	Maturity Date	Amount Issued ($ mln)	Region/Peril Covered	Trigger	Country of Issuance (SPI)	BSX Listings
Q4-2013	AXA Global P&C	CALYPSO CAPITAL II*	15-Oct-13	8-Jan-18	472	Europe	Industry Loss Index	Ireland	
	Catlin	GALILEO RE LTD	30-Oct-13	9-Jan-17	300	Multi	Industry Loss Index	Bermuda	✔
	USAA	RESIDENTIAL REINS 2013 LTD	2-Dec-13	6-Dec-17	150	North America	Indemnity	Cayman Islands	
	AIG	TRADEWYND RE LTD	18-Dec-13	9-Jan-17	400	North America	Indemnity	Bermuda	✔
	American Modern Ins. Group	QUEEN CITY RE LTD	23-Dec-13	6-Jan-17	75	North America	Indemnity	Bermuda	✔
	Achmea Re Company N.V.	WINDMILL I RE LTD	23-Dec-13	5-Jan-17	55	Europe	Indemnity	Bermuda	✔
	Argo Group	LOMA RE (BERMUDA) LTD	30-Dec-13	8-Jan-18	172	North America	Multiple	Bermuda	✔
	QBE Insurance Group Ltd	VENTERRA RE LTD	30-Dec-13	9-Jan-17	250	Multi	Indemnity	Bermuda	✔
Q1-2014	Twelve Capital	DODEKA I	15-Jan-14	16-Jan-15	22	North America	Industry Loss Index	Bermuda	✔
	Unknown cedant	KANE SAC	15-Jan-14	16-Jan-17	50	North America	Indemnity	Bermuda	✔
	Tokio Millenium Re AG	OMAMORI	17-Jan-14	24-Jan-17	25	North America	Unknown	Bermuda	✔
	Cincinatti Insurance Company	SKYLINE RE LTD 2014	23-Jan-14	23-Jan-17	100	North America	Indemnity	Bermuda	
	Aetna Life Ins. Co.	VITALITY RE V LTD	24-Jan-14	7-Jan-19	200	Life/Health	Medical benefit ratio index	Cayman Islands	
	Munich Re	QUEEN STREET IX RE LTD	26-Feb-14	8-Jun-17	100	Multi	Multiple	Ireland	✔
	Twelve Capital	DODEKA II	28-Feb-14	17-Dec-14	23	North America	Industry Loss Index	Bermuda	✔
	Chubb	EAST LANE RE VI LTD	7-Mar-14	14-Mar-18	270	North America	Indemnity	Cayman Islands	
	American Strategic Ins. Group	GATOR RE LTD	10-Mar-14	9-Jan-17	200	North America	Indemnity	Bermuda	✔
	Tokio Marine & Nichido Fire	KIZUNA RE II LTD	14-Mar-14	6-Apr-18	245	Asia	Indemnity	Bermuda	✔
	State Farm	MERNA RE V LTD	31-Mar-14	7-Apr-17	300	North America	Indemnity	Bermuda	✔
	Great American Ins. Group	RIVERFRONT RE LTD	31-Mar-14	6-Jan-17	95	North America	Indemnity	Bermuda	✔
Q2-2014	Heritage P&C Insurance Co.	CITRUS RE LTD 2014-1	17-Apr-14	18-Apr-17	150	North America	Indemnity	Bermuda	✔
	Heritage P&C Insurance Co.	CITRUS RE LTD 2014-2	24-Apr-14	24-Apr-17	50	North America	Indemnity	Bermuda	✔
	Assicurazioni Generali S.p.A.	LION I RE LTD	24-Apr-14	28-Apr-17	263	Europe	Indemnity	Ireland	✔
	Everest Re	KILIMANJARO RE LTD	24-Apr-14	30-Apr-18	450	North America	Industry Loss Index	Bermuda	✔
	Unknown cedant	MARKET RE LTD 2014-1	1-May-14	9-May-16	10	North America	Indemnity	Bermuda	
	Citizens Property Insurance	EVERGLADES RE LTD 2014-1	2-May-14	28-Apr-17	1,500	North America	Indemnity	Bermuda	✔
	American Coastal Ins. Co.	ARMOR RE LTD 2014-1	7-May-14	15-Dec-16	200	North America	Indemnity	Bermuda	✔
	Allstate	SANDERS RE LTD 2014-1	22-May-14	28-May-19	750	North America	Industry Loss Index	Bermuda	✔
	Sompo Japan & Nipponkoa Ins, Co.	AOZORA RE LTD 2014-1	30-May-14	7-Apr-17	100	Asia	Indemnity	Bermuda	✔
	Zenkyoren	NAKAMA RE LTD 2014-1	30-May-14	13-Apr-18	300	Asia	Indemnity	Bermuda	✔
	Allstate subsidiaries	SANDERS RE LTD 2014-2	30-May-14	7-Jun-17	200	North America	Indemnity	Bermuda	✔
	USAA	RESIDENTIAL REINS LTD 2014-1	30-May-14	6-Jun-18	130	North America	Indemnity	Cayman Islands	
	Twelve Capital	DODEKA IV	1-Jun-14	16-Dec-14	28	North America	Industry Loss Index	Bermuda	✔
	Unknown cedant	OAK LEAF RE LTD 2014-1	5-Jun-14	11-Jun-15	44	North America	Indemnity	Bermuda	
	Unknown cedant	MARKET RE LTD 2014-2	12-Jun-14	5-Jun-15	32	North America	Indemnity	Bermuda	
	Hannover Re	ALAMO RE LTD 2014-1	26-Jun-14	7-Jun-17	400	North America	Indemnity	Bermuda	✔
	Caribbean Cat. Risk Insurance Facility	WORLD BANK - CCRIF 2014-1	30-Jun-14	7-Jun-17	30	North America	Parametric	Other	
Q3-2014	Unknown cedant	MARKET RE LTD 2014-4	9-Jul-14	15-Jun-16	30	North America	Parametric	Bermuda	
	Unknown cedant	KANE SAC	10-Jul-14	10-Jun-15	7	North America	Indemnity	Bermuda	✔
	Twelve Capital	DODEKA III	1-Aug-14	31-Jul-18	9	North America	Industry Loss Index	Bermuda	✔
	MyLotto24	HOPLON II INSURANCE LTD	22-Aug-14	8-Jan-18	66	Europe	Indemnity	Bermuda	✔
	California State Comp. Ins.	GOLDEN STATE RE II LTD 2014-1	16-Sep-14	8-Jan-19	250	North America	Modelled Loss	Bermuda	✔
Q4-2014	Unknown cedant	LI RE 2014-1	16-Oct-14	15-Jun-16	10	North America	Unknown	Bermuda	✔
	Everest Re	KILIMANJARO RE LTD 2014-2	18-Nov-14	25-Nov-19	500	North America	Industry Loss Index	Bermuda	✔
	California Earthquake Authority	URSA RE LTD 2014-1	1-Dec-14	7-Dec-17	400	North America	Indemnity	Bermuda	✔
	USAA	RESIDENTIAL REINS 2014-2	3-Dec-14	6-Dec-18	100	North America	Indemnity	Cayman Islands	
	AIG	TRADEWYND RE LTD 2014-1	18-Dec-14	8-Jan-18	500	North America	Indemnity	Bermuda	✔
	Zenkyoren	NAKAMA RE LTD 2014-2	19-Dec-14	16-Jan-20	375	Asia	Indemnity	Bermuda	✔
	Amlin AG	TRAMLINE RE II LTD 2014-1	22-Dec-14	4-Jan-19	200	Multi	Industry Loss Index	Bermuda	✔
	Unknown cedant	LEINE RE	24-Dec-14	15-Jan-16	71	Europe	Indemnity	Bermuda	✔
	Unknown cedant	LI RE 2014-2	29-Dec-14	10-Feb-16	5	North America	Unknown	Bermuda	✔

Source: Artemis, Bermuda Stock Exchange, AON Benfield and BMA staff calculations.

BERMUDA: OVERVIEW OF ILS LISTINGS AT THE BERMUDA STOCK EXCHANGE (BSX)

Table VII. Transaction Overview of BSX-listed ILS Issuance, 2011 to Q4-2014

	Short Name	Issue Date	Maturity Date	Amount Issued ($ mln)	Region/Peril Covered	Trigger Type	Country of Issuance (SPI)
2011	QUEEN STREET IV	27-Oct-11	9-Apr-15	100	Multi	Industry Loss Index	Ireland
	COMPASS RE LTD	1-Dec-11	8-Jan-15	575	North America	Industry Loss Index	Bermuda
	GOLDEN STATE RE	8-Dec-11	8-Jan-15	200	North America	Modelled Loss	Bermuda
	TRAMLINE RE LTD	22-Dec-11	8-Jan-15	150	Multi	Industry Loss Index	Bermuda
2012	EMBARCADERO RE	6-Feb-12	13-Feb-15	150	North America	Indemnity	Bermuda
	QUEEN STREET V RE LTD	27-Feb-12	9-Apr-15	75	Multi	Industry Loss Index	Bermuda
	BLUE DANUBE LTD	3-Apr-12	10-Apr-15	240	Multi	Modelled Loss	Bermuda
	QUEEN STREET VI LTD	17-Jul-12	9-Apr-15	100	Multi	Industry Loss Index	Bermuda
	EMBARCADERO RE	31-Jul-12	7-Aug-15	300	North America	Indemnity	Bermuda
	EURUS III LTD	13-Sep-12	7-Apr-16	129	Europe	Industry Loss Index	Bermuda
	QUEEN STREET VII LTD	31-Oct-12	8-Apr-16	75	Multi	Industry Loss Index	Bermuda
	LAKESIDE RE III	28-Dec-12	8-Jan-16	270	North America	Indemnity	Bermuda
	COMPASS RE LTD	31-Dec-12	8-Jan-15	400	North America	Industry Loss Index	Bermuda
2013	EVERGLADES RE LTD	28-Mar-13	28-Mar-16	250	North America	Indemnity	Bermuda
	MERNA RE IV	1-Apr-13	8-Apr-16	300	North America	Indemnity	Bermuda
	TAR HEEL RE LTD	9-Apr-13	9-May-16	500	North America	Indemnity	Bermuda
	BOSPHORUS 1 RE LTD	25-Apr-13	3-May-16	400	Europe	Parametric	Bermuda
	SANDERS RE LTD 2013	3-May-13	5-May-17	350	North America	Industry Loss Index	Bermuda
	BLUE DANUBE II LTD	22-May-13	23-May-16	175	North America	Modelled Loss	Bermuda
	QUEEN STREET VIII RE LTD	26-Jun-13	8-Jun-16	75	Multi	Industry Loss Index	Bermuda
	TRAMLINE RE II LTD	27-Jun-13	7-Jul-17	75	North America	Industry Loss Index	Bermuda
	MONA LISA RE LTD	8-Jul-13	7-Jul-17	150	North America	Industry Loss Index	Bermuda
	TRADEWYND RE LTD	9-Jul-13	9-Jul-18	125	North America	Indemnity	Bermuda
	METROCAT RE LTD	30-Jul-13	5-Aug-16	200	North America	Parametric	Bermuda
	NORTHSHORE RE LTD	5-Aug-13	5-Jul-16	200	North America	Industry Loss Index	Bermuda
	NAKAMA RE LTD	6-Sep-13	29-Sep-16	300	Asia	Indemnity	Bermuda
	GALILEO RE LTD	30-Oct-13	9-Jan-17	300	Multi	Industry Loss Index	Bermuda
	TRADEWYND RE LTD	18-Dec-13	9-Jan-17	400	North America	Indemnity	Bermuda
	QUEEN CITY RE LTD	23-Dec-13	6-Jan-17	75	North America	Indemnity	Bermuda
	WINDMILL I RE LTD	23-Dec-13	5-Jan-17	55	Europe	Indemnity	Bermuda
	LOMA RE (BERMUDA) LTD	30-Dec-13	8-Jan-18	172	North America	Multiple	Bermuda
	VENTERRA RE LTD	30-Dec-13	9-Jan-17	250	Multi	Indemnity	Bermuda
2014	DODEKA I	15-Jan-14	16-Jan-15	22	North America	Industry Loss Index	Bermuda
	KANE SAC	15-Jan-14	16-Jan-17	50	North America	Indemnity	Bermuda
	OMAMORI	17-Jan-14	24-Jan-17	25	North America	Unknown	Bermuda
	QUEEN STREET IX RE LTD	26-Feb-14	8-Jun-17	100	Multi	Multiple	Ireland
	DODEKA II	28-Feb-14	17-Dec-14	23	North America	Industry Loss Index	Bermuda
	GATOR RE LTD	10-Mar-14	9-Jan-17	200	North America	Indemnity	Bermuda
	KIZUNA RE II LTD	14-Mar-14	6-Apr-18	245	Asia	Indemnity	Bermuda
	MERNA RE V LTD	31-Mar-14	7-Apr-17	300	North America	Indemnity	Bermuda
	RIVERFRONT RE LTD	31-Mar-14	6-Jan-17	95	North America	Indemnity	Bermuda
	CITRUS RE LTD 2014-1	17-Apr-14	18-Apr-17	150	North America	Indemnity	Bermuda
	CITRUS RE LTD 2014-2	24-Apr-14	24-Apr-17	50	North America	Indemnity	Bermuda
	LION I RE LTD	24-Apr-14	28-Apr-17	263	Europe	Indemnity	Ireland
	KILIMANJARO RE LTD	24-Apr-14	30-Apr-18	450	North America	Industry Loss Index	Bermuda
	EVERGLADES RE LTD 2014-1	2-May-14	28-Apr-17	1,500	North America	Indemnity	Bermuda
	ARMOR RE LTD 2014-1	7-May-14	15-Dec-16	200	North America	Indemnity	Bermuda
	SANDERS RE LTD 2014-1	22-May-14	28-May-19	750	North America	Industry Loss Index	Bermuda
	AOZORA RE LTD 2014-1	30-May-14	7-Apr-17	100	Asia	Indemnity	Bermuda
	NAKAMA RE LTD 2014-1	30-May-14	13-Apr-18	300	Asia	Indemnity	Bermuda
	SANDERS RE LTD 2014-2	30-May-14	7-Jun-17	200	North America	Indemnity	Bermuda
	DODEKA IV	1-Jun-14	16-Dec-14	28	North America	Industry Loss Index	Bermuda
	ALAMO RE LTD 2014-1	26-Jun-14	7-Jun-17	400	North America	Indemnity	Bermuda
	KANE SAC	10-Jul-14	10-Jun-15	7	North America	Indemnity	Bermuda
	DODEKA III	1-Aug-14	31-Jul-18	9	North America	Industry Loss Index	Bermuda
	HOPLON II INSURANCE LTD	22-Aug-14	8-Jan-18	66	Europe	Indemnity	Bermuda
	GOLDEN STATE RE II LTD 2014-1	16-Sep-14	8-Jan-19	250	North America	Modelled Loss	Bermuda
	LI RE 2014-1	16-Oct-14	15-Jun-16	10	North America	Unknown	Bermuda
	KILIMANJARO RE LTD 2014-2	18-Nov-14	25-Nov-19	500	North America	Industry Loss Index	Bermuda
	URSA RE LTD 2014-1	1-Dec-14	7-Dec-17	400	North America	Indemnity	Bermuda
	TRADEWYND RE LTD 2014-1	18-Dec-14	8-Jan-18	500	North America	Indemnity	Bermuda
	NAKAMA RE LTD 2014-2	19-Dec-14	16-Jan-20	375	Asia	Indemnity	Bermuda
	TRAMLINE RE II LTD 2014-1	22-Dec-14	4-Jan-19	200	Multi	Industry Loss Index	Bermuda
	LEINE RE	24-Dec-14	15-Jan-16	71	Europe	Indemnity	Bermuda
	LI RE 2014-2	29-Dec-14	10-Feb-16	5	North America	Unknown	Bermuda

Source: Artemis, Bermuda Stock Exchange, AON Benfield and BMA staff calculations.

BERMUDA: REGISTRATION OF SPECIAL PURPOSE INSURERS (SPIs) AND NUMBER OF ISSUED ILS

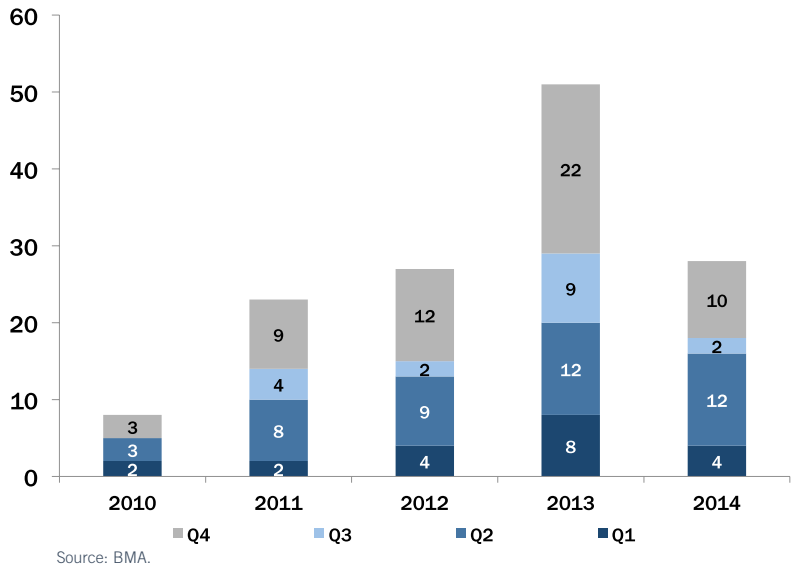
The number of SPI registrations during the quarter declined year-over-year. The BMA licensed 10 SPIs during Q4-2014, compared to 22 registrations during the same time period last year (Figure 12).

Table VIII. SPI Registrations and ILS issuance in Bermuda, 2010 to Q4-2014

		SPI Registrations	Bermuda-based ILS
2010	Q1	2	0
	Q2	3	2
	Q3	—	—
	Q4	3	1
	Annual Total	8	3
2011	Q1	2	—
	Q2	8	1
	Q3	4	4
	Q4	9	3
	Annual Total	23	8
2012	Q1	4	2
	Q2	9	3
	Q3	2	3
	Q4	12	3
	Annual Total	27	11
2013	Q1	8	2
	Q2	12	10
	Q3	9	7
	Q4	22	6
	Annual Total	51	25
2014	Q1	4	9
	Q2	12	14
	Q3	2	5
	Q4	10	8
	Annual Total	28	36
	Total	137	83

Source: BMA.

Figure 12. SPI Registrations and ILS issuance in Bermuda, 2010 to Q4-2014



Source: BMA.

APPENDIX
BERMUDA: STRUCTURAL FACTORS AND SUPERVISORY REGIME

A sophisticated legal system, a strong regulatory framework, a developed infrastructure as well as the local availability of highly-skilled human capital underpin Bermuda's reputation as a quality jurisdiction and domicile of choice for insurance, reinsurance and financial services' companies. Bermuda is known for its innovative (re)insurance industry, which has shown resilience during the financial crisis.

Bermuda has emerged as a leader in the global ILS market only four years after implementing a specific regulatory framework to facilitate the formation of such instruments through a new licence class for insurers. In 2009, the Bermuda Monetary Authority introduced the concept of a Special Purpose Insurer (SPI), following passage of the Insurance Amendment Act 2008. Bermuda's regulatory and supervisory framework also provides for the creation of sidecars, Industry Loss Warranties (ILWs), and collateralised reinsurance vehicles. The ILS market has benefitted from a large investor base and the existing (re)insurance expertise in Bermuda, which hosts one of the world's largest reinsurance markets with some 1,400 firms and total assets of more than $500 billion at end-2012.

BOX 1: REGULATORY FRAMEWORK FOR ILS IN BERMUDA

The following information provides a brief overview of the legislation governing the process of forming SPIs as issuers of ILS in Bermuda.[7] For this purpose, SPIs are structured as "bankruptcy remote" entities, which are required to be fully-funded and independent companies that accept pre-specified insurance risk from, and which are managed by, a sponsoring (re)insurance company.[8] The regulatory focus during the licensing process of SPIs is on the assessment of the quality of the sponsoring entity and the complete collateralisation of the policy limits of insurance risk ceded to the SPI. Moreover, investments in SPIs are restricted to sophisticated participants.

The characteristics of collateralisation and investor eligibility are defined in the *BMA Guidance Note No. 20 – Special Purpose Insurers:*[9]

Collateralisation — To be fully collateralised, an SPI will be expected to: (i) confirm full disclosure to the cedant or insured of the fact that the maximum reinsurance recovery from the SPI is limited to the lower of the stated contract limit or the available assets of the SPI; (ii) ensure that, under the terms of any debt issue or other financing mechanism used to fund its (re)insurance liabilities, the rights of providers of that debt or other financing are fully subordinated to the claims of creditors under its contracts of (re)insurance; (iii) enter into contracts or otherwise assume obligations which are solely necessary for it to give effect to the (re)insurance special purpose for which it has been established; and (iv) ensure that, to the extent that more than one (re)insurance contract is in place within the SPI, each of the (re)insurance contracts is structured so that the SPI meets the fully collateralised requirements individually for each contract.

Sophisticated Investors — Sufficiently sophisticated participants [for the purposes of SPI licensing] satisfy one or more of the criterion below: (i) high income private investors; (ii) high net worth private investors; (iii) sophisticated private investors; (iv) investment funds approved by the Authority under the Investment Funds Act (IFA); (v) bodies corporate, each of which has total assets of not less than $5 million, where such assets are held solely by the body corporate or held partly by the body corporate and partly by one or more members of a group of which it is a member; (vi) unincorporated associations, partnerships or trusts, each of which has total assets of not less than five million dollars, where such assets are held solely by such association, partnership or trust or held partly by it and partly by one or more members of a group of which it is a member; (vii) corporate bodies, all of whose shareholders fall within categories (i)-(iii); (viii) partnerships, all of whose members fall within categories (i)-(iii); (ix) trusts, all of whose beneficiaries fall within categories (i)-(iii); (x) any company quoted on a recognised stock exchange; and (xi) any party deemed to have sufficient knowledge and experience in financial and business matters to make them capable of evaluating the merits and risks of the prospective investment.

Incorporation and Registration Process — The process of establishing an SPI is substantially similar to that for "conventional" commercial and captive insurers. Key elements of the "Licensing Application" include: (i) a business plan, which provides the fundamental elements of the proposed transaction and, importantly, evidences the fully collateralised and sophisticated nature of the business; (ii) a completed "SPI Checklist" (a standard BMA form); (iii) drafts of relevant transaction documents (such as reinsurance agreements, collateral trust agreements, etc.); and (iv) service provider acceptance letters.

7 The material presented is not intended to be a substitute for professional legal advice.
8 Prior to the SPI legislation, ILS were not listed in Bermuda.
9 Full details of the relevant legislative provisions and supervisory guidance for SPIs may be found at http://www.bermudalaws.bm/Laws/Consolidated%20Laws/Insurance%20Act%201978.pdf and http://www.bma.bm/document-centre/policy-and-guidance/INSURANCE%20II/Guidance%20Note%20No.%2020%20-%20Special%20Purpose%20Insurers.pdf.

APPENDIX continued
BACKGROUND: THE EVOLUTION OF INSURANCE-LINKED SECURITIES (ILS)

The emergence of ILS has been one of the most significant developments in the (re)insurance sector during recent years. These securities are products of the convergence between the insurance and capital markets and may be used in addition, or as an alternative to the purchase of reinsurance. More specifically, ILS structures represent Alternative Risk Transfer (ART) instruments that enable insurance risk to be sold in capital markets, raising funds that can be used by issuers to pay claims arising from catastrophes and other loss events. The most prominent type of ILS are CAT bonds, which are fully collateralised debt instruments that pay off on the occurrence of defined catastrophic events. Although the ILS market is small relative to the overall (re)insurance market, it is significant when compared to the P&C sector of the traditional (re)insurance market.

Insurance securitisation increased from near zero in 1997 to about $15 billion in 2007 before falling sharply due to the financial crisis and a lack of investor appetite for life insurance transactions "wrapped" with monoline insurer guarantees.[10] Until 2007, ILS issuance was largely motivated by long-term business (i.e., life insurance) as a result of Regulation XXX and capital management objectives.[11] Since Regulation XXX securitisation depended on monoline wraps to achieve the "AAA" ratings required by investors, the financial challenges of monoline insurers have inhibited any significant growth in this segment of the ILS market since 2007. Natural catastrophe risk securitisation through CAT bonds also formed a key segment of the market and represented almost half of the ILS market when it peaked in 2007 at approximately $7 billion.[12] However, as with the life-related securitisation transactions, issuance dropped in early 2008 due to a surplus of traditional (re)insurance capacity, and dried up completely after the collapse of Lehman Brothers whose credit derivative contracts backed low-quality collateral underlying some of the transactions.[13] When these bonds were sharply downgraded, investors stepped back on fears that other CAT bonds were similarly exposed to credit risk.

Shortly after the height of the financial crisis, in February 2009, ILS issuance began to recover as issuers introduced more conservative collateralisation procedures and reinsurance markets tightened. Since then issuance volumes have steadily grown. If the trend continues it may not be long before the 2007 record issuance is surpassed. Outstanding natural ILS and sidecars peaked at just under $16 billion at end-2007 (Goldman Sachs, 2011). In comparison, global-insured CAT losses were about $40 billion in 2010, and ranged from $10 billion to $30 billion between 1990 and 2009 (indexed to 2010 US dollars), except for 2006, which spiked to over $100 billion (Swiss Re, 2011).

In 2012, the global ILS market continued to expand and amounted to more than $16 billion (up from $13.8 billion in 2011), with an overall market capitalisation of almost $6 billion. After relatively limited growth between 2010 and 2011, primary market activity picked up significantly in 2012 in spite of several natural disasters, including Superstorm Sandy in the US. Most of the recent issuance of ILS was motivated by the current economic conditions, which have allowed the cost-efficient structure of these instruments to benefit from low risk premia, which lowered the cost of capital.

10 However, such transactions were more about regulatory arbitrage than actual risk transfer. Note that the present data do not include "life settlement" transactions (where whole life insurance policies are sold by the beneficiary or insured for an amount greater than its surrender value, but lower than the policy's face or insured value).
11 The National Association of Insurance Commissioners' (NAIC) Model Regulation XXX requires insurers to establish heightened statutory reserves for term life insurance policies with long-term premium guarantees.
12 CAT bonds were first created in the mid-to-late 1990s in response to a severe property catastrophe insurance crisis in the US caused by Hurricane Andrew (1992, Florida and Louisiana) and the Northridge Earthquake (1994, California).
13 For a typical CAT bond, issuance proceeds are invested in collateral to ensure that all interest, principal, and CAT-contingent payments can be made in a timely manner. The issuers of the four bonds in question opted to hold lower-quality collateral coupled with a total return swap with Lehman Brothers to protect against any collateral deterioration.

APPENDIX continued
BACKGROUND: BENEFITS AND DRAWBACKS OF ILS

Benefits	
Ability to lock in multi-year protection	Multi-year capacity and pricing shelter the sponsor from cyclical price fluctuations in the reinsurance market (Note: traditional reinsurance contracts usually cover a one-year period while maturities for ILS are typically three to five years.)
Trigger familiarity	The administration of an indemnity-based ILS reinsurance agreement is less complicated than that of a portfolio of complex reinsurance contracts.
Reduced transaction costs	ILS imply economies of scale while offering the tax and accounting benefits associated with traditional reinsurance. Many ILS are issued as part of a bond series, meaning that the majority of the documentation and structure may be used for a successor bond with relatively modest supplementation.
Complementarity	ILS provide alternative options to traditional reinsurance and diversify sources of capacity.
Collateralised coverage	ILS are fully collateralised risk-transfer facilities and prevent the cedant from losing reinsurance in the event of insolvency, negating concerns about counterparty credit risk.
"Pure play" investment risk	ILS isolate general business, credit-rating risks, and insolvency risks of the sponsor.
Diversification	ILS have low correlations to traditional asset classes, high risk adjusted returns, low volatility compared to other asset classes and strong collateral structures.
Drawbacks	
Capital market sensitivity	ILS issuance is highly dependent on capital market demand and liquidity.
Lower solvency buffers	ILS increase the possibility of transferring risks from the liability side onto the asset side of the balance sheet, thereby lowering solvency buffers.
Fixed up-front costs	ILS typically have fixed up-front costs that can include legal fees, modelling costs, brokerage fees, ratings fees and bank fees. All of these can be cost intensive for small issuers.
Basis risk	ILS with parametric triggers could imply "basis risk", which can be understood as the difference between the actual losses experienced by the sponsor and the payment received by the sponsor based on the design of underlying model and trigger structure. The basis risk from the model risk, trigger error or both would need to be evaluated by investor(s).
Competition for traditional reinsurance	ILS might drive traditional business away from reinsurers and lower premiums for traditional underwriting.
Regulatory arbitrage	ILS increase the possibility of regulatory arbitrage; repackaging of transferred portfolios further weakens market transparency.
More complex supervision required	ILS introduce additional prudential considerations (e.g., security design, investment risks, and collateralisation) and therefore leads to more complex supervision (demands for integrated supervision).

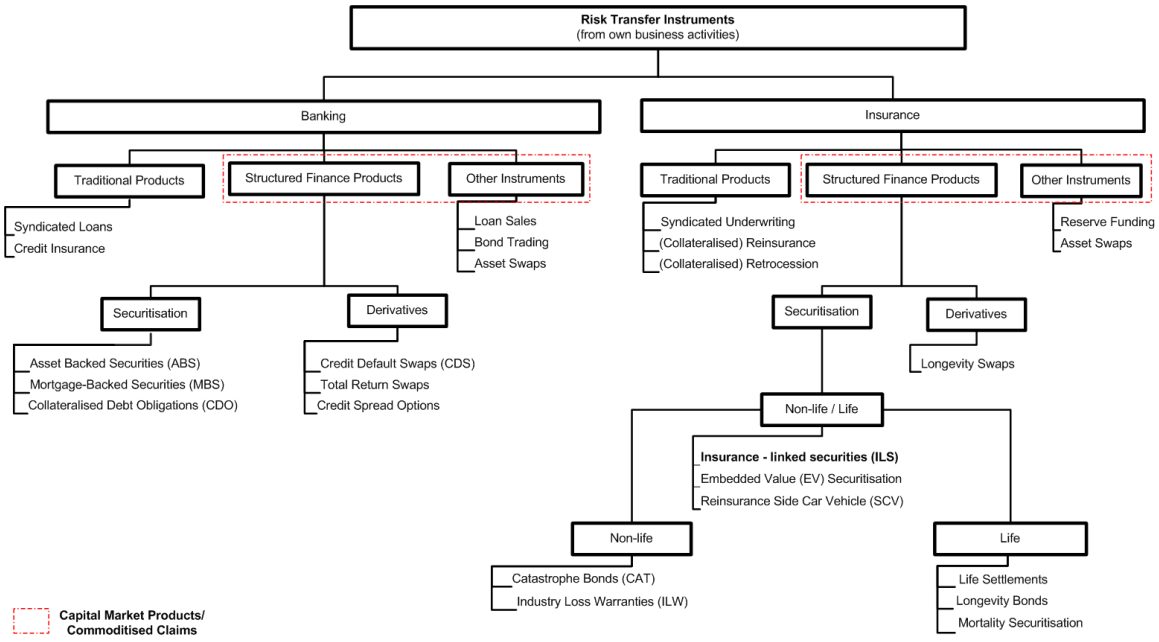
APPENDIX continued

BACKGROUND: RISK TRANSFER IN STRUCTURED FINANCE AND INSURANCE SECURITISATION

Insurance-linked securities (ILS) securitise insurance risk as a form of capital market-based structured finance within the broad spectrum of risk transfer techniques (Figure 12). Opportunities for structured finance arise if (i) established forms of external finance are unavailable (or depleted) for a particular financing need, or (ii) traditional sources of funds are too expensive for issuers to mobilise sufficient funds for what would otherwise be an unattractive investment based on the issuer's desired cost of capital. In general, structured finance comprises

> "All advanced private and public financial arrangements that serve to efficiently refinance and hedge any profitable economic activity beyond the scope of conventional forms of on-balance sheet securities (debt, bonds, equity) at lower capital cost and agency costs from market impediments and liquidity constraints. In particular, most structured investments (i) combine traditional asset classes with contingent claims, such as risk transfer derivatives and/or derivative claims on commodities, currencies or receivables from other reference assets, or (ii) replicate traditional asset classes through synthetication or new financial instruments." (Jobst, 2007, pp. 200f)

Figure 13. Risk Transfer Instruments and Insurance Securitisation



Source: BMA and Jobst (2007)

Insurance securitisation is distinct from asset securitisation, which is commonly used by credit institutions and corporates. Insurance securitisation by means of ILS represents an alternative, capital market-based source of funding profitable underwriting activities in lieu of raising capital from shareholders and borrowing from creditors (since reserves remain unchanged). The transfer of clearly defined insurance risk enables sponsors of ILS to benefit from more cost-efficient terms of funding without increasing their on-balance sheet liabilities or changing their underwriting capacity. Even though insurance securitisation shares with asset securitisation the premise of cost-efficient funding of diversified risk exposures and the reduction of the economic cost of capital, it is predicated on the creation of reinsurance recoverables in return for a pre-specified payment to investors, whose investment represents the collateralisation of the transferred insurance risk (up to the contractual policy limit).[14] In contrast, asset securitisation describes the process and the result of converting (or "monetising") cash flows from a designated asset portfolio into tradable liability and equity obligations, which represents an effective method of redistributing asset risks to investors and broader capital markets (transformation and fragmentation of asset exposures).[15]

Insurance securitisation, much like structured finance in general, offers issuers enormous flexibility to create securities with distinct risk-return profiles in terms of maturity structure, security design and the type of underlying insurance risk. However, the increasing complexity of insurance securitisation, with a multiplicity of valuation models, loss triggers and pricing mechanisms, and the ever-growing range of products being made available to investors invariably create challenges in terms of efficient management and dissemination of information. Securitisation also involves a complex structured finance technology, which necessitates significant initial investment of managerial and financial resources.

14 Moreover, some of the characteristics of asset securitisation that contributed to the financial crisis between 2008 and 2011, such as insufficient screening of creditors, incentive problems of both sponsors and servicers in monitoring securitised loans, and the erroneous valuation models do not apply to insurance securitisation. For instance, in most cases sponsor retain loss provisions for insurance risk ceded to ILS structures, which provides incentives for the adequate actuarial assessment of underwriting risks.

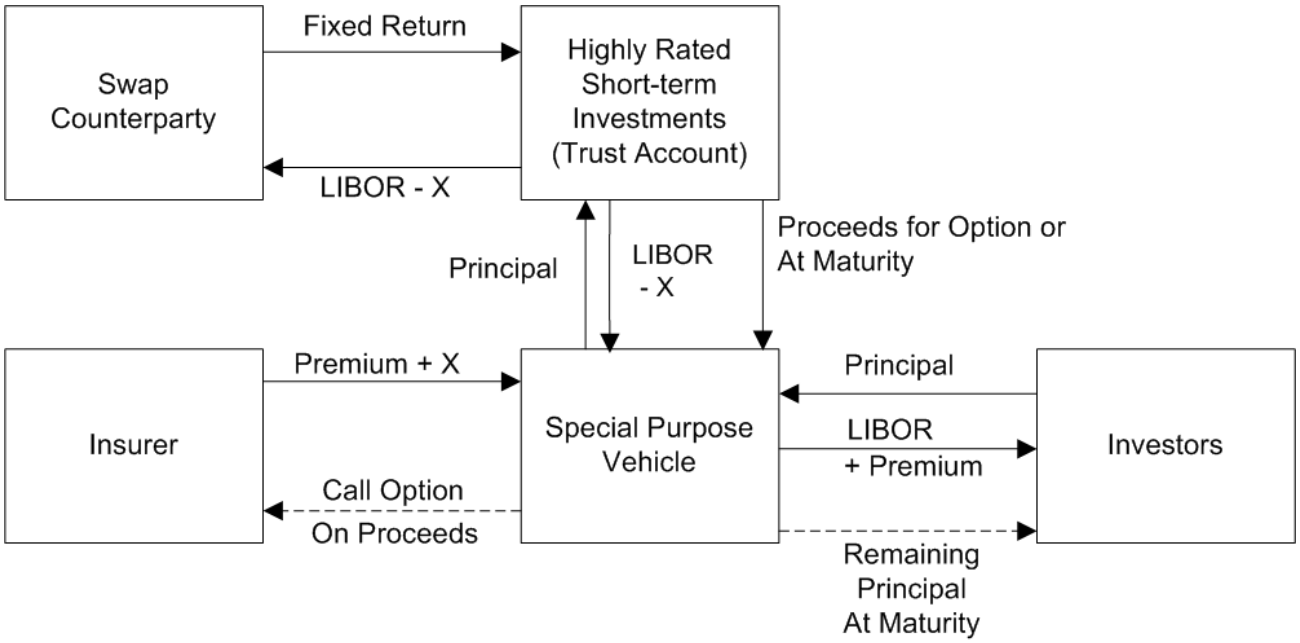
15 Embedded Value (EV) securitisation is the only form of structured finance used by insurance firms that comes close to the concept of asset securitisation. EV securitisation transactions commoditise future cash flows that are released from a block of in force insurance business, future underwriting margins, investment income on reserves and required capital supporting the business, and anticipated reserve releases. By executing such a transaction, an insurer is able to receive an upfront payment using these future cash flows as collateral.

APPENDIX continued
BACKGROUND: ILS STRUCTURE AND SECURITY DESIGN

A typical ILS transaction begins with the formation of a special purpose vehicle (SPV) or special purpose entity (SPE) subject to the registration and licensing by a regulatory authority (Figure 13). The SPV issues bonds to investors and invests the proceeds in safe, short-term securities such as government bonds or highly-rated corporates, which are held in a trust account. Embedded in the bonds is a call option that is triggered by a defined loss event. On the occurrence of the event, proceeds are released from the SPV to help the insurer pay claims arising from the event. For most ILS, the principal is fully at risk, i.e., if the contingent event is sufficiently large, the investors could lose the entire principal in the SPV. In return for the option, the insurer pays a premium to the investors. The fixed returns on the securities held in the trust are usually swapped for floating returns based on LIBOR (London Interbank Offered Rate) or some other widely accepted money market rate. The reason for the swap is to immunise the insurer and the investors from the variability of interest rates. Consequently, the investors receive LIBOR plus the risk premium in return for providing capital to the trust. If no contingent event occurs during the term of the issued bonds, the principal amount is returned to the investors upon the expiration of the bonds.

In the absence of a traded underlying asset, ILS are structured to pay off on several types of triggering variables: (i) indemnity triggers, where pay-outs are based on the size of the sponsoring insurer's actual losses; (ii) index triggers, where pay-outs are based on an index not directly tied to the sponsoring firm's losses;(iii) parametric triggers, based on the physical characteristics of the event; (iv) modelled loss triggers, based on the results of a simulation model; or (v) hybrid triggers, which blend more than one trigger in a single bond (Cummins, 2012).[16] If a trigger event occurs, it can result in an unwinding of the transaction or a haircut to the investor. To date, indemnity and industry loss index triggers have been most prevalent, accounting for approximately 75% of all deals issued since 2009.

Figure 14. Typical Structure of an Insurance-Linked Security (ILS).



Note: ILS structures have become more sophisticated as the market has grown in complexity with multiple perils as securitised risk and tranche subordination becoming more frequent. The illustration above represents a stylised version of an ILS structure.

16 A more comprehensive definition of each trigger type can be found on the next page.

GLOSSARY

TRIGGER DEFINITIONS

Indemnity refers to when the triggering event is the actual loss incurred by the sponsor following the occurrence of a specific event, in a specified region and for a specified line of business, as if traditional catastrophe reinsurance had been purchased. If the layer specified in the CAT bond is $100 million excess of $500 million, and the total claims add up to more than $500 million, then the bond is triggered.

Industry Loss Index is a "pooled indemnity" solution where the indemnity loss experience of a number of companies is used to determine the industry loss estimate. The bond is triggered when the industry loss from a certain peril reaches the specified threshold, typically determined by a recognised agency.

Hybrid triggers combine two or more triggers in a single bond.

Modelled Loss structures refer to the construction of an exposure portfolio using modelling software. Once an event occurs, the event parameters are run against the exposure database. The structure is triggered if modelled losses exceed a specified threshold.

Parametric refers to those transactions that depend on the physical characteristics of a catastrophic event in order for the bond to be triggered. That is, the bond is triggered when the characteristics of the catastrophic event meet pre-specified conditions. Typical parameters include magnitude, proximity, wind-speed or whatever else is deemed appropriate for the given peril.

GENERAL TERMS

Alternative Risk Transfer (ART) refers to non-traditional forms of insurance and reinsurance as risk is transferred to other entities/business models or capital market investors as alternative providers of risk protection. Examples of the former include, for instance, self-insurance, captives, pools and risk retention groups, whereas insurance-linked securities (ILS) and industry loss warranties (ILWs) are examples of the latter.

Asset-Backed Security (ABS) is a security that is collateralised by the cash flows from a pool of underlying assets such as loans, mortgages, leases and receivables.

Basis Risk is the difference between the actual losses experienced by the sponsor and the payment received by the sponsor based on the design of underlying model and trigger structure when ILS use parametric triggers.

Catastrophe Bond is a risk-linked security that transfers a specified set of risks from the cedant or sponsor to investors in the capital market in order to provide cover for potential losses caused by catastrophic events.

Capital Market is a market in which individuals and institutions trade financial securities. Organisations/ institutions in the public and private sectors also often sell securities on the capital markets in order to raise funds.

Cedant refers to an insurance company purchasing reinsurance cover. In the context of ILS, a cedant can be an insurer or reinsurer as the added cover is provided by the capital market.

Counterparty Risk is the risk faced by one party in a contract that the other, the counterparty, will fail to meet its obligations under the contract. In most financial contracts, counterparty risk is also known as "default risk" or "credit risk."

Credit Rating is a measure of risk that the payment terms agreed to by an entity or contained in a financial instrument will not be fulfilled. The rating is typically expressed as a letter grade issued by private sector credit rating agencies.

Diversification is a risk management technique that mixes a wide variety of investments within a portfolio to lower its level of risk as positive performance of some investments will offset to some extent the negative performance of others.

Event Risk is the insurable risk from an occurrence such as a catastrophe

Insurance-Linked Security (ILS) is a financial instrument through which insurance risk is transferred to capital markets and whose value is determined by insurance loss events.

Longevity Bond is a bond that pays a coupon proportional to the number of survivors in a selected birth cohort, creating an effective hedge against longevity risk.

Longevity Risk is the risk that people live longer than expected and life insurers will be exposed to higher than expected pay-out ratios.

Mean-Variance Efficient Frontier is a set of points showing the minimum return volatilities of portfolios for any given level of expected returns of portfolios.

Moral Hazard is a condition in which an individual or institution will tend to act less carefully than it otherwise would because the consequences of a bad outcome will be largely shifted to another party.

Peril refers to a specific risk or cause of loss covered by an insurance policy or insurance-linked security such as a catastrophe bond.

Premium is the specified amount of payment required by an insurer to provide coverage under a given plan for a defined period of time.

Primary Insurer is the insurer that cedes risk to a reinsurer.

Principal is the original amount invested, separate from any interest payments.

Regulatory Arbitrage refers to taking advantage of differences in regulatory capital requirements of financial activities across countries or different financial sectors, which might also involve differences between economic risk and that measured by regulatory standards.

Reinsurance defines the practice of insurers transferring portions of risk portfolios to other parties by some form of agreement in order to reduce the likelihood of having to pay a large obligation resulting from an insurance claim.

Securitisation is the creation of securities from a reference portfolio of pre-existing assets or future receivables that are placed under the legal control of investors through a special intermediary created for this purpose (SPI or SPV).

Special Purpose Insurer, Vehicle or Entity (SPI, SPV or SPE) assumes (re) insurance risks and typically fully funds its exposure to such risks through a debt issuance or some other financing.

Tranches of Securities represent a hierarchy of payment and risk typically associated with an asset-backed security. Higher tranches are less risky and have first priority on the payment of claims.

Trigger Type refers to how the principal impairment is triggered. The most common trigger types for ILS market structures include indemnity, industry loss index, modelled loss and parametric.

Underwriting Capacity is the maximum amount of money an insurer is willing to risk in a single loss event on a single risk or in a single period.

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