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Alternative sources of Capital

Sie Liang Lau & Jerry Mingjie Yu

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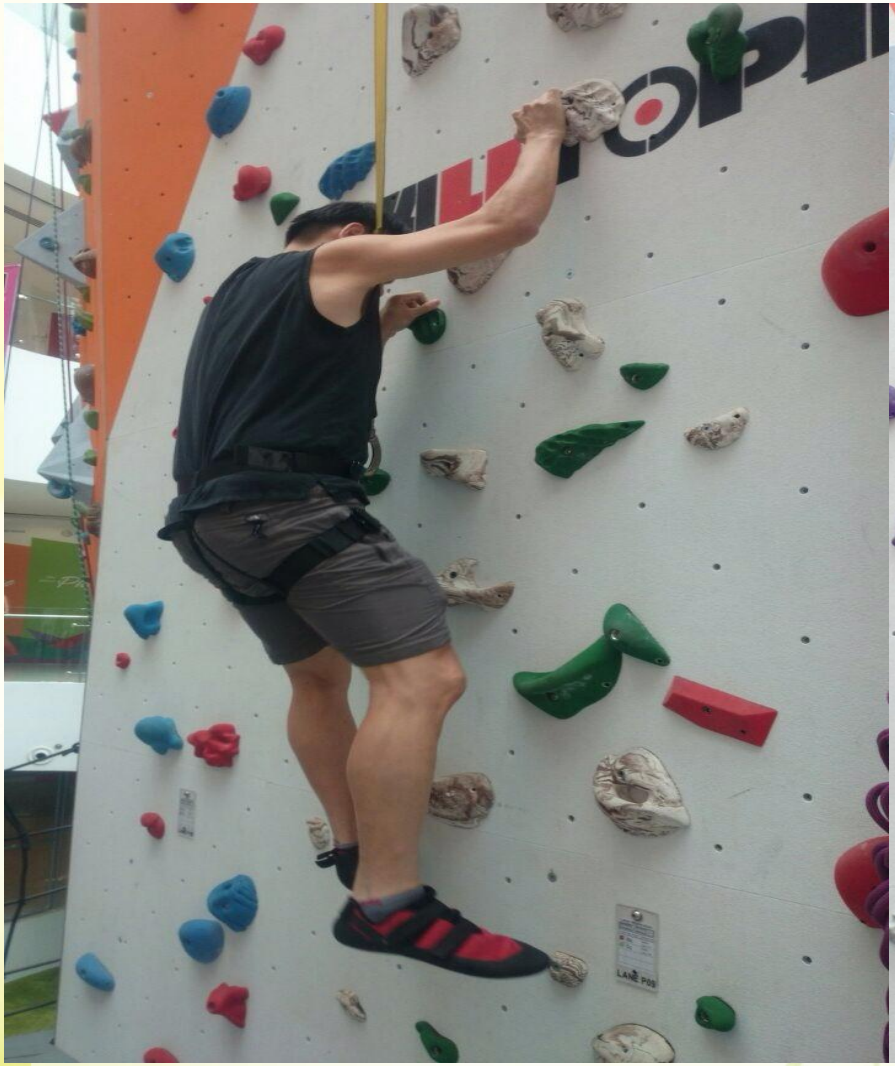

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Alternative Sources of Capital

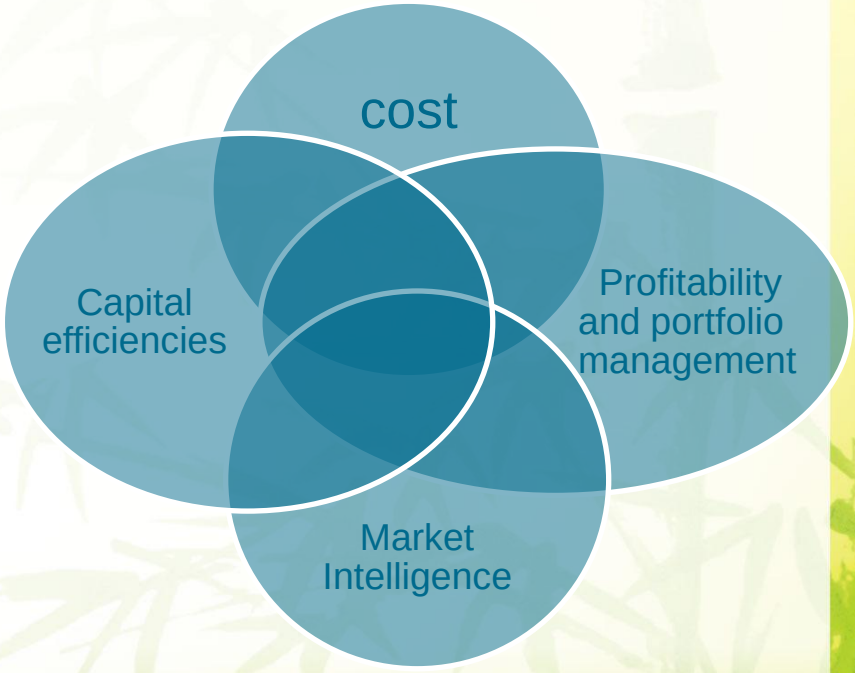
Alternative Sources of Capital

1	Introduction
2	The reinsurance universe and the influx of alternative capital
3	Catastrophe
4	Sidecars
5	Development in Asia Pacific
6	Impact on the reinsurance market
7	Conclusions

Introduction: Why reinsurance?

- Reinsurance (or retrocession) is an effective way of optimising capital relief and forms part of (re)insurer's strategy
- The key reasons to buy reinsurance (or retrocession) are:

❶	Capital efficiency (as an alternative to capital)	• to satisfy Regulator (such as C-ROSS), and • to expand efficiently
❷	Profitability and portfolio management	• smooth peaks and volatility, and • control portfolio
❸	Cost efficiencies/ Arbitrage	
❹	Market intelligence/ reinsurer's expertise	



Introduction: What is a typical insurer or reinsurer's approach to reinsurance/retrocession?

- Typically one would buy protection…

in many different types such as:

- ✓ **Traditional cat and risk XL**
- ✓ **Aggregate XL**
- ✓ **Quota share**
- ✓ **Catastrophe bonds**
- ✓ **Parametric deals such as CWIL (county weighted indexed loss)**
- ✓ **Contingent capital**

…across many different classes:

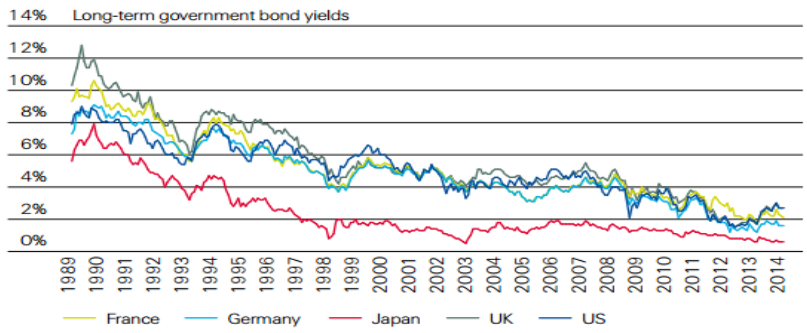
- ✓ **Property**
- ✓ **Facultative**
- ✓ **Engineering**
- ✓ **Marine**
- ✓ **Motor**
- ✓ **Decennial**
- ✓ **Aviation and Space**

- The aim is to diversify its dependence in any one market and its panel of partners is diversified for this reason

Introduction: What have been happening these last few years?

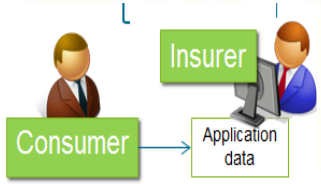
Interest rates close to historic lows, pressure on investors

Long-term govt bond yield in advanced markets (1)

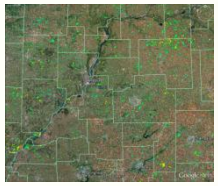


Bilateral education between RI and capital market, increasing convergence

New technology improves management of capital and reduces asymmetry of information



Big Data & High granularity

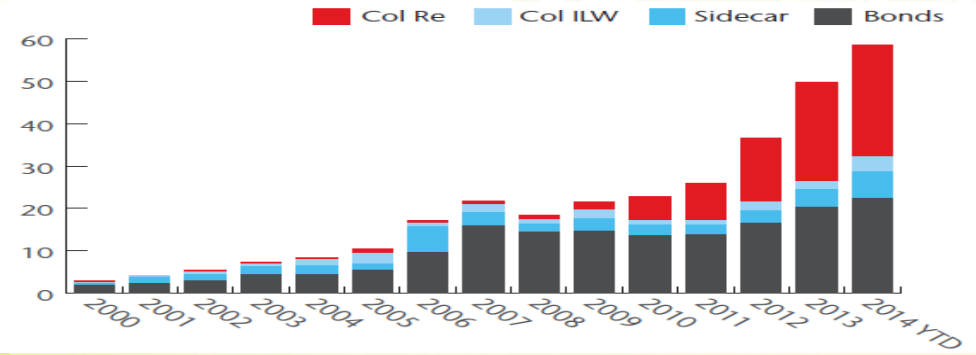


Satellite loss assessment

Cat modelling

Alternative capital has been growing rapidly

ILS outstanding capacity (in USD billions) (2)



- Alternative capital: approx. USD 60bn of capacity, while 10 years ago it was < USD 10bn
- But capacity ≠ premiums. Cat bonds often correspond to high layers with low rates on line (typically less than 10%)

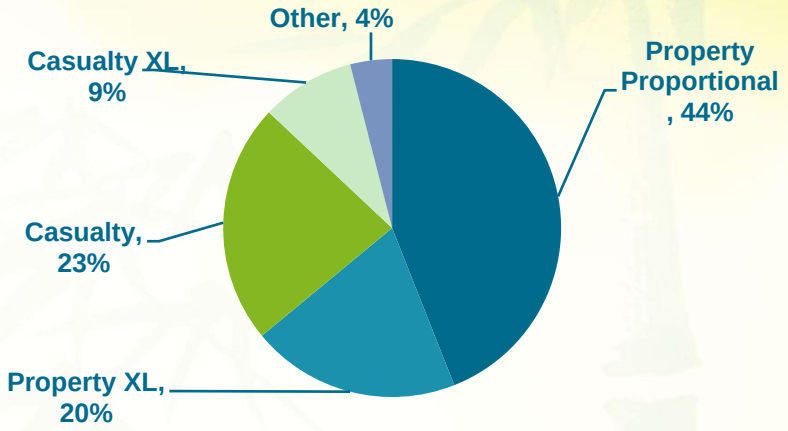
1) *Datastream*
2) *Aon Benfield Securities, Inc*

Alternative Sources of Capital

The reinsurance universe: Status Quo

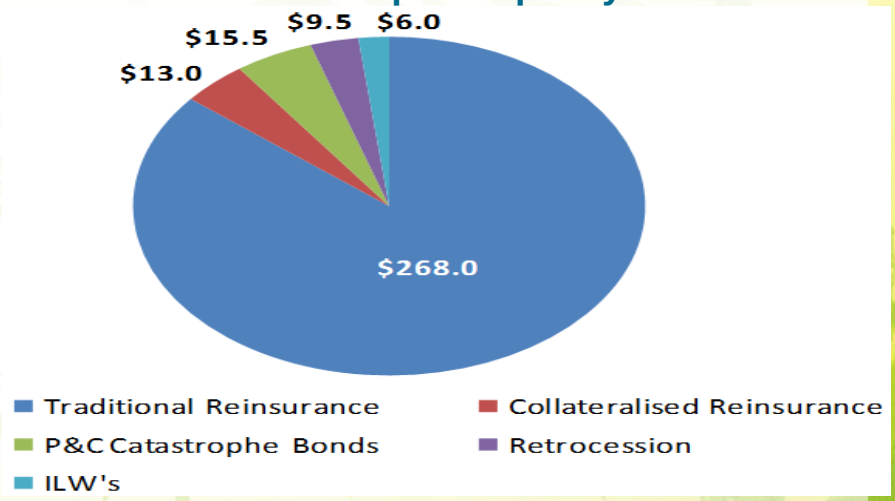
- Global non-life reinsurance premium in 2013 is about USD 190 bn, with about 10% coming from catastrophe reinsurance (of which about 50% emanating from the US)
  - ✓ But the 10% does generate a large part of the profit and over time it does drive earnings

2013 Global Reinsurance Premium: USD 190 bn



- Global Catastrophe reinsurance capacity is about USD 312 bn as at end of 2013
  - ✓ Alternative capacity is estimated to be around USD 45 bn at the same time, which is about 15% of total Cat Capacity.
  - ✓ Growth in the alternative capital markets space likely to be USD 75 bn by 2016. Expectations are that this capacity will only plateau at around USD 100 bn

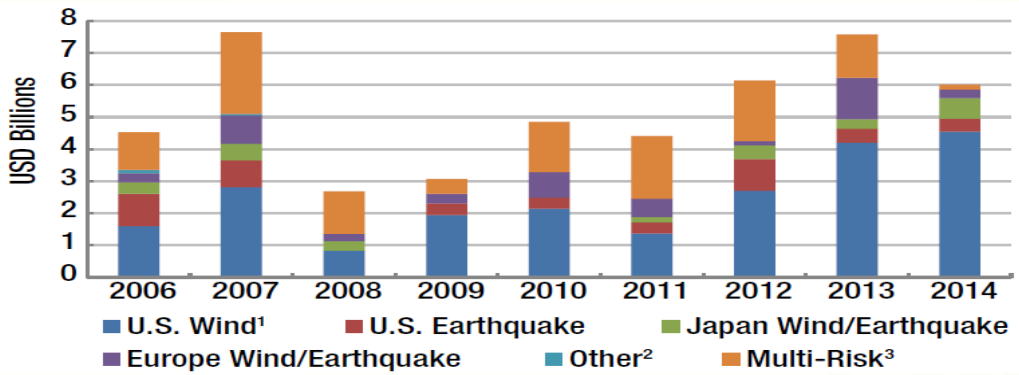
2013 Global Catastrophe Capacity: USD 312 bn



The inflow of alternative capital: Rapid growth of catastrophe bonds, in particular for US perils

Cat Bonds have been growing quickly, and majority covering US perils

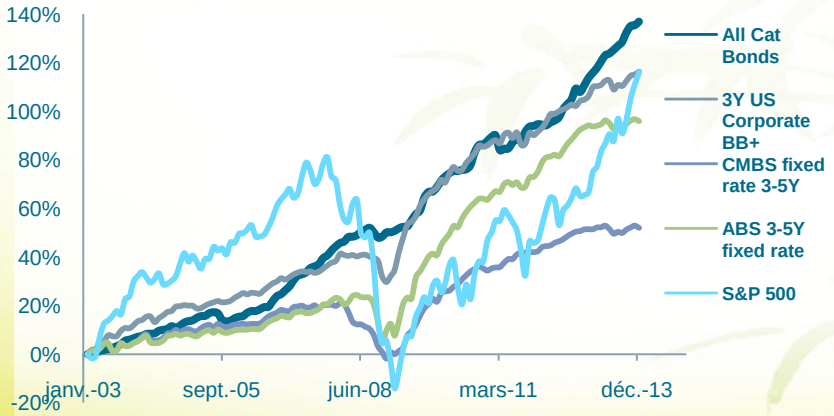
Outstanding capacity (in $ billions) (1)



- US perils form the majority of the covering
- The demand of JP wind and earthquake bonds has increased significantly after the 2011 March Tohoku EQ

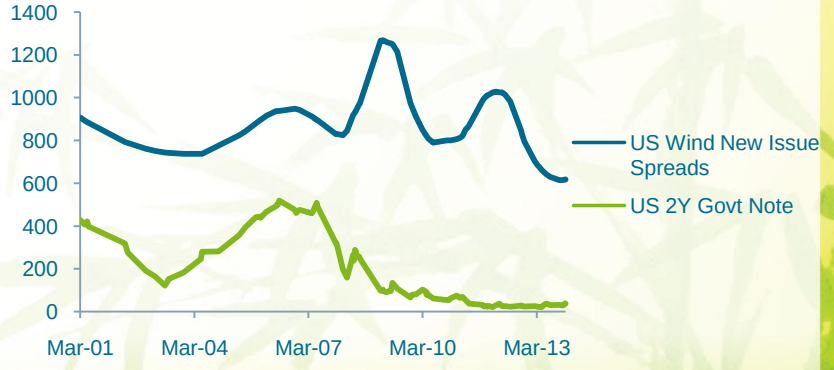
Cat bonds have a compelling track record for investors

Cat bond returns vs. other asset classes (2)



Growth has been fuelled by low interest rate environment

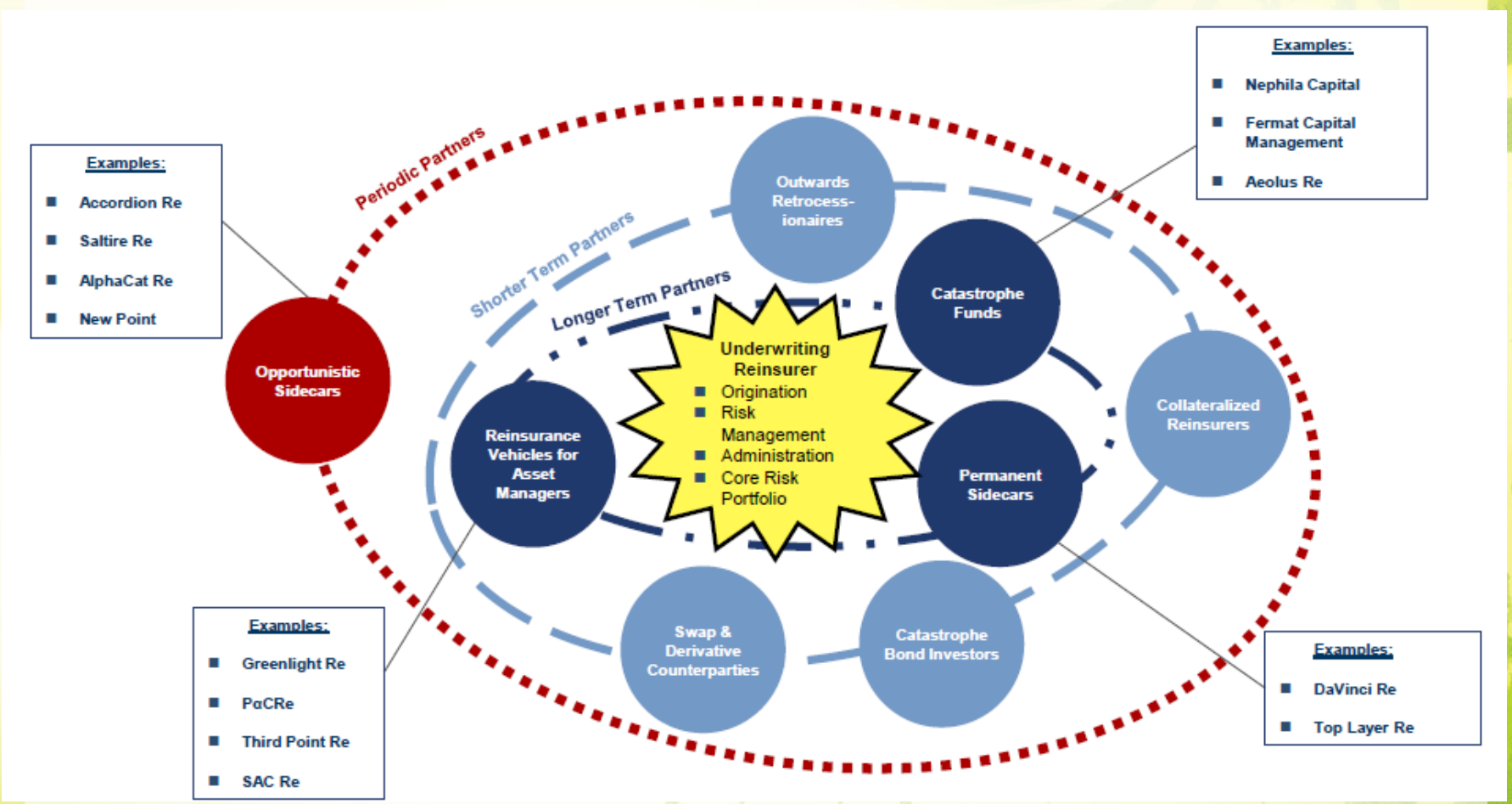
Cat bond spreads vs. risk-free rates (3)



1) *Source: Aon Benfield*
2) *Aon Benfield Securities, Bloomberg*
3) *Source: Swiss Re capital Markets & Bloomberg. Spreads for US Wind new-issue cat bonds with 2% expected loss*

The reinsurance universe and the inflow of alternative capital

Different forms of Alternative Capital



Alternative Sources of Capital

What is catastrophe bond?

- Catastrophe Bonds date back to the early 1990s following Hurricane Andrew and the Northridge earthquake in Los Angeles and were developed to alleviate the extreme tail risk posed by a major event.

How it works

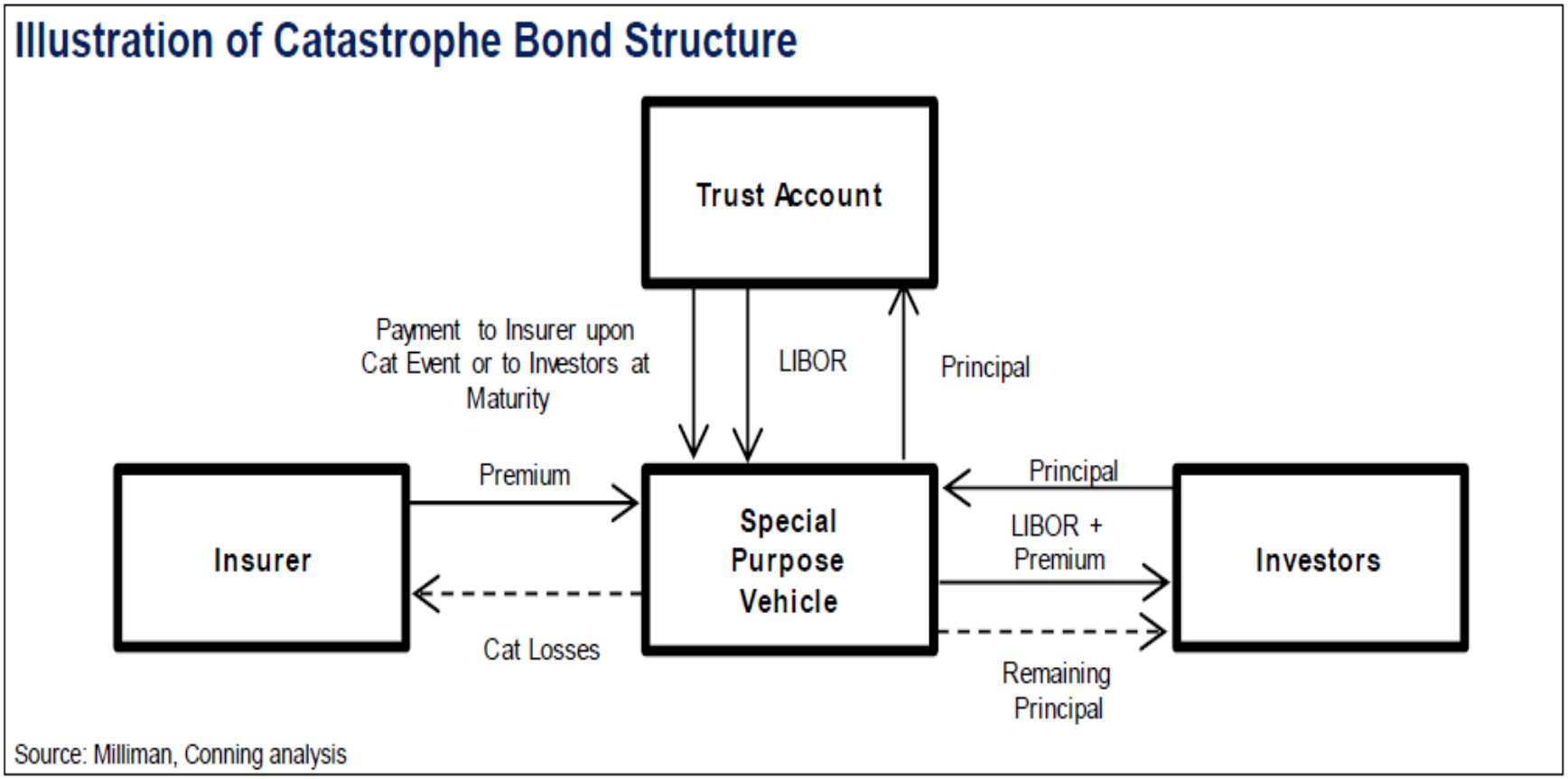
- It is an insurance related debt-securities issued by an insurer or reinsurer (Sponsor) and are set up using special purpose vehicles (SPVs), which are typically rated by the rating agencies
- Multi-year coverage, mainly peaks but can cover non-peak spots. 99.9% catastrophe, tiny single risk coverage (such as ???)
- Loss probabilities are normally modelled by RMS' RiskLink, EQECAT or AIR's CATRADER
- The premise of a catastrophe bond is that if a pre-determined type of event occurs, the bond defaults and investor cash is passed to the sponsor
- The fund is held within a trust, which generates interests (coupon) to investors

Why it has become more popular

- Independent correlation to financial markets so they provide excellent diversification
- They allow access to reinsurance market
- Generally pitched 'out-of-the-money' say 1% expected loss (1:100 year return period), thus offering cover with high capital intensive nature
- The coupon rate is attractive in a low-interest environment.
- Investor proceeds invested in high-quality, liquid securities (such as Money Market Funds), held in trust and which is available to the sponsor in the event of loss

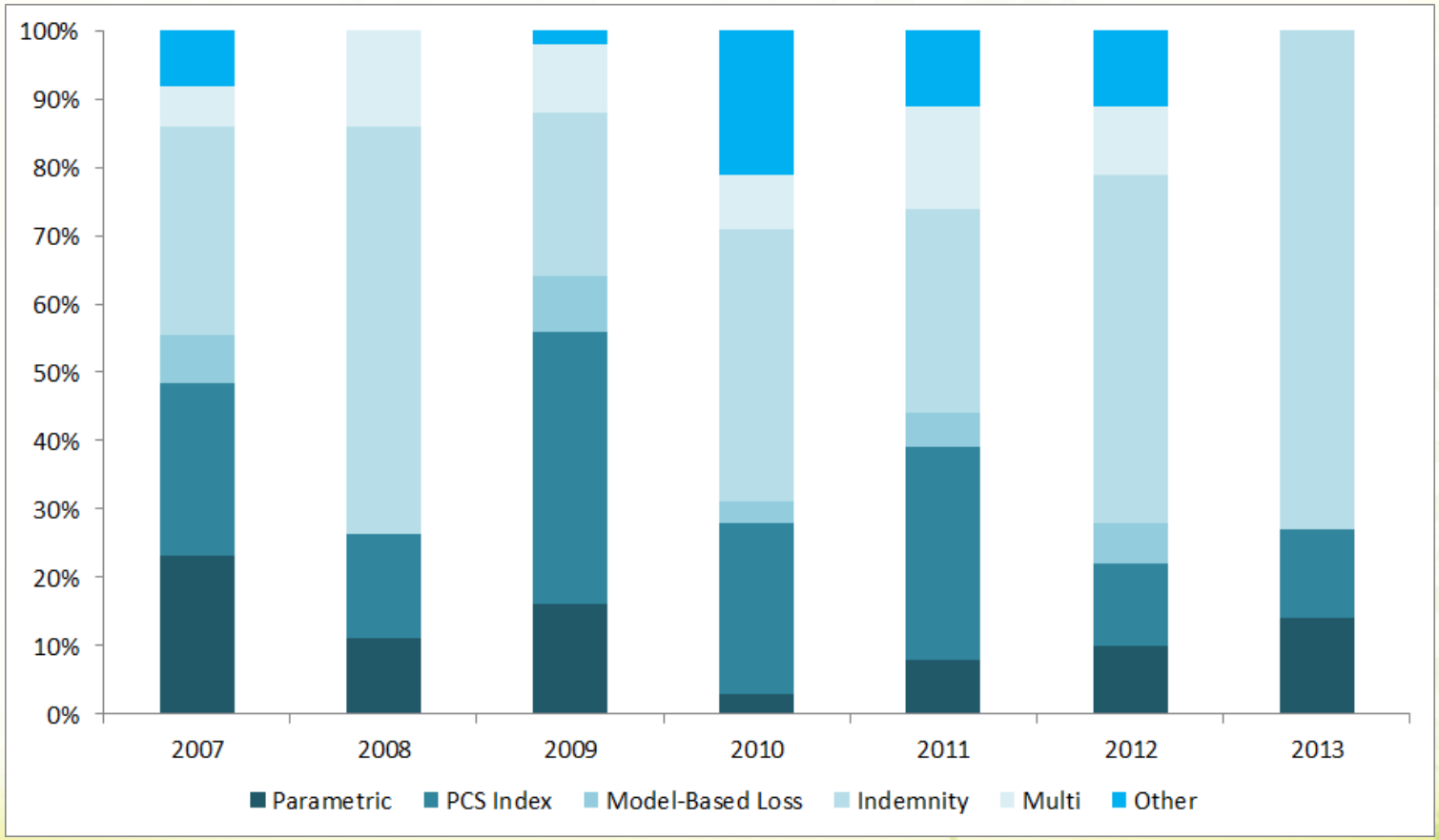
Catastrophe bond mechanics

- An SPV allows investors to access the reinsurance market without the headache of barriers to entry which are common-place



Catastrophe bonds split by type of placement

- Indemnity is becoming more available, proving investors are now comfortable with this type of product
- **Increased pressure on reinsurers as indemnity *used to be a monopolised product***



Catastrophe bond recent losses

- Cat Bond market has been tested by losses in recent years:
  - ✓ most of these losses are triggered by specific events linked,
  - ✓ some are due to the failure of the financial institution that served as the swap counterparty:
    - ✓ Lehman failure in 2008 led losses of collateral funds protection about USD 116 mn on various bonds
- Losses are so far about 2% of total sum at risk

Catastrophe Bond Losses in recent years (1)

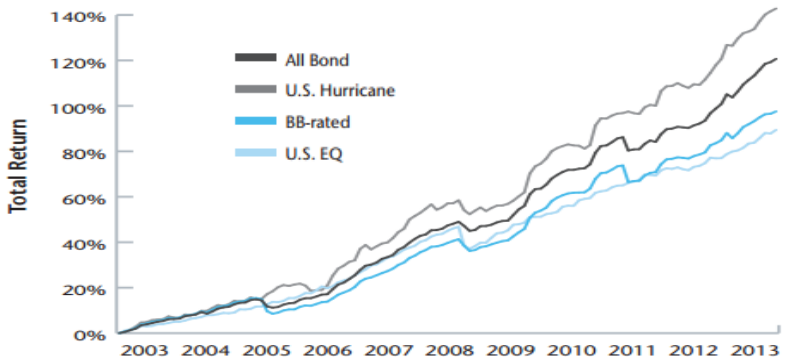
Transaction	Date of Issue	Sponsor	Size (USD mn)	% of loss	Reason
Kelvin Ltd	Nov 1999	Koch Energy Trading	50	Complex	Temperature
Avalon Re	Jul 2005	Oil Casualty Insurance	405	9% of class C	Explosions (casualty losses)
Kamp Re 2005	Aug 2005	Zurich American	190	75%	Hurricane
Four bonds	2008	Munich Re, Aspen, Catlin, Allstate	About $585M	About USD 116 mn for various transactions	Ineffective collateral protection on four bonds with total limit of $585 million when Lehman collapses
Muteki Ltd	May 2008	Zenkyoren	300	100%	JP Tohoku EQ
Mariah Re (series 1)	Nov 2010	American Family	100	100%	Joplin, Mo. Tornado (2)
Mariah Re (series 2)	Dec 2010	American Family	100	100%	Joplin, Mo. Tornado (2)

1) *National Association of Insurance Commissioners, AM Best research*
2) *The Joplin Mo Tornado losses are in litigation.*

Why investors like Catastrophe bonds?

Cat bonds have a compelling track record for investors

Historical Performance of ILS (1)

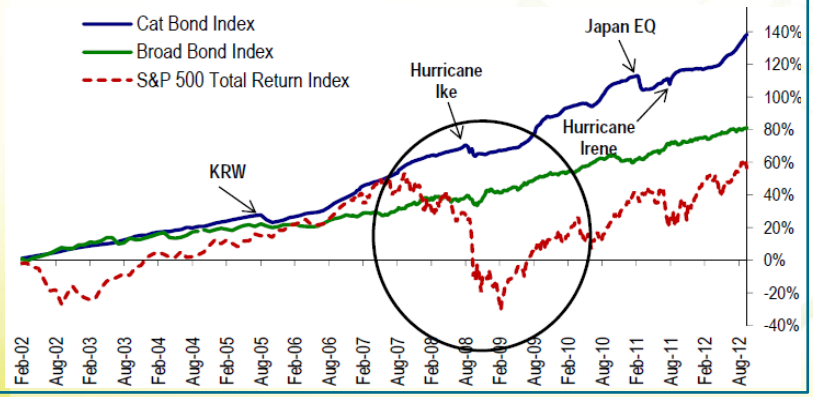


Investors like Cat bonds:

- ✓ Significant and long-lasting returns, even tested in last 10 years across a series of major events
- ✓ Independence with financial market
- ✓ Diversification improving Efficient frontier of an investment portfolio

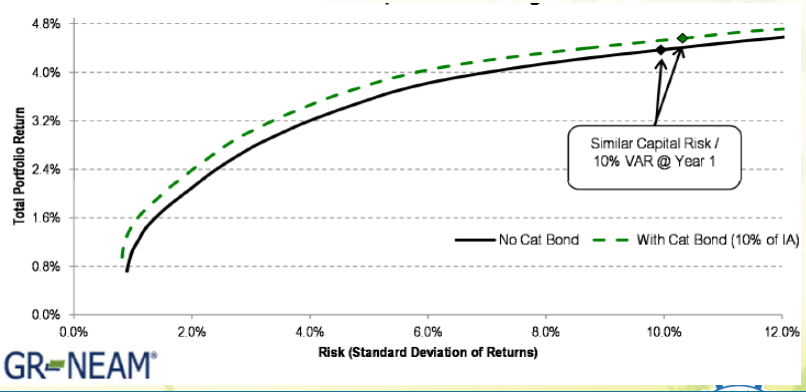
Cat bonds provide independent correlation with financial market

Cat Bond vs. Broad Bond vs. S&P 500 return index (2)



The diversification improves the efficient frontier by adding Cat Bond to a portfolio

Efficient frontier – impact of adding a Cat Bond



1) *Aon Benfield Securities*
2) *Bloomberg Broad Bond Index – Barclays US Aggregate Bond Index*

Beyond catastrophe bond?

Criteria for a successful placement in capital market:

- ✓ Un-Correlation to financial market risks.
- ✓ Big size.
- ✓ **The risk must be (relatively) easily and accurately modelled, i.e. information asymmetry must be minimal.**
- ✓ Business needs to be capital intensive

Suitability of various area of insurance for ILS(1)

Type of insurance risk	% industry capital	Suitability for ILS	Capital intensity	Market correlation	Duration	Modelling capabilities	Notes
Property Catastrophe	30%	✓✓✓	High	Low	Short	Strong	ILS established for this product
Motor/Property – Proportional	25%	×	Low	Low	Short	Strong	Margins unlikely sufficient for ILS
Motor/Property – Non-proportional	15%	✓✓	Medium	Low	Short	Strong	Margins on lower risk tranches may support fully collateralised structure
Casualty non-proportional	15%	✓	Medium/ High	Medium	Medium/ Long	Medium	Longer duration poses difficulties for ILS
Marine/Energy	5%	✓✓	High	Low	Short	Medium	Bespoke programmes required
Terrorism	<1%	✓✓	High	Medium	Short	Weak	Low frequency, but some correlation to financial markets
Aviation	1-2%	✓	High	Low	Short	Medium	Small market, suitable characteristics for ILS
Adverse claim reserve protection	20-25% (primary insurance capital)	✓✓✓	Medium	Low/ Medium	One year or multi year	Medium/ Strong	Huge market, some correlation to financial markets

Examples

AXA's transfer of motor risks to capital market

- Put in place in 2005, the debt is collateralized aggregate stop-loss reinsurance contract.

Reserving risks

- Swiss Re (during crisis), Catlin and RSA choosing Capital market to protect against adverse loss development

Liability risk less likely to be securitised

- Correlation with macro risks such as inflation, GDP
- Longer duration
- Limited third party model providers

1) Redburn

Private sector Cat Bond innovation: Property & Casualty

- **MetroCat Re (sponsor: First Mutual Transportation Assurance Co - FMTAC)**
  - FMTAC is the captive insurer of NY Metropolitan Transport Authority
  - After NY subway flooding experience from **Tropical Storm ("Hurricane") Sandy 2012**
  - Sponsored by First Mutual Transportation Assurance Co. to cover surge damage to NY subway & related infrastructure
  - Covers **Storm Surge damage** (only) from named US storms (tropical cyclones)
  - **First of its kind** – and a way of writing only storm surge risk (not hurricane wind, flood)
  - **Obviously correlated with US east coast tropical cyclone activity** hence not as useful a diversifier from the peak US peril (hurricane) as Life & Health Cat Bonds, for example
  - **1st issue of USD 200 MN coverage**
  - **Triggered only once FMTAC's existing underlying USD 600 MN Cat XL coverage is exhausted**

- **VenTerra Re (sponsor: QBE's Equator Re)**
  - Covers **tsunami**, **flooding caused by dam or levee break**; and **volcanic activity**
  - **First time such perils have been explicitly included in the scope of a Cat Bond**
  - Main perils covered by this bond are US EQ, Australian EQ & Cyclone – hence these are ones to consider when assessing the overall diversification benefit, rather than the "extra" perils above
  - Sponsored by QBE's captive reinsurer Equator Re – **USD 250 MN** of coverage

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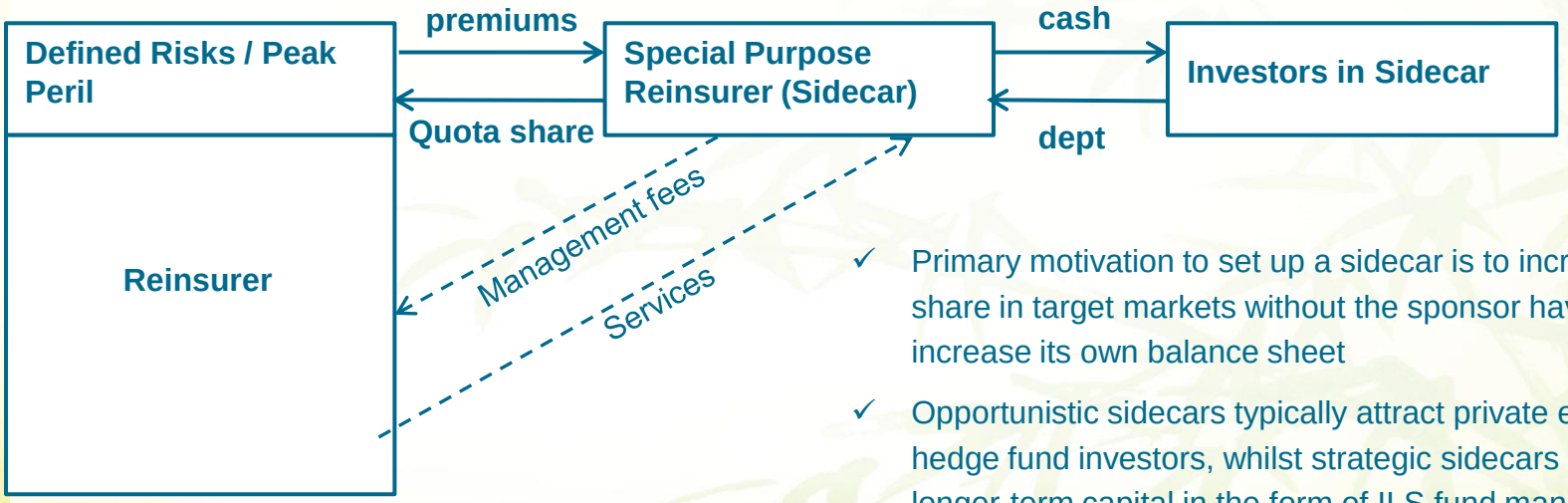
What is sidecar?

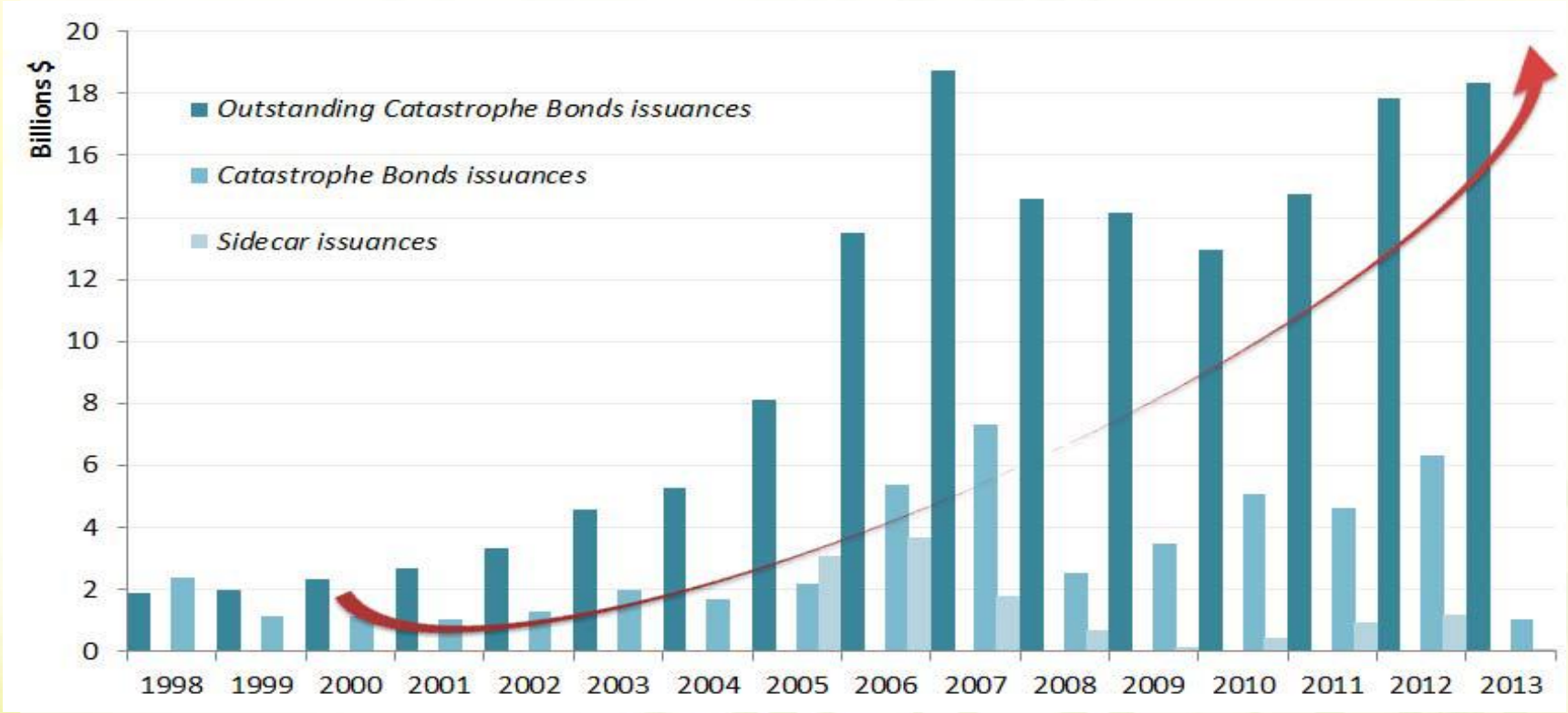
- A sidecar is a special purpose reinsurance vehicle (SPRV) usually formed by a reinsurer to provide additional capacity for specific perils within a defined geographical scope
- The sponsor (buyer) acts as manager for the sidecar in return for management/performance fees
- Capacity is provided by investors in the sidecar, generally from the capital markets
- SPRVs have a limited life of around 24 months but can be renewed



- ✓ Primary motivation to set up a sidecar is to increase market share in target markets without the sponsor having to increase its own balance sheet
- ✓ Opportunistic sidecars typically attract private equity and hedge fund investors, whilst strategic sidecars attract more longer-term capital in the form of ILS fund managers

Evolution of the side cars in the capital markets

- Sidecar evolution is more cyclical/opportunistic than catastrophe bonds (post KRW and Tohoku)

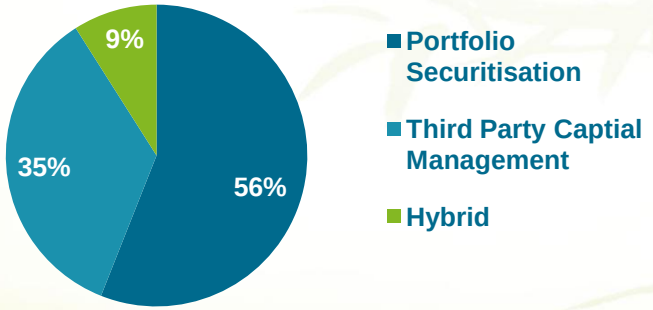


Sidecar evolution 1999 to 2013

- Sixty-six sidecars have been launched since 1999, majority of them targeting cat-exposed portfolios, while some targeting specialized classes such as marine, energy and aviation
- They do not write longer tail risk such as casualty or life
- Capacity of 'live' sidecars totals around $2½B, **not large enough to singularly alter the reinsurance pricing landscape**

Company	Vehicles Launched	First Launch	Latest Launch
Renaissance Re	10	1999	2013
Validus / Flagstone Re	6	2006	2013
Alterra / Harbor Point	5	2006	2013
Hannover Re	4	2005	2009
Hiscox	4	2006	2009
XL Capital	4	2005	2008
Ark Underwriting	3	2007	2009
MAP	3	2007	2009
Lancashire	3	2006	2012
White Mountains Re	3	2001	2006
Catlin	3	2012	2012
Swiss Re	2	2007	2008
Brit Insurance	2	2006	2007
ACE	2	2006	2007
Montpelier Re	2	2005	2005
Amlin	1	2009	2009
Bridge Re	1	2007	2007
Partner / Paris Re	1	2006	2006
ICAT	1	2006	2006
Lexington Insurance Co	1	2006	2006
Tower Group	1	2006	2006
Arch Re	1	2005	2005
Montpelier	1	2012	2012
Argo	1	2013	2013
Everest Re	1	2013	2013

Form of Sidecar (1)



1) Portfolio securitization : *Quota-Share arrangement of the reinsurer's portfolio for a given line of business and/or region/peril, with significant retention taken by the sponsor takes significant retention*
2) *Third Party Capital management: Purpose-built vehicle with collateralized capacity. Sponsor provides underwriting expertise and franchise value.*
3) Hybrid: mix of two above

Sidecars: investor appeal?

❑ Advantages

- Immediate access to “payback” pricing
- Avoids cost/complications of creating start-up infrastructure
- Exploit experienced management/underwriting team and franchise
- Clean exit (in theory)

❑ Disadvantages

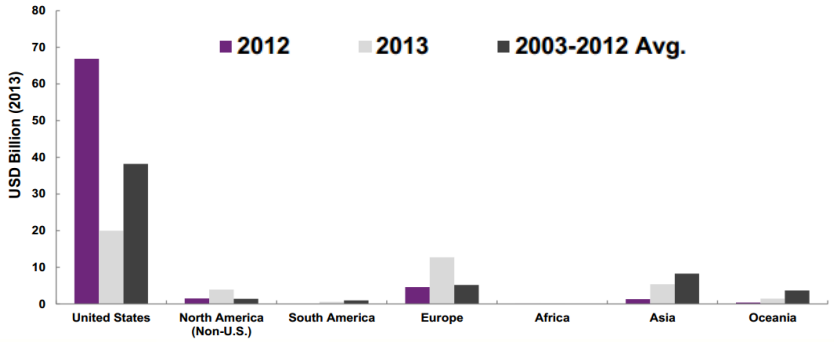
- Giving pen to third-party management (with costs attached)
- Possibility of adverse selection/moral hazzard
- Exit route could be complicated by losses
- Inherent volatility (sufficiently capitalised?)
- No multiple gain from possible IPO (model of Class of 1993/2001 and probably 2005 start-ups)

Alternative Sources of Capital

Emerging Asia Insured Cat losses still remaining low

So far, most insured cat losses coming from developed markets

Insured Cat losses & Annual Averages by Region [1]



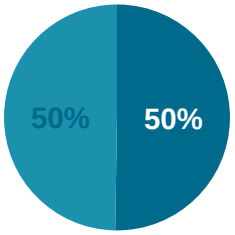
Cat bond capacity correlated to Insured Cat losses. US, EU and JP contribute most insured Cat Loss in latest 10 years:

- ✓ Developed economy
- ✓ Higher insurance penetration
- ✓ Advanced financial market

Emerging Asia is however heavily exposed to Nat Cat risks.

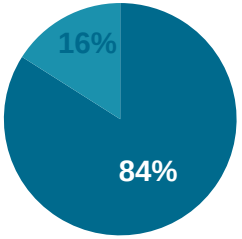
Insurance penetration in emerging markets is still low

World output, 2012[2]



Advanced economies

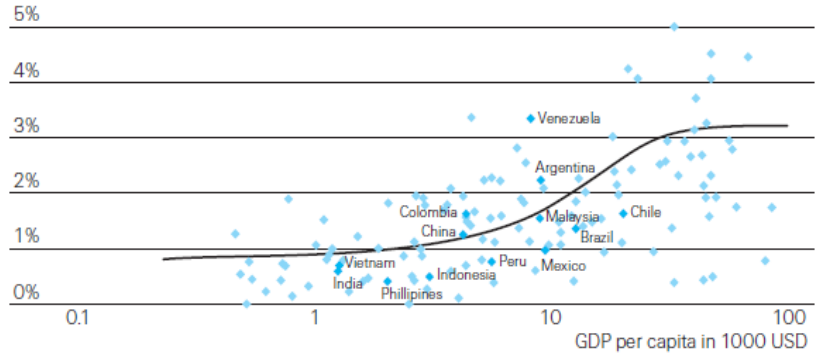
2012 World insurance premiums[3]



Emerging and developing economies

The elasticity of insurance growth is significantly above 1 in emerging markets

Insurance penetration (premiums as of % of GDP)[4]



1) *Aon Benfield Analytics*
2) *IMF world economic outlook April 2013*
3) *Sigma report, May 2011*
4) *Sigma from 5/2012 – Insuring ever-evolving commercial risk (note: Estimates for direct non-life premiums written in 2010 (excluding Artemis and Swiss Re capital Markets*

Japan is the largest market for Catastrophe Bond in Asia Pacific

List of Catastrophe Bond covering JP perils since 2005 (1)

Issuance Year	Security Name	Sponsor	Size (USD M)	Regional Peril	Spread	Expected Loss	Trigger
2006	Fhu-jin Ltd	Tokio Marine & Fire	200	JP Typhoon	5.20%	???	parametric
2007	Midori Ltd	East Japan Railway Co	260	JP Earthquake	4.00%	???	parametric
2008	Muteki Ltd	Zenkyoren	300	JP Earthquake	4.40%	0.80%	parametric
2011	Kizuna Re Ltd	Tokio Marine	160	JP Typhoon	5.50%	???	indemnity
2012	Kibou Ltd Series 2012	Zenkyoren	300	JP Earthquake	5.10%	0.80%	parametric
2012	Akibare II Ltd Series 2012	Mitsui Sumitomo	130	JP Typhoon	3.75%	1.10%	modelled loss
2013	Nakama Re Ltd	Zenkyoren	300	JP Earthquake	2.75%	0.90%	indemnity
2014	Kizuna Re II Ltd 2014 - 1A	Tokio Marine	200	JP Earthquake	2.25%	0.21%	indemnity
2014	Kizuna Re II Ltd 2014 - 1B	Tokio Marine	45	JP Earthquake	2.50%	0.57%	indemnity
2014	Nakama Re Ltd 2014 1 - 1	Zenkyoren	150	JP Earthquake	2.25%	0.75%	indemnity
2014	Nakama Re Ltd 2014 1 - 2	Zenkyoren	150	JP Earthquake	2.50%	0.75%	indemnity
2014	Aozora Re Ltd	Sompo Japan Nipponkoa	100	JP Typhoon	2.00%	0.52%	indemnity

1) *Artemis and Swiss Re capital Markets*

Challenges in developing Cat Bonds for Asia

- **Poor Cat model quality & exposure data** (**ex. Japan**) make it often difficult to reliably estimate burn statistics (probability of attachment, exhaustion and expected loss) required for credibility / investor buy-in

- **Cat Bond trigger types likely to be limited** – even given current sponsor leverage with investors
  - ✓ Indemnity triggers only for developed Asian markets – Taiwan, Korea, Japan – but even then investors **do not like open-ended tie-up of capital in the event of a loss**
  - ✓ Industry loss index – cannot use as no **reputable independent industry organization (equivalent to PCS or PERILS) in any Asian territory**
  - ✓ This leaves only **Pure Parametric, Parametric Index** or **Modelled Loss** triggers
  - ✓ These are not heavily in sponsors' interest due to basis risk – although this could be offset using a **transformer to provide basis risk cover**

- **Lack of Cat XL reinstatements**
  - ✓ Asian reinsureds are accustomed to being able to access Cat XL reinstatements – not available in Cat Bonds – **unless a transformer is involved**

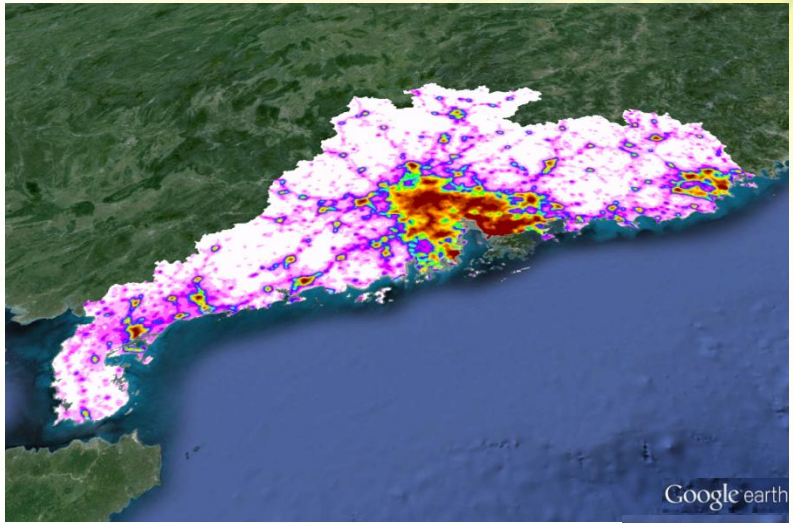
Future diversifying coverages anticipated on the market

- **New Cat coverages for Japan**
  - After USD 500-600 mil market insured winter storm loss in early 2014
  - **A wider set of perils may include: winter storm / TY flooding / non-TY flooding**
  - All likely to have parametric triggers
  - Contingent on adequate CAT modelling for these perils becoming available
  - May be issued by major Japanese insurers and/ or their reinsurers
  - Need to eliminate possibility of prediction of 1st season payout by sponsor – since Cat models not yet able to reflect meteorological activity forecasts

- **Gap-financing Capacity for Rapidly developing Asian Insurance Peak Zones (ex. Japan)**
  - Traditional RI capacity has expanded by 28% since 2007 – question is whether in future this pace will be rapid enough to keep pace with rapidly developing peak zones of China (and India)
  - Capacity shortfalls may result – could be filled with alternative risk transfer solutions, including Cat Bonds
  - Likely to be sponsored by Transformers rather than directly by cedants themselves
  - Obvious initial peak zones in China potentially include
    - Beijing-Hebei-Tianjin
    - Shanghai + defined adjacent areas of Zhejiang/ Jiangsu
    - Pearl River delta (Guangdong)
    - **These 3 areas currently generate ~60% of China's GDP**

Example:
Pearl river delta (Guangdong, China)

- **4th largest economy in Asia**, after Japan, Korea and India, ahead of Taiwan
- **World's most densely populated delta**, >7,500 people/km^2 (Syvitski & Saito, 2007)
- Covers <1% of China's land area but **contributes up to 20% of its GDP** (up from 9% in 2000)
- Called the "world's factory" by some economic commentators (Yeung, 2010)
- (Ex-SAR) Population **48 MN** in 2009, projected to reach **65 MN** by 2020
  - Compare with
    - Taiwan **23 MN** (2012)
    - South Korea **50 MN** (2012)
- Total population (including 2 SARs) may reach **120 MN** by 2050 (UN-HABITAT, 2008) – although some are sceptical of this projection
- **Will there always be sufficient capacity in the traditional global reinsurance market for all of China's three main economic peak zones as they develop towards 2050?***



Economic concentration in the Pearl River delta – based on night-time luminosity. Source: http://ngdc.noaa.gov/eog/

- Historic record from AD 700-1883 shows 161 typhoons with damage – 4 were the most disastrous (Huang & Yim, 2007)
  - **AD 957** - 5 counties flooded
  - **AD 1245** – 9 counties flooded, >17000 km^2 inundated by seawater with death toll c. 10,000
  - **AD 1862** – 11 counties flooded, 25000 km^2 area, 80000 dead.
  - **AD 1874** – 10 counties flooded, 20000 km^2, 10000 dead, **sea-level rise of 5m**

* The traditional reinsurance market will grow to accommodate increased insured risk – question is whether this growth will match that allocated to new global peak zones? (incl. China and India).

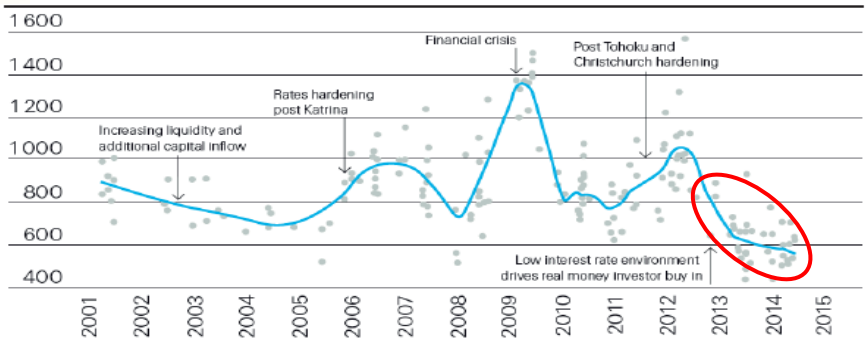
Alternative Sources of Capital

1	Introduction
2	The reinsurance universe and the influx of alternative capital
3	Catastrophe bonds
4	Sidecars
5	Development in Asia Pacific
6	Impact on the reinsurance market
7	Conclusions

Alternative capital puts pressure on reinsurance pricing

With the increasing search for yield, the inflows into ILS have been accepting lower yields

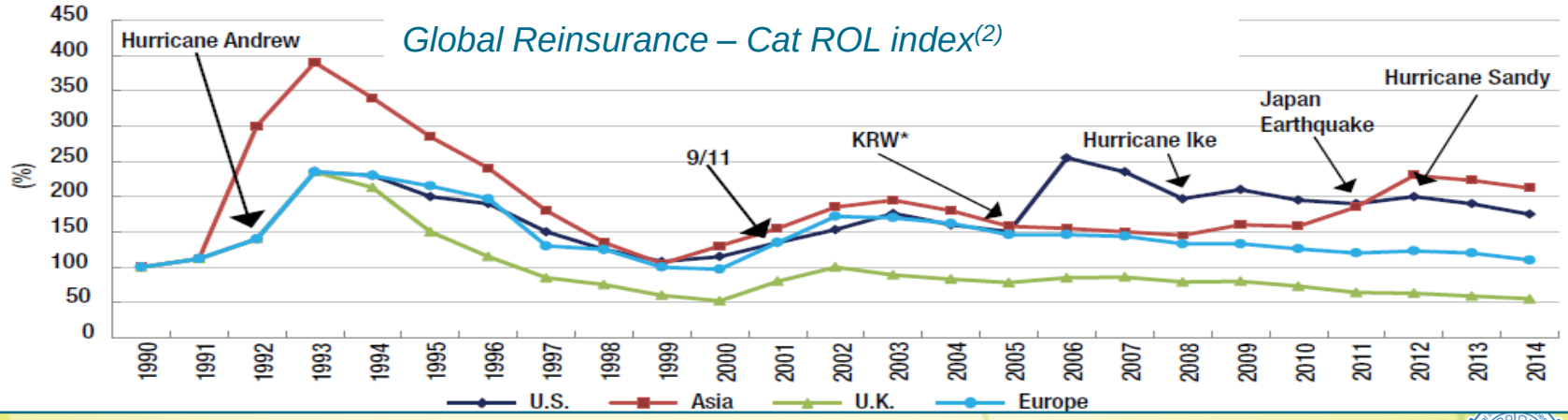
Cat Bond Pricing since 2001(1)



Normalized spreads for each bond issued. It is clear the spread for business written in 2013 is lower than previous years: falling from c700-1350bp to level below 600bp as at June 2014.

CAT bonds are competing directly with traditional reinsurance, on product and now *on price*

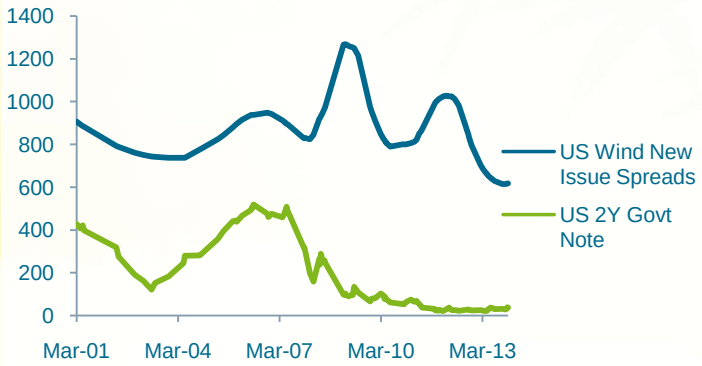
Global Reinsurance – Cat ROL index(2)



Will falling pricing continue for ever?

Growth has been fuelled by low interest rate environment

Cat bond spreads vs. risk-free rates[3)]



- ✓ Tightening ILS spreads may put pressure on future returns
- ✓ Tapering in the US and higher interest rates should reduce ILS attractiveness
- ✓ Cat model risk is greatest threat to long-term success of alternative capital (ex. Thai Flood, 9/11 attack etc)

Alternative capital is complementary to the offer from well-prepared Reinsurers

Alternative Capital

- ✓ Low Cost Model
- ✓ Collateralized Capital

Well-prepared reinsurers

- ✓ Competitive pricing AND value added services for cedants (knowledge sharing, etc.)
- ✓ Efficient use of capital (diversification) whilst low counterparty risk
- ✓ Indemnity covers are the rule, not the exception: no basis risk
- ✓ Reinstatements / Long-term partnerships

SCOR Perspective: Properly viewed, "alternative capital" is an opportunity

SCOR minimizes the cost of its capital shield thanks to alternative solutions

- **Atlas** series of ILS protecting the Group against natural catastrophes
- Recent issuance of **extreme mortality risk transfer** contract
- **Contingent capital**

SCOR increases its client offering

- Over the Optimal Dynamics plan, SGPC intends to help **clients** to **access capital market capacity** through ILS
- This will provide **fee income**, and allow SGPC to better leverage **existing relationship**

SCOR benefits from its expertise to open ILS funds to 3rd parties

- SCOR's ILS team manages 4 funds
- Each fund targets a specific **risk/return profile**

	Atropos	Atropos Catbond	Atropos Catbond SELECT	GFS Map Trust SCOR ILS
launch	31-Aug-11	19-Jul-13	12-Jul-13	01-Jan-14
AuM[1)]	187	24	41.5	40
target return	6-8%	4-5%	4-5%	10-12%
2013 perf	8.75%	2.84%*	3.48%*	n/a

** fund open for 45% of 2013*

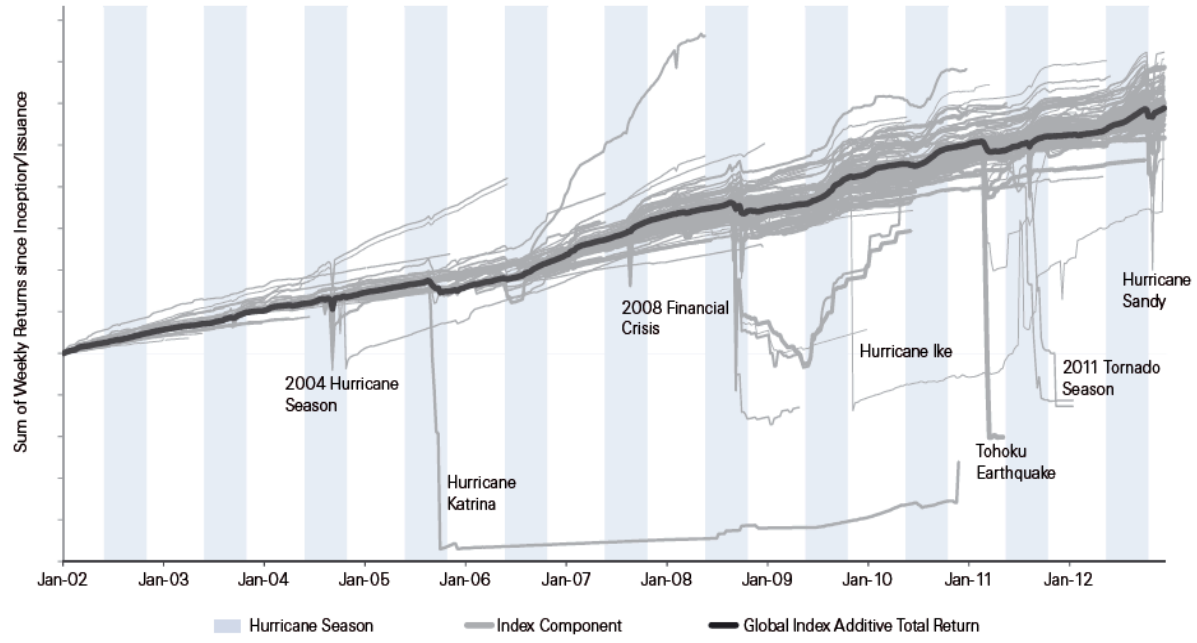
1) *As of 31 December 2013, in USD*

Potential future Cat Bond volatility

- **CAT Bond market as a whole is yet to be tested by "the big one"**
  - AIR Worldwide* recently estimated that at the ~50 year return period, about **20% of outstanding CAT Bond market principal would be lost from US hurricane** landfalls in Florida or North Carolina *
  - This figure rises to **38% of outstanding Cat Bond market principal** at the 250 year return period, this time triggered by a New York landfall

Figure 2:
Global Index and Constituents[2]

Historical Cat Bond secondary market volatility



Source: Swiss Re Capital Markets

10 years from Jan 2002 to Jan 2012, as measured by the Swiss Re Cat Bond Global Index. Source: Swiss Re Cat Bond Indices, Year in Review 2012.

- **Nat Cat events produced greater volatility than the 2008 Global Financial Crisis**
- **Low correlation with major episodes of conventional financial market trauma**

*** Source:**
http://www.air-worldwide.com/Publications/AIR-Currents/2013/Uncovering-Florida-Hurricane-Risk-with-the-Catastrophe-Bond-Database/

Perspectives and incentives: sponsor versus investors

	Advantages	Disadvantages
Sponsor	**(Currently low) pricing** - capital influx and low conventional investment returns have driven the price of both CAT Bonds and traditional reinsurance to historic lows	**No reinstatements** (unless transformer is involved)
	Can fit comfortably within an existing CAT XL reinsurance program	**Basis risk** exists for all triggers (unless a transformer is involved) – although significantly less for Indemnity triggers
	More efficient access to capital than untimely liquidation and repatriation of overseas investments at a time of need – e.g. after 2011 Tohoku EQ and tsunami in Japan	**Long term corporate relationship with investors not very important (although important with transformer)**
	Reduced capital charges in internal Capital Model reflecting both immediate capital access via collateralization ("cash in bank" versus a promise of indemnification)	
	Greater bargaining power arising from i**nvestor oversubscription** -> now easier to sponsor indemnity CAT bonds	
Investors	**Diversifying asset class** compared with conventional investment types (equities, fixed income) (and hence markets are less susceptible to systemic failure)	Oversubscription **reduces spread** over benchmark, **EL multiple** and **bargaining power** on types of trigger
	Relatively high yields (historic) compared with current conventional risk-free fixed income universe	**Potentially delayed return of capital**; **litigation** may result whenever a partial or total loss to a CAT bond
	Low volatility (historic)	**Market has yet to be tested by "the big one"**

Perspectives and incentives: traditional reinsurance versus securitisations

	Advantages	Disadvantages
Traditional Reinsurance	**Very responsive** – deals can be agreed swiftly with a longer term client retention drive (relationship emphasis)	**Credit risk of reinsurance failure**
	Indemnity based – avoids basis risk and has a proven track record in indemnity-based covers	**High frictional costs** – brokerage etc
	Broad range of coverage available – a diversified book, covering all lines of business, regions & perils and an ability to cover long-tail business and natural events with long development pattern	**Volatility in pricing and capacity**
	Dependent on cycle but pricing can be more competitive than capital markets – open to multi-year covers and reinstatements, flexibility with terms and conditions (inc cyber/terror covers in nat cat treaties)	**Disputes** – emergence of "can pay, won't pay" culture?
Securitisations	**No credit risk** – fully collateralised security	**Slow development time** – bespoke transactions typically take months to construct
	Greater stability in pricing – lower, more stable prices	**Basis risk** from parametric and index triggers
	Avoids reinsurance disputes	**Capacity still restricted for cat risk (US Property Cat) & retrocession**
	Potential for far greater capacity	**Secondary market needed to increase liquidity/reduce costs etc**
		High frictional costs – advisory fees etc

Alternative Sources of Capital

Conclusions

- It is expected that a flurry of new companies or funds will enter the ILS market in the next six months, further intensifying the competitive pressures that have led to a series of warnings from rating agencies and analysts about the near-term prospects of the reinsurance sector as a whole.
- The full potential of ILS has not yet been tapped, with alternative capacity now set to move into wider geographic zones and extend its reach into a broader set of exposures such as flood, terrorism or pandemic risk.
- One of the challenges for traditional reinsurers is high distribution costs, which is not sustainable in the long term. Just as a lot of corporations will decide it is cheaper to miss out brokers and insurers by transferring risk directly into the capital markets, many cedants will opt to bypass reinsurers or brokers in the same way.
- The relevance of the reinsurance sector is increasingly under threat and is in need to adapt business models to defend their competitive positions in the market and generate earnings that can meet cost of capital without taking excessive risk.
- S&P has recently outlined the six dominant reinsurance business models of the future: Superior Scale; Nimble Innovators; Lloyd's; Float Accumulators; Risk Transformers; & Go Direct.
- It is expected that more medium-sized reinsurers (40% of the market) especially those regionally operated (such as some in APAC) are at risk of cost cutting and consolidation amid the challenges posed by the influx of ILS capital, low investment returns and soft market conditions.

Thank you for your attention!