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Tides of Change
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Actuaries Institute

Alternative Risk Transfer – Capital Markets Update

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- What are cat bonds?
- Why use them?
- Current cat bond market
- An Australian cat bond
- Beyond cat bonds

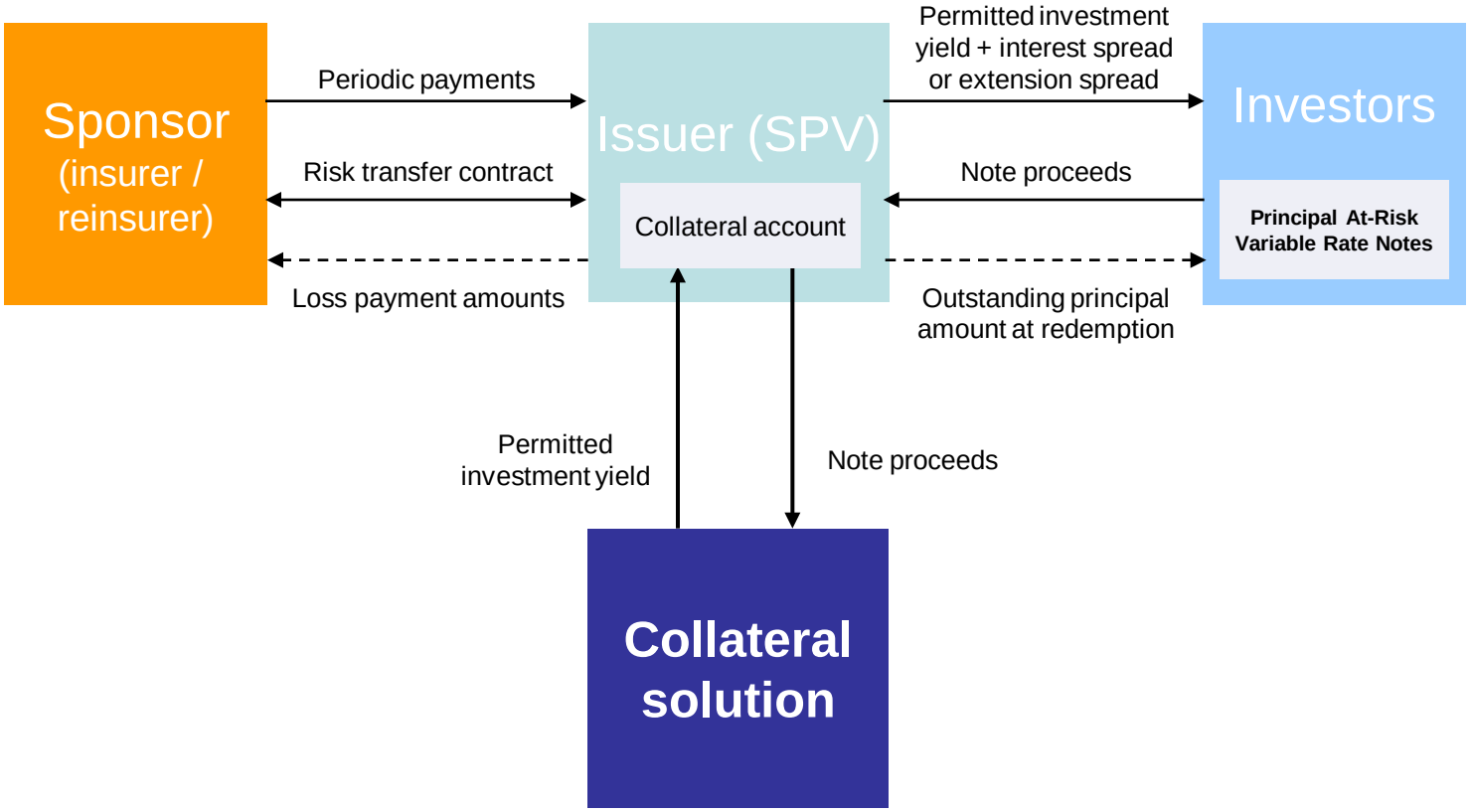
Why consider alternatives to traditional reinsurance?

- (Re)Insurance market has limited capacity to meet potential for enormous losses
- Diversity and scale of additional investors / protection providers
- (Re)Insurance market pricing and capacity can be very volatile

What are cat bonds?

- A means of transferring insurance risks from insurers, reinsurers or corporates via capital markets
- Risk transfer mechanism operates through the loss of principal and/or coupons by investors in the event of a significant pre-defined event
- Investors receive a Libor/Euribor/Treasury benchmarked spread, akin to an insurance premium
- Cat bonds have been around for more than 15 years with the first transaction placed in the market in the late 1990s

Typical structure



Why use cat bonds?

Sponsors / Protection Buyers

- Regulatory pressures
- Rating agency pressures
- Changes to catastrophe models
- Capacity is:
  - Collateralised
  - Multi-year
  - Fixed price

Investors / Protection Sellers

- Uncorrelated with other asset classes
- Attractive yields
- There is a variety of differentiating perils, trigger types, maturities and risk levels available in the market

Case study

hannover re®

Eurus III Ltd

3.5 years Europe Windstorm bond

Modelling Agent: AIR

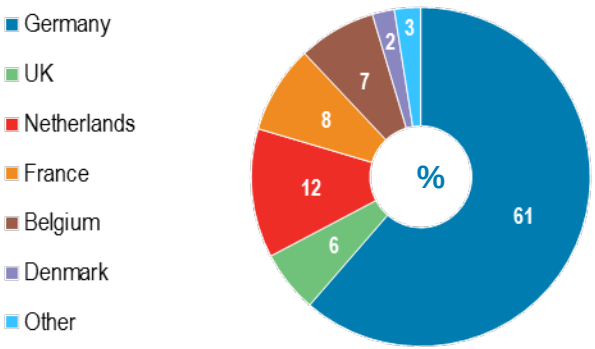
September 2012

Summary Terms

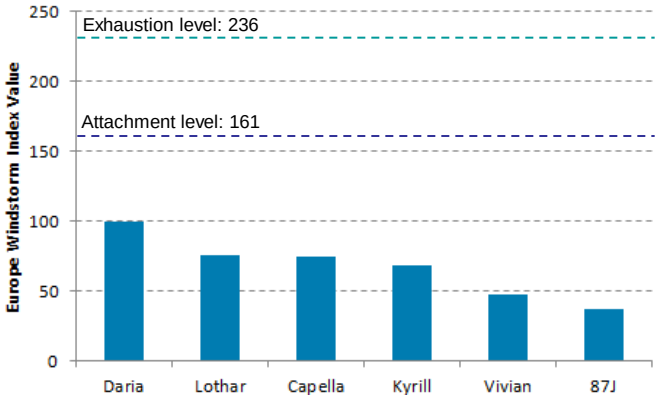
Issuer	Eurus III Ltd (SPV)	**Currency**	EUR
Offered	€75m	**Size**	€100m
Issue Date	September 2012	**Rating (S&P)**	BB-
Maturity Date	April 2016	**Coupon[1]**	EBRD + 375 bps
Sponsor	Hannover Re	**Attachment Probability**	2.22% (annualised)
Underlying	Europe Windstorm	**Expected Loss**	1.59% (annualised)
Trigger	CRESTA-weighted PERILS Index	**Risk Period**	3.5 years covering 4 Europe Windstorm seasons

[1]EBRD pays 3-month Euribor – 38 bps

Contribution to expected loss by country



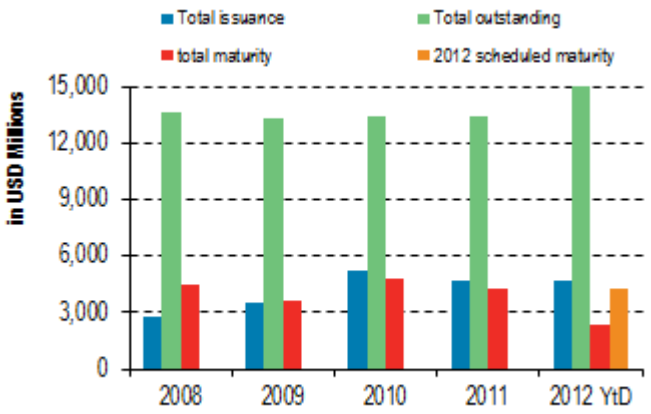
Impact of historical events on index value



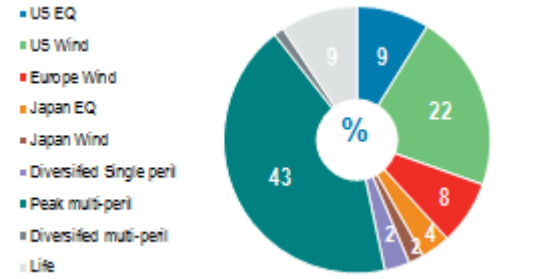
Cat bond market

- Heavily weighted toward US perils, notably US Wind
- At similar level of risk, US Wind paying higher spread than other perils
- Specialist ILS funds use so-called "diversifying cat bonds" to manage concentration risks of their portfolio
- Anticipated 2012 issuance around USD 6.0bn
- Over 60 (re)insurance companies have sponsored cat bonds since creation of the market
- Some companies return to market annually (USAA, SCOR, Swiss Re), others are more opportunistic

Evolution of the cat bond market



Market outstanding by perils



Multi-peak perils are transactions exposed to US Wind and at least one other peril
Diversified multi-peril are transactions exposed to two or more perils, none of them being US Wind

An Australian cat bond?

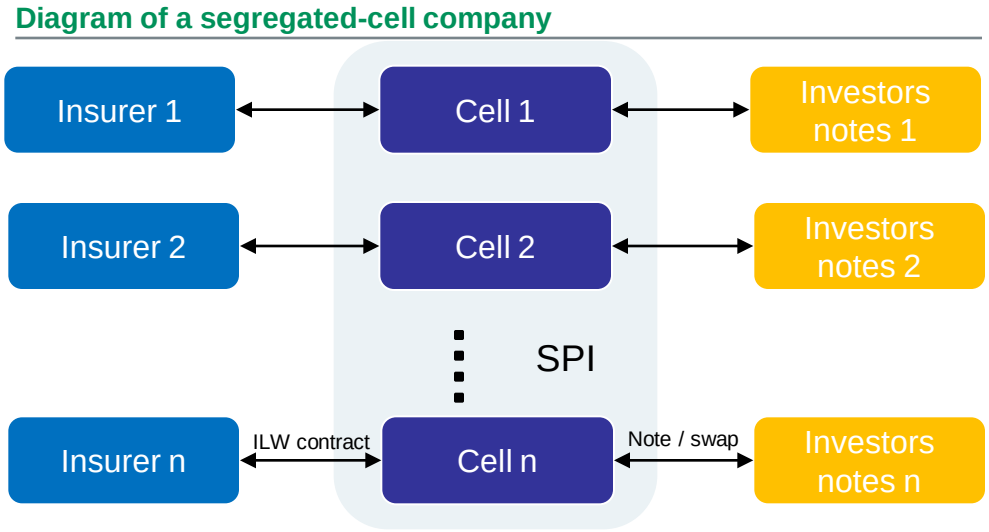
- Australian earthquake or cyclone cat bond structurally feasible, potentially issued in AUD
- Investors are particularly keen for diversifying perils to complement core US wind / earthquake risks
- Currently industry lacks credible third-party Australian flood model but we anticipate such model to be available within a couple of years
- Achieving regulatory recognition may require certain structural features (indemnity trigger, AUD denominated, multi-peril coverage)

Beyond cat bonds: Private Placements

- Alternative to public cat bond, can issue "cat bond lite" notes on private placement basis
- More bespoke structures and tighter information control
- Reduced issuance costs and shortened execution time line
- Drawbacks - constraints on marketing (sold only to qualified parties), limitations on secondary market transferability
- Greater number of private placements as ILS investors become increasingly sophisticated

Beyond cat bonds: ILW Transformers

- If investor wants a very specific risk, may be possible to source through Industry Loss Warrants (ILW) market
- ILWs - type of reinsurance contract which includes an industry loss index clause
- Capital market investors do not hold insurance licence, so ILW transformed into a financial contract such as a bond or a swap
- Usually done via a segregated cell company



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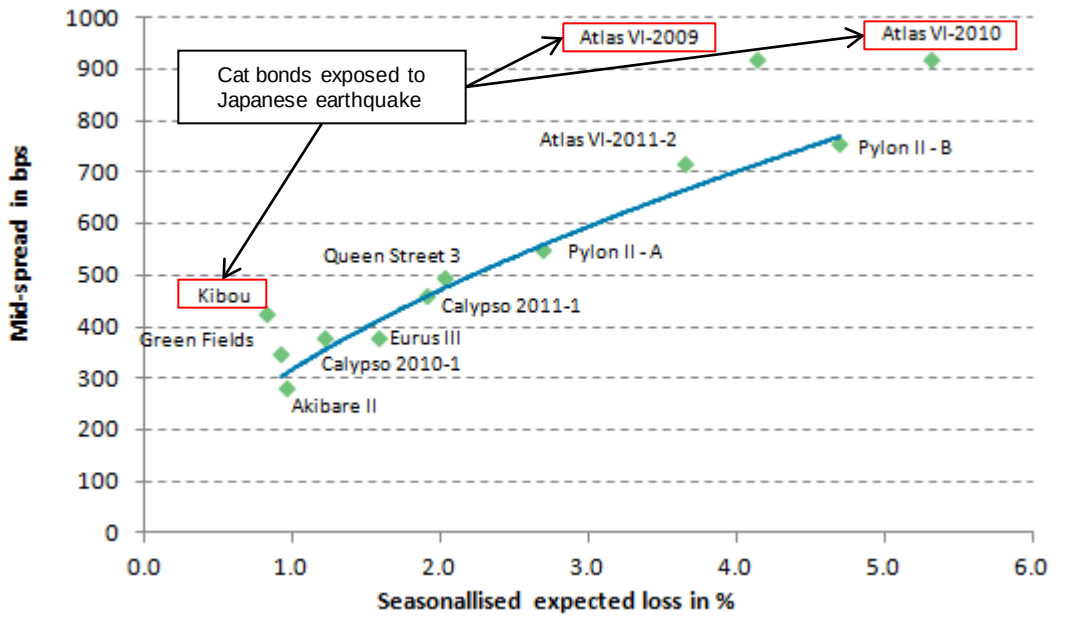
Appendix

Pricing cat bonds

Secondary market spreads for diversifying perils – October 2012



Transaction	Size	Perils
Akibare 2	USD 130m	Japanese Typhoon & Flood
Atlas Re VI-2009-1	EUR 75m	EU Wind & Japanese EQ
Atlas Re VI-2010-1	EUR 75m	EU Wind & Japanese EQ
Atlas Re VI-2011-2-1	EUR 50m	EU Wind
Calypso 2010-1	EUR 275m	EU Wind
Calypso 2011-1	EUR 180m	EU Wind
Eurus III	EUR 100m	EU Wind
Green Fields	EUR 75m	French Wind
Kibou	USD 300m	Japanese EQ
Pylon II – A	EUR 65m	French Wind
Pylon II – B	EUR 85m	French Wind
Queen Street 3	USD 150m	EU Wind

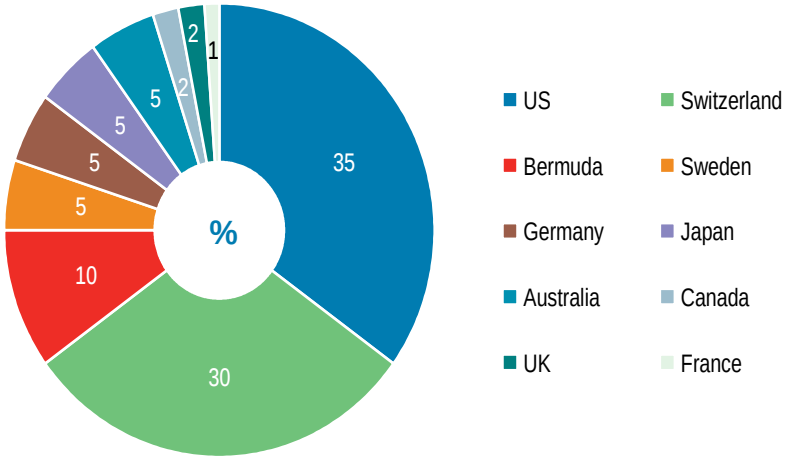
- The “riskiness” of a cat bond is expressed by its expected loss, a figure calculated by a third party modelling agent such as AIR, EQECAT or RMS
- The trigger metrics of the cat bonds are recalculated once a year to maintain the expected loss constant
- The price of a new issuance determined by comparing the expected loss of that bond with the other bonds already in the market (distinguishing between US perils and diversifying perils)
- Some factors may be applied to take into account the specific nature of each cat bond. For instance:
  - Indemnity bonds will price at a premium owing to the increased opacity of the index calculation
  - Japan earthquake bonds will also price at a premium owing to the uncertainty surrounding aftershocks following the 2011 earthquake
- Over time, the secondary market spreads will move depending on the reinsurance rates and the cash that investors have available to deploy to new issuance

Cat bond investors

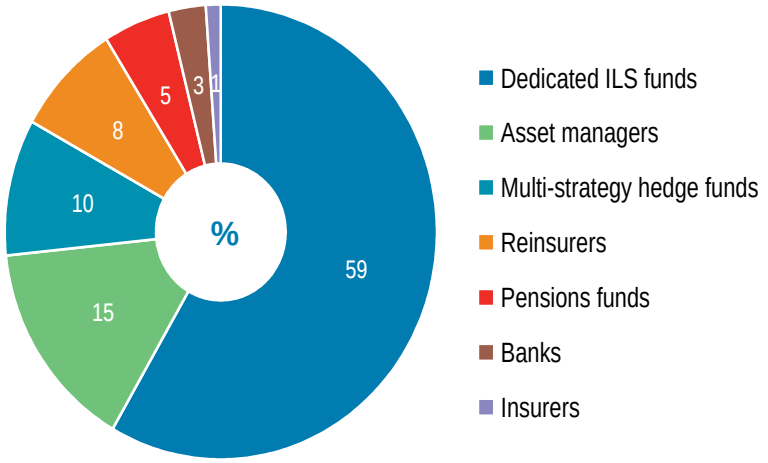
A diversified pool, with lead participation from dedicated Insurance Linked Securities (ILS) funds

– In recent years, the number of investors has remained stable with net asset value under management showing healthy signs of growth
– The financial crisis proved that real expertise was needed to invest in ILS. This has resulted in increased intermediation by dedicated ILS funds on behalf of end investors
– Real money accounts in particular have reduced their direct presence and favour investment via institutional ILS fund managers

Geographical distribution – October 2012



Distribution by type – October 2012



Structural considerations

Maturities	■ < 3 years	■ 3 years	■ 4 years	■ 5 years
Trigger mechanisms	■ Industry loss index (PERILS)	■ Indemnity	■ Parametric	■ Modelled loss
Occurrence mechanisms	■ Per occurrence	■ Aggregate	■ 2nd event / 3rd event	■ Others (combination)
Modelling / Calculation / Reset agents	■ AIR	■ EQECAT	■ RMS	
Issuer specifics	■ Location	■ Shelf / no-shelf	■ Listing	Clearing
Currencies	■ EUR	■ USD		
Collateral	■ Supranational puttable Notes	■ Money market funds	■ Tri-party repo	
Rating agencies	■ S&P	■ Moody's	■ Fitch	