



**Session 4:
Risk Management
Solutions with Special
Reference to India**

Mumbai, March 20th, 2012

Capital Market Solutions for Indian Disaster Management

Overview

- Introduction
- Insurance Linked Investments – A Unique Asset Class
- Disaster Management Framework in India
- Potential Solutions for India
 - ✓ Examples of Disaster Management Frameworks in other Countries
 - ✓ Capital Market Solutions for Indian Disaster Management
- Conclusion

ILS Advisers – A Business Unit of HSZ Group

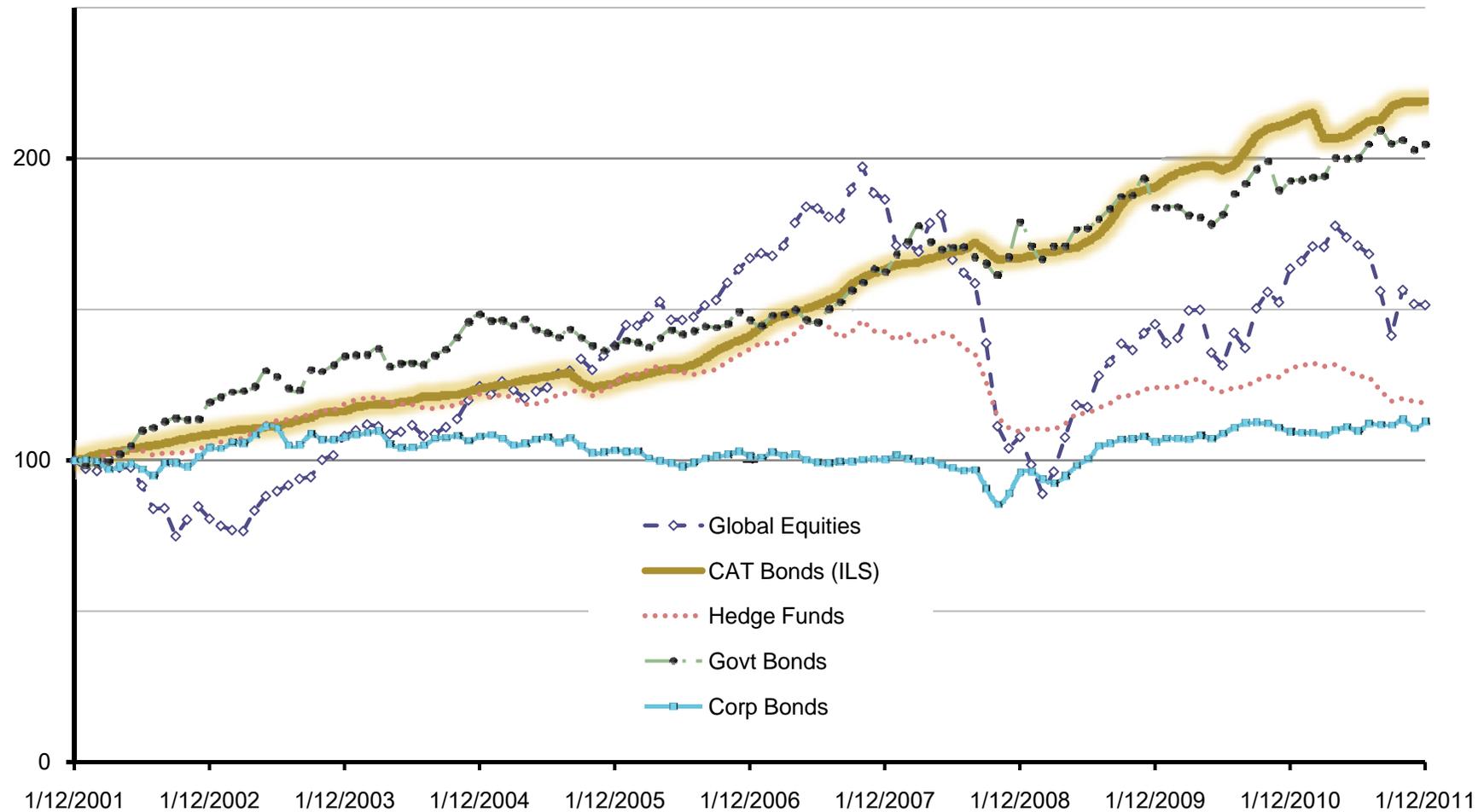
ILS Advisers was founded in Hong Kong by Stefan K. Kräuchi and Dr. Hansrudolf Schmid in 2011 as part of HSZ (Hong Kong) Ltd. an independent asset manager regulated by the SFC. The two founders combine over 40 years of industry and management experience on top level of major financial institutions.

Insurance Linked Investments – A Unique Asset Class

- ILS Advisers believe in Insurance Linked Investments as a unique asset class due to its
 - ✓ attractive performance,
 - ✓ stable returns,
 - ✓ low correlation to other asset classes and
 - ✓ built-in inflation protection.
- Even though the first catastrophe bond was already issued in 1994, Insurance Linked Investments are still a niche in Europe, to a lesser extent in the US and barely known in Asia.
- Recent market developments have reiterated the need of stable investment returns uncorrelated to traditional asset classes also in Asia. ILS Advisers respond to these needs with their ILS know-how and long term experience in the industry.

ILS Advisers is the first Asia based investment consultant focusing on Insurance Linked Investments.

Cat Bonds ILS – Stable and Attractive Returns

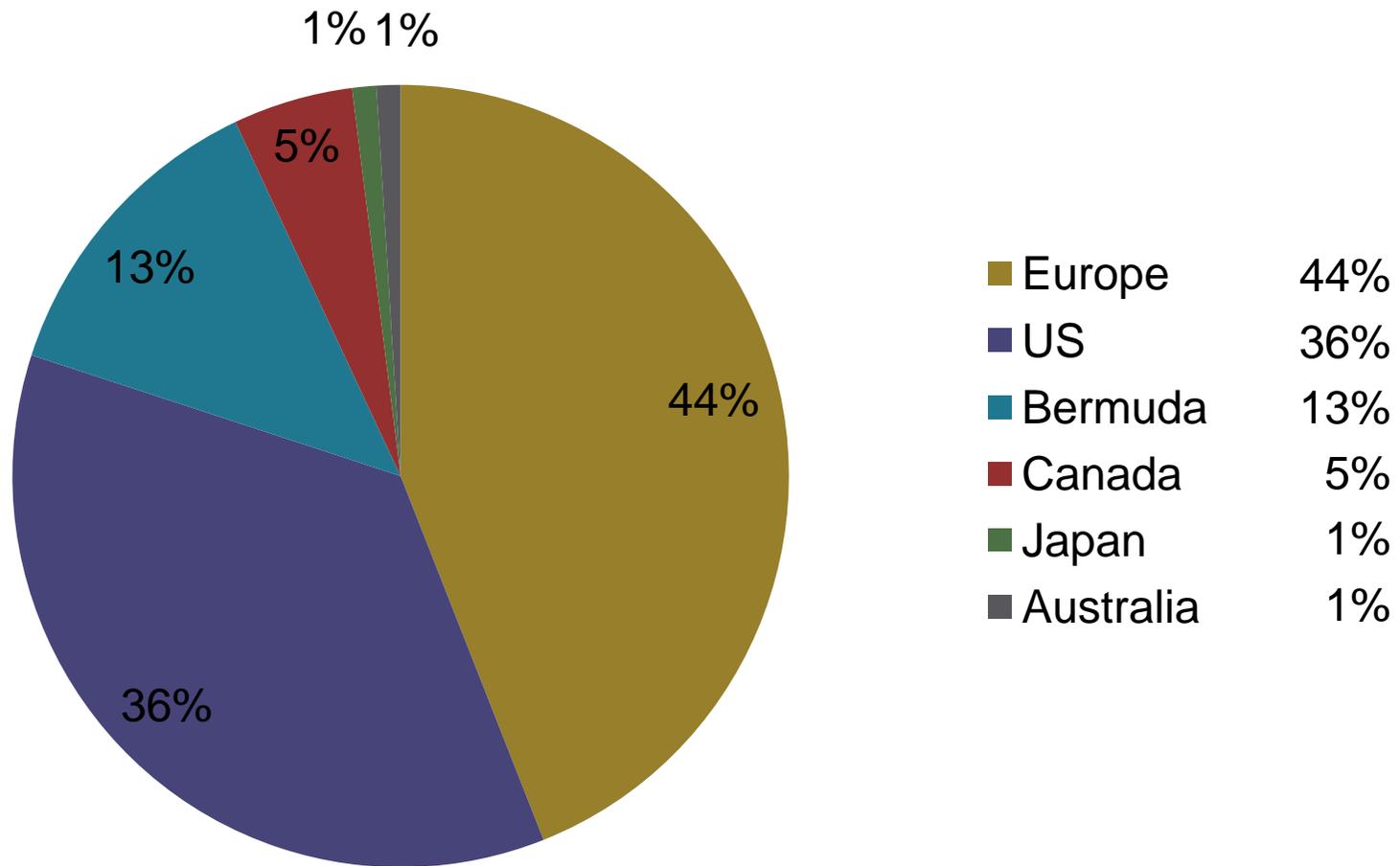


Cat Bonds (ILS) an Excellent Source of Diversification

	Cat Bonds	Global Govt Bonds	Global Corp Bonds	Global Equities	Asian Ex-Japan Equities	Global Hedge Funds
Cat Bonds	1.000				High Correlation	
Global Govt Bond	0.127	1.000			Moderate Correlation	
Global Corp Bond	0.270	0.549	1.000		Low Correlation	
Global Equities	0.226	0.192	0.328	1.000		
Asia Ex-Japan Eq	0.227	0.220	0.348	0.917	1.000	
Global HF	0.369	0.130	0.328	0.768	0.786	1.000

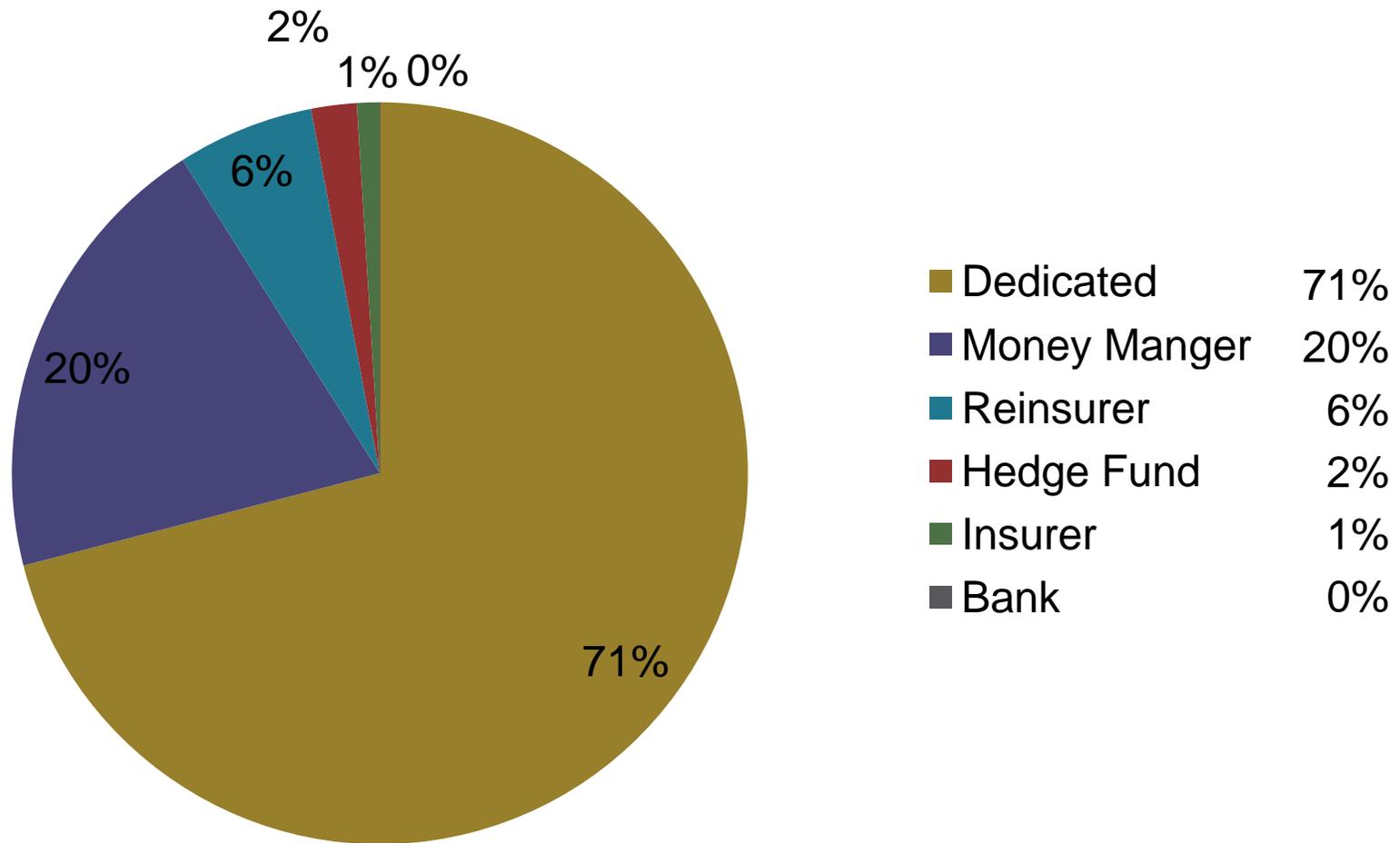


2010-2011 Investor Base by Location



Source: Swiss Re Capital Markets (as of 31 Dec 2011)

2010-2011 Investor Base by Type



Source: Swiss Re Capital Markets (as of 31 Dec 2011)

What are Insurance Linked Investments?

- › Transfer of insurance risks to the capital markets
- › Performance depends on the occurrence/non-occurrence of an insured event
- › Show low correlation with traditional asset classes and other alternative investments
- › Provide consistent returns in well-diversified portfolios
- › Typically not exposed to duration or interest rate risk
- › Liquidity provided by the secondary market for catastrophe bonds (ILS) and by staggering of different financial insurance contracts (FIC) in a portfolio

Access to Insurance Linked Investments

Investments in Insurance Linked Investments are offered as Mutual funds, Investment Companies, Certificates or Managed Accounts.

The investor buys units of a diversified portfolio of single insurance linked investment positions.

These positions are diversified across different insurance risks (natural catastrophes, man made risks) and geographies (e.g. Asia, Europe, Japan, US). Available products in the market offer exposure to non-life as well a life insurance linked investments.

ILS Advisers supports institutional clients in finding the most suitable ILS investment with their know how and long term experience in the industry.

An alternative is to invest in the Insurance Linked Investments market directly. However only feasible for a few very large investors and even those still need to engage external investment specialists.

Access to Insurance Linked Investments: Eurekahedge ILS Advisers Index

Eurekahedge ILS Advisers Index



The Eurekahedge ILS Advisers Index is an equally weighted index of 1 constituent funds¹. The index is designed to provide a broad measure of the performance of underlying hedge fund managers who exclusively allocate to insurance linked investments. The index was base weighted at 100 in December 2005, does not contain duplicate funds and is denominated in local currencies.

¹ As at 12 March 2012

Statistics (as at Feb 2012)

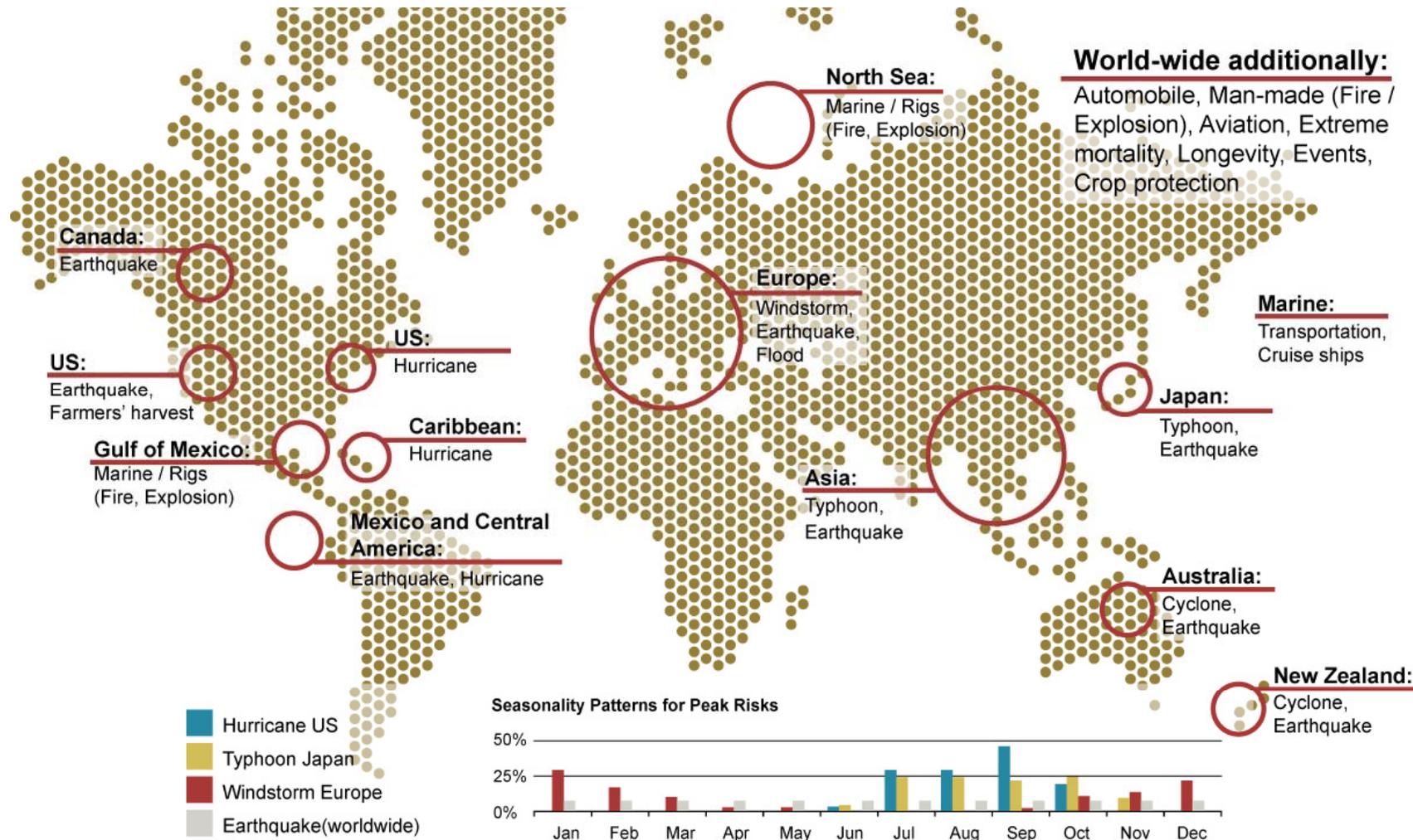
Summary Data

Annualised Return (%)	6.98
Best Monthly Return (%)	1.58
Worst Monthly Return (%)	-3.97
2011 Return (%)	-0.16
2012 Return (%)	0.38
Return since Inception(%)	51.62
Last 3 Months (%)	0.32
Last 12 Months (%)	-0.44

Risk/Return

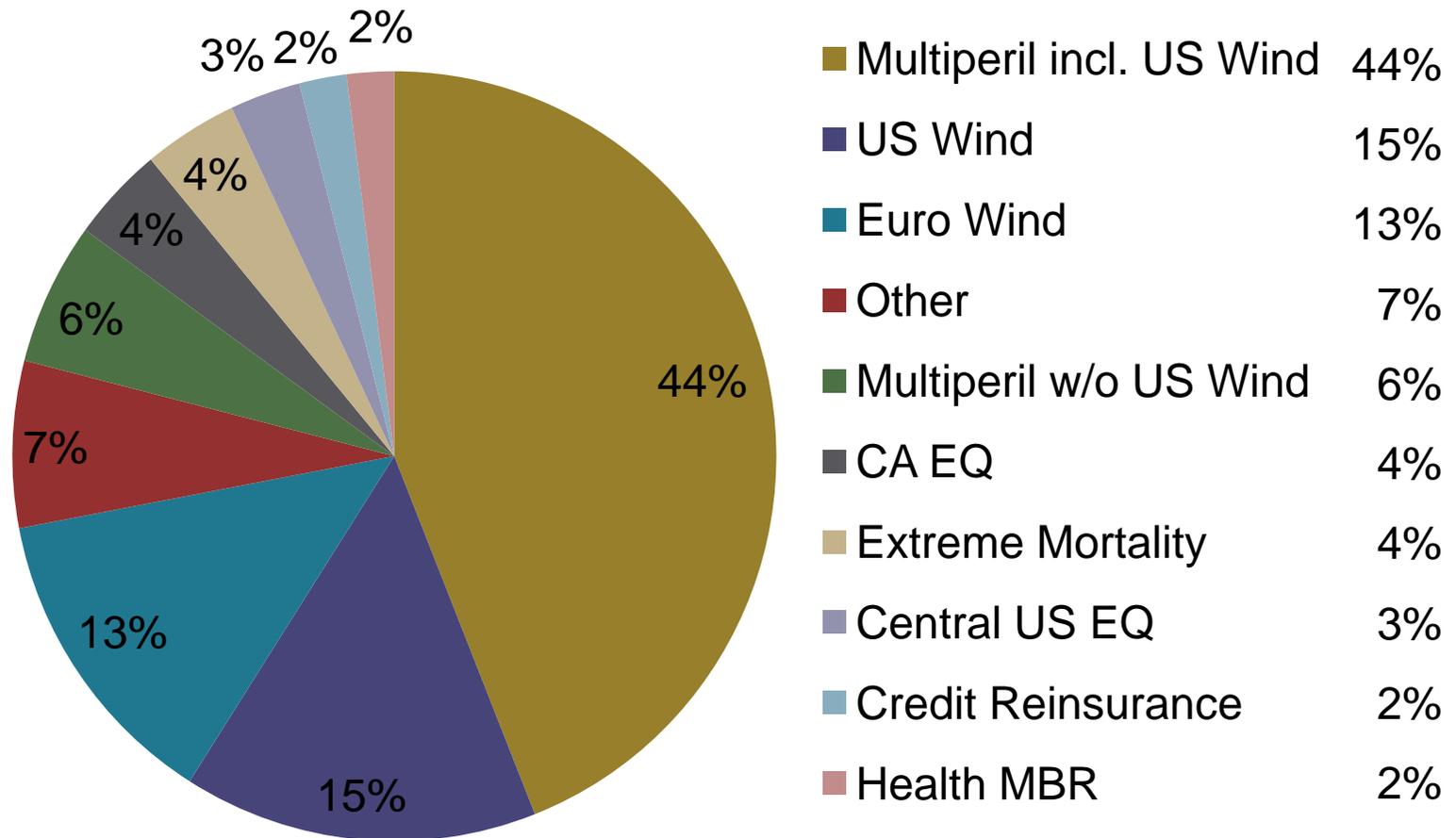
Sharpe Ratio (x)	2.00
Annualised Std Deviation (%)	2.49
Downside Deviation (%)	1.79
Sortino Ratio (x)	2.79
Maximum Drawdown (%)	-4.01
Percentage of Positive Mths (%)	90.54

Regions and Perils: Global Diversification



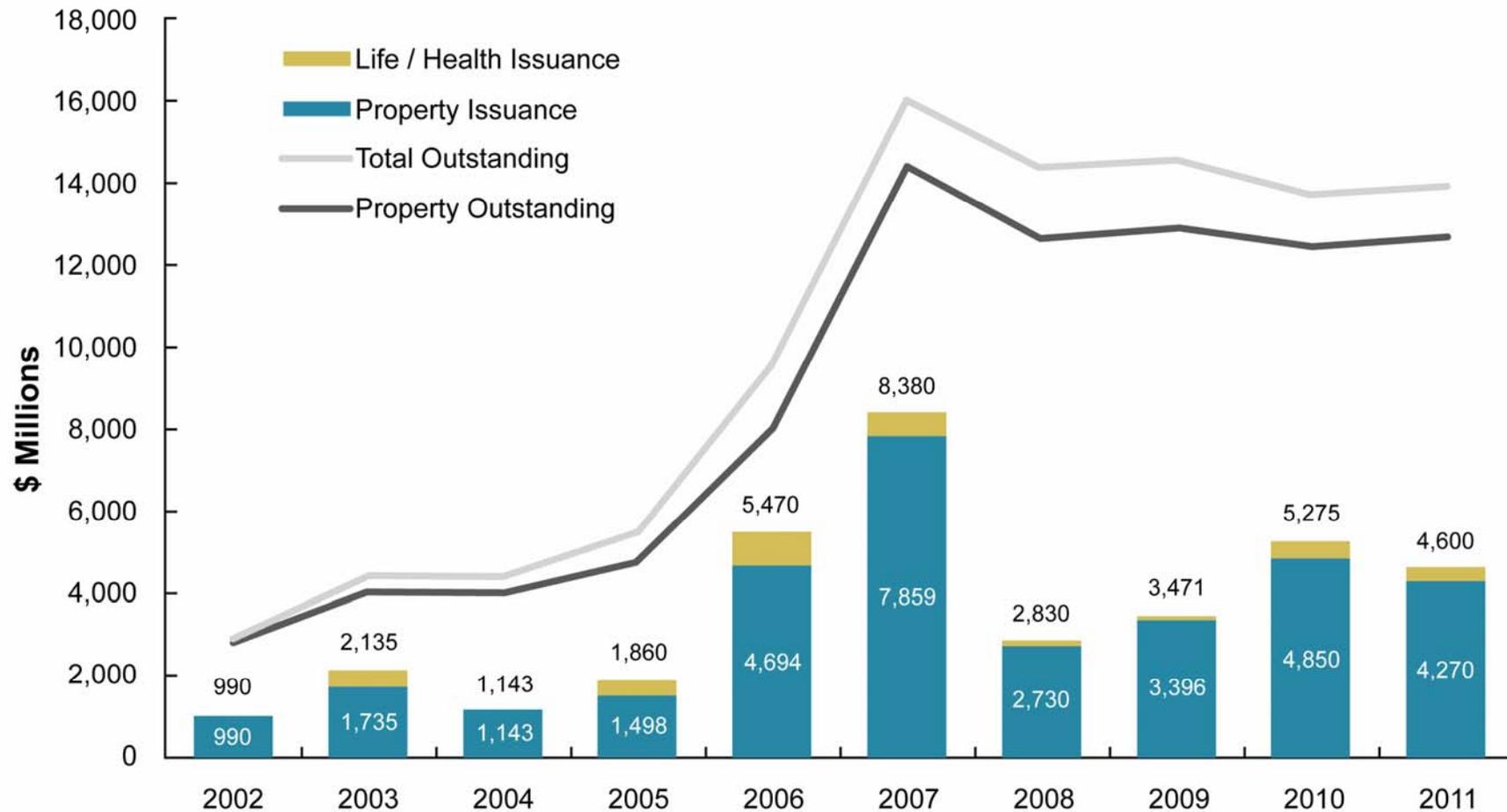
Source: Clariden Leu

Current Securitized Perils – Outstanding Cat Bonds



Source: Swiss Re Capital Markets (as of 31 Dec 2011)

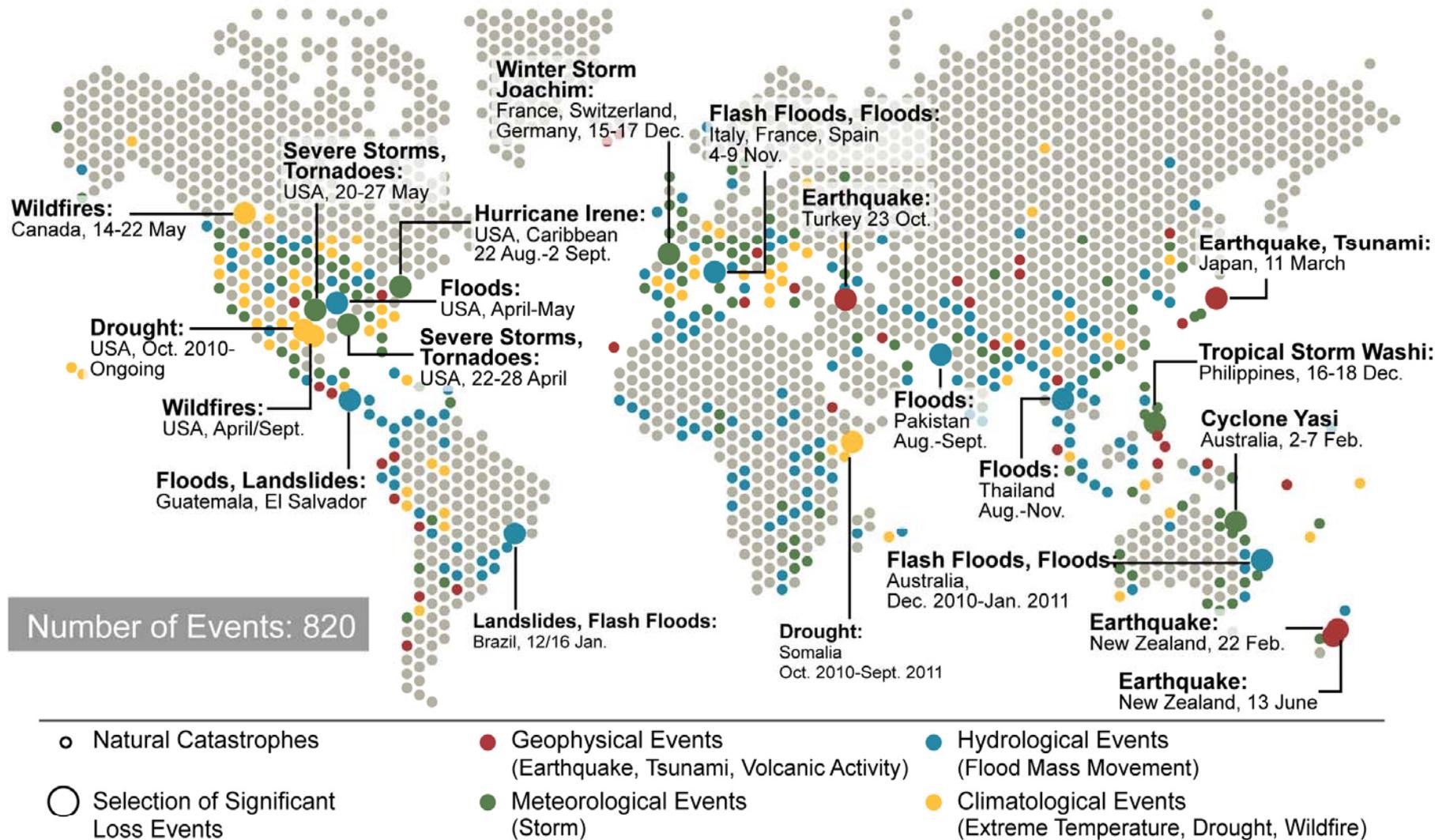
Outstanding Cat Bonds and New Cat Bond Issuance



Source: Aon Benfield Securities, Inc.



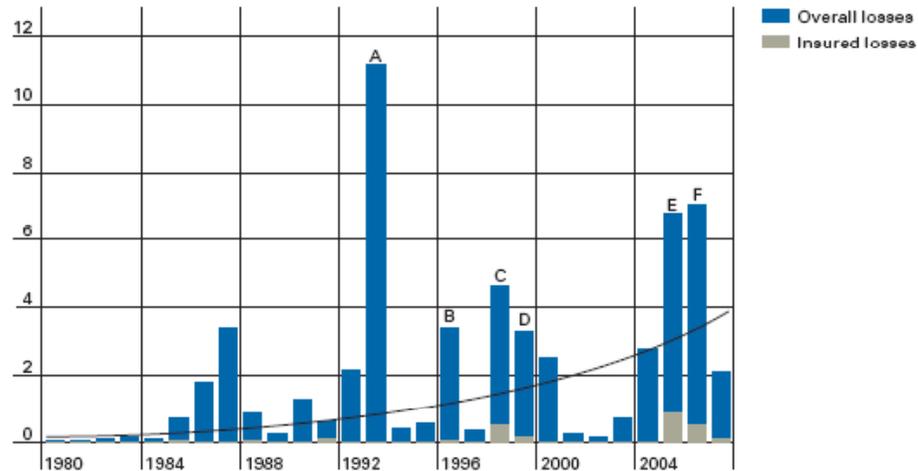
Natural Catastrophes 2011



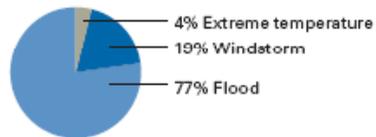
© 2012Münchener Rückversicherungs-Gesellschaft, Geo Risks Research, NatCatSERVICE

Weather-related natural catastrophes in India from 1980 to 2007

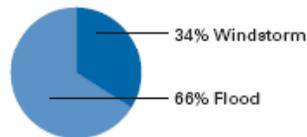
Overall losses and insured losses
(US\$ bn, 2007 values)



Overall losses US\$ 53bn



Insured losses US\$ 2bn



Losses from weather-related catastrophes have risen strikingly since the early 1990s. The largest insured loss was generated by the Mumbai Floods in 2005 (US\$ 770m). The highest overall losses were caused by the floods in Gujarat and Punjab in northern India in 1993.

Largest events

- A: 1993: Flood, Gujarat, Punjab
- B: 1996: Cyclone, Andra Pradesh
- C: 1998: Cyclone, Gujarat, Kandia
- D: 1999: Cyclone, Orissa
- E: 2005: Flood, Mumbai
- F: 2006: Flood, Surat

Source: NatCatSERVICE, Geo Risks Research, Munich Re Quoted in Munich Re, Research Monsoon, June 2008

Disaster Management Framework in India

Current Disaster Management Framework in India needs adjustments due to:

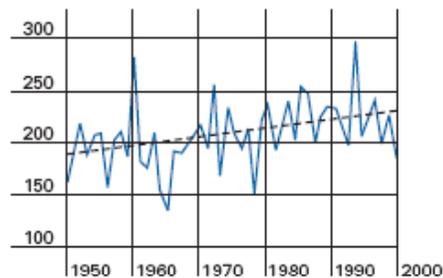
- Climate Change leads to increase in losses due to weather related catastrophes
- Rise in Urbanization
- Increasing Re-/Construction Costs and Property Values

Climate change and summer monsoons in India

Summer monsoon activity (June–September) in central India has changed significantly in the past 50 years. The extremes have increased.

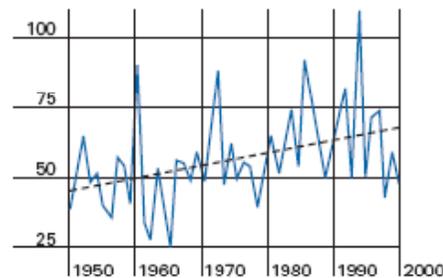
1. Variability is rising

Variance (mm/day)²



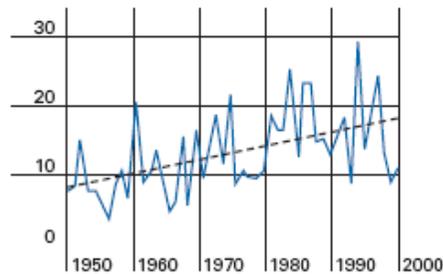
2. Heavy rainfall events are increasing

N (R ≥ 100 mm/day)



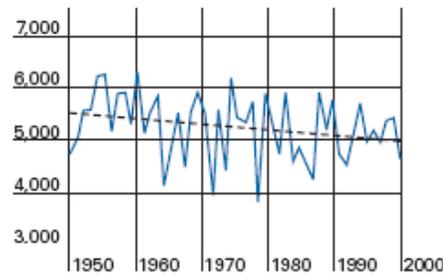
3. Extreme rainfall events are increasing

N (R ≥ 150 mm/day)



4. Moderate rainfall events are decreasing

N (5 ≤ R < 100 mm/day)



Central India (74.5°E–86.5°E; 16.5°N–26.5°N)

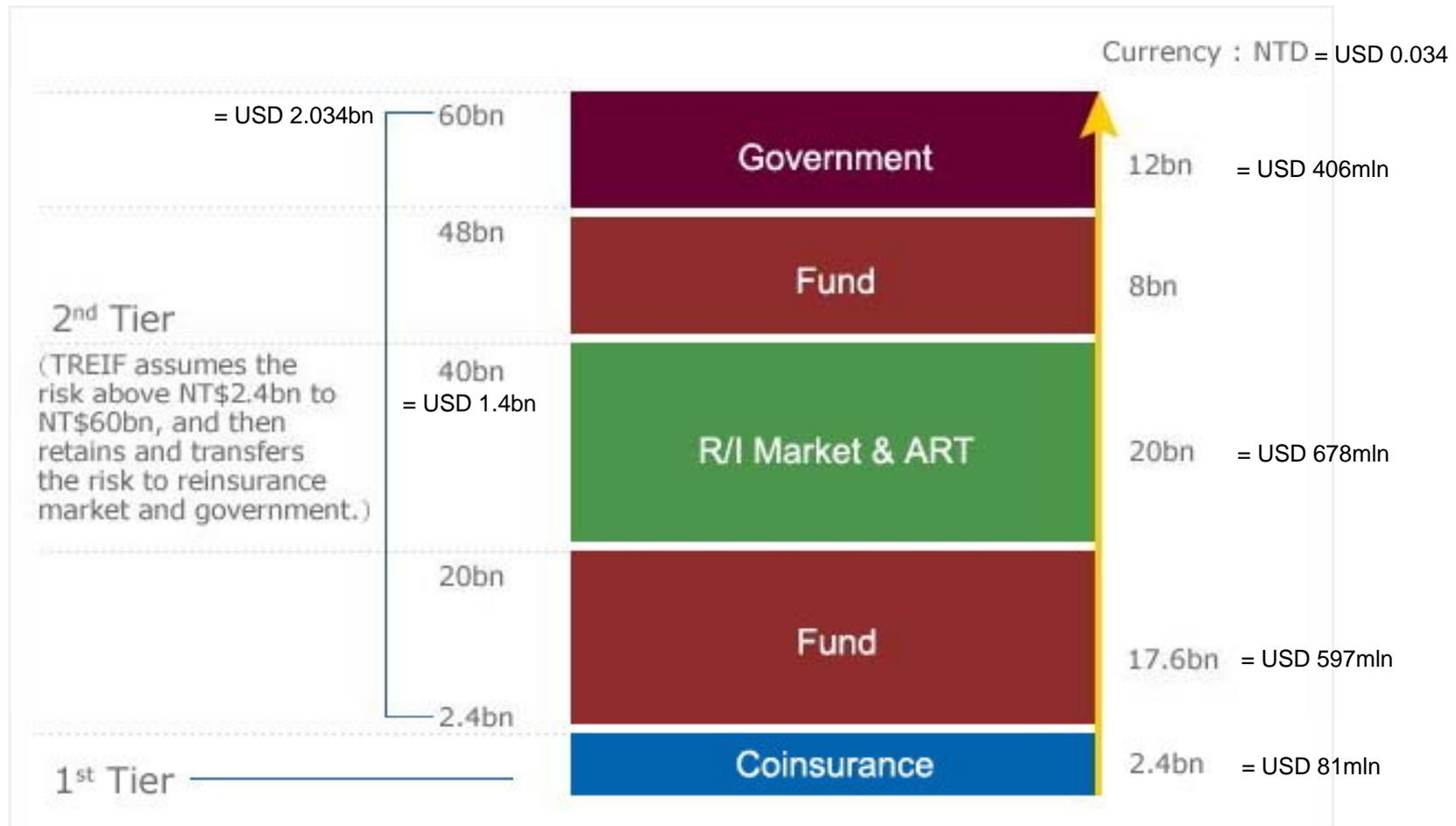
1. Variability of daily rainfall anomalies in the summer monsoon Broken line: Linear trend.
2. Number of heavy rainfall events per day (at least 100 mm/day) Broken line: Linear trend.
3. Number of extreme rainfall events per day (at least 150 mm/day) Broken line: Linear trend.
4. Number of moderate rainfall events per day (between 5 and 100 mm/day) Broken line: Linear trend.

Source: Goswami, B. N. et al. (2006), Science 314 Quoted in Munich Re, Research Monsoon, June 2008

Potential Solutions

- Disaster Management Frameworks in other Countries
- Capital Market Solutions
- Other Solutions

Disaster Management Frameworks in Other Countries: Taiwan Residential Earthquake Insurance Program



Source: Taiwan Residential Earthquake Insurance Fund

Disaster Management Frameworks in Other Countries: National Flood Insurance Program in the USA

- › Program created in 1968
- › Voluntary scheme except if loan taken from certain government backed entities
- › Compulsory for those who receive disaster assistance to buy insurance next time
- › Coverage for structure and content
- › Only available for structures which adhere to government norms
- › Not available in certain areas in order to discourage developments in high risk areas
- › Covers all types of floods
- › Premiums depend on zone. Use of so called flood insurance rate maps used to identify risk zones and updated at least every 5 years.
- › Average policy costs approx. USD 400 p.a. for a cover of about USD 100,000

Disaster Management Frameworks in Other Countries: Thailand - Catastrophe Insurance Promotion Fund

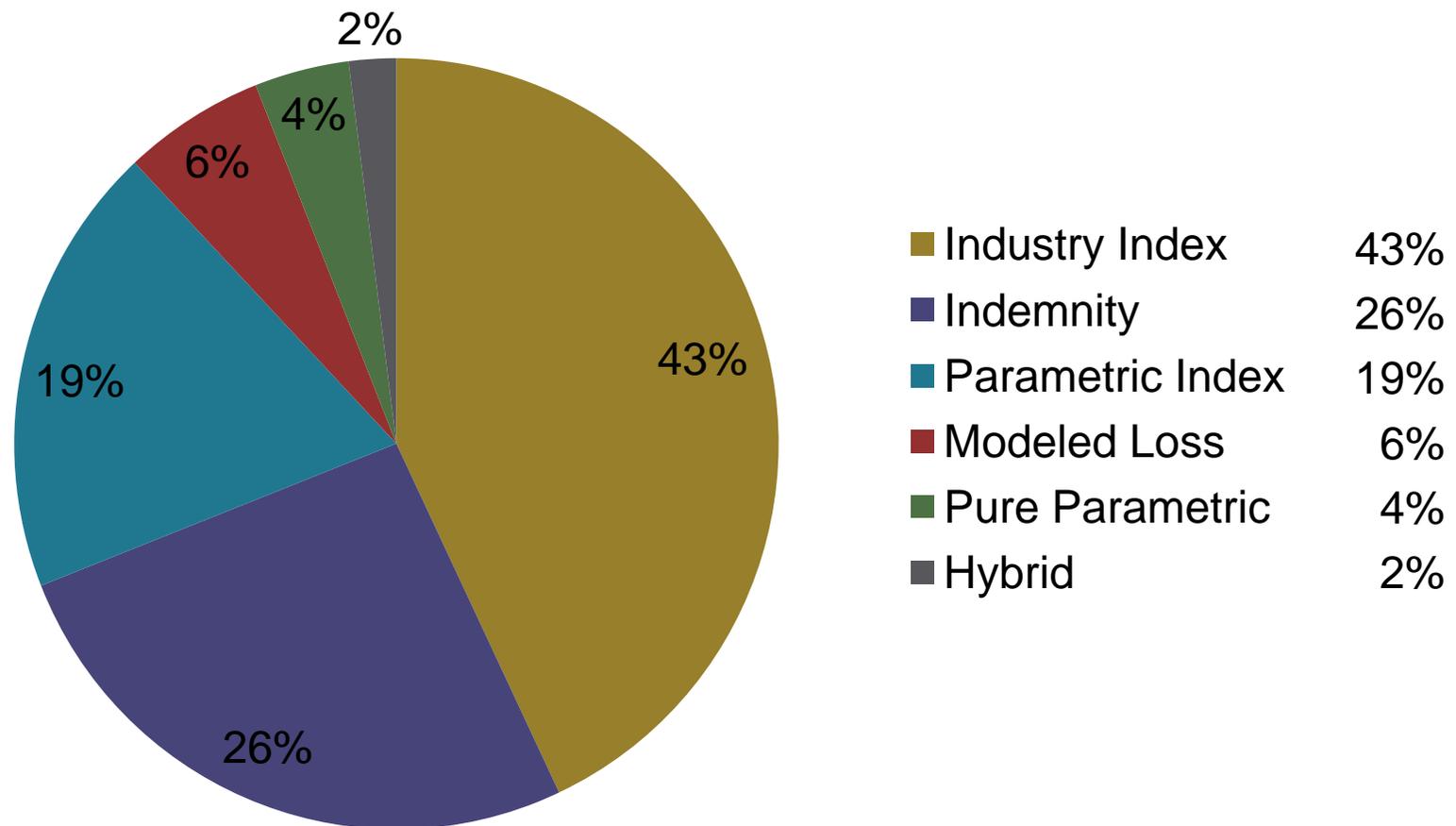
- Government sponsored program expected to be launched by end of March 2012
- Voluntary scheme, government sponsored: Size THB 50bn, approx. USD 1.6bn
- The catastrophe fund in turn will tap the international reinsurance markets to underwrite itself. Domestic Insurance companies responsible for at least 1% of risk
- Goal: improve access to disaster insurance for homeowners and businesses
- Coverage Maximum THB 100,000 or approx. 3,300 USD
- Premiums between 0.5% to 1.25% p.a. from homeowners to large businesses. Depending on risk level of each region (Zoning will be introduced)
- Claims based on the depth of flooding that impacts a property:
 - 50,000 baht if home is flooded by 50 cm of water,
 - 75,000 baht for 75 cm of flooding and
 - 100,000 baht for one meter
 - For flooding of less than 30 cm a flat payment of 30,000 baht will be made
- No deductible for homeowners but businesses will be subject to deductible

Source: Artemis.bm; OIC Office of Insurance Commission, Thailand

Capital Market Solutions: Two Generic Forms of Insurance Linked Investments

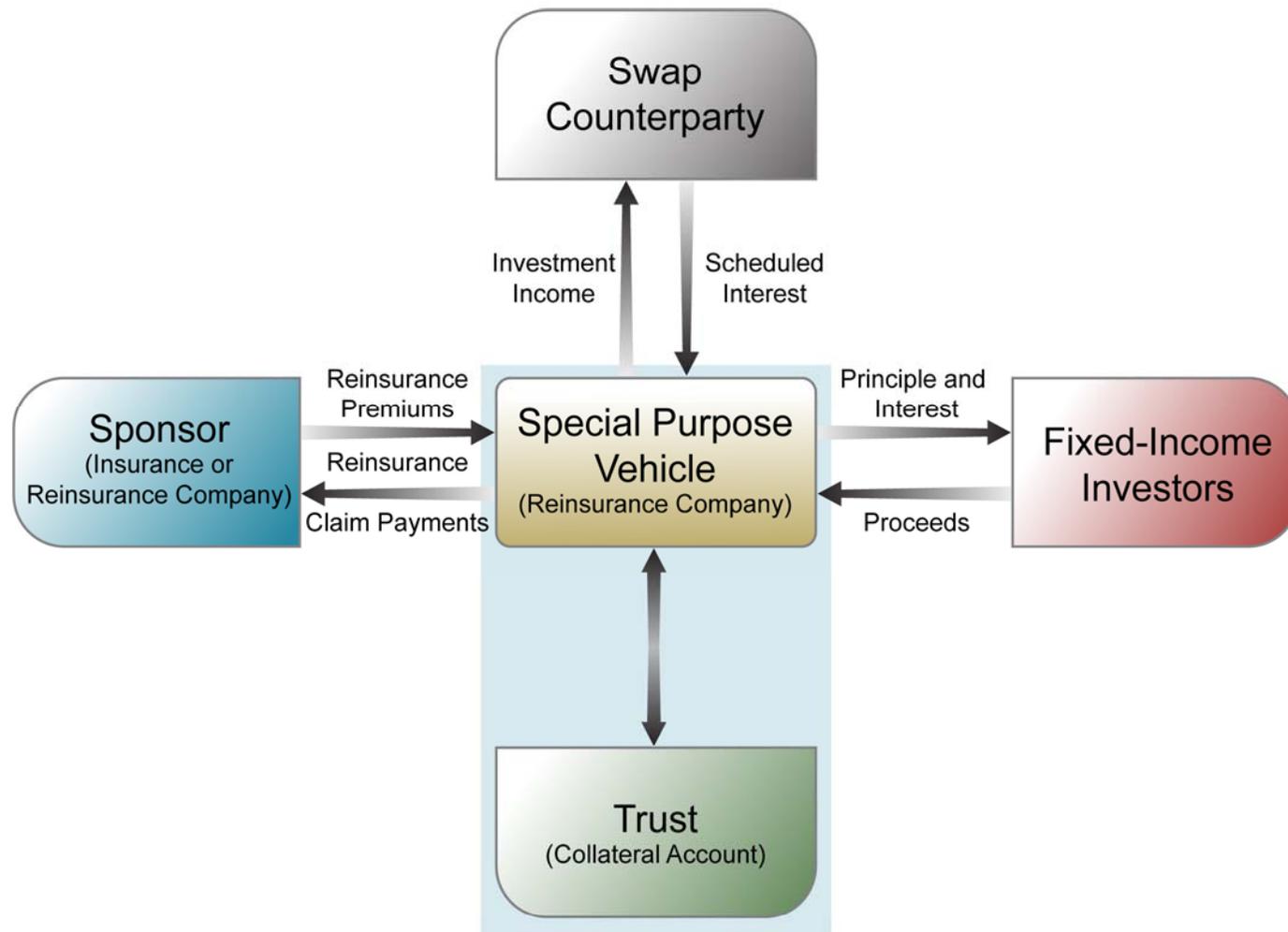
Insurance Linked Securities (ILS)		Financial Insurance Contracts (FIC)
Fixed-income securities	◀ Form ▶	Customised contract
Collateral Yield + Premium/Spread (typically 2% to 15%)	◀ Return ▶	Collateral Yield + Premium/Spread (typically 2% to 40%)
12 to 60 months	◀ Term ▶	6 to 18 months
Liquid, tradeable asset	◀ Liquidity ▶	Illiquid, non-tradeable asset
If there is an event and specific triggers are met, cat bond pays out	◀ Payout ▶	If there is an event and specific triggers are met, insurance seller pays out
USD 14bn	◀ Market Size ▶	USD 156bn

Capital Market Solutions: Current Triggers – Outstanding Cat Bonds



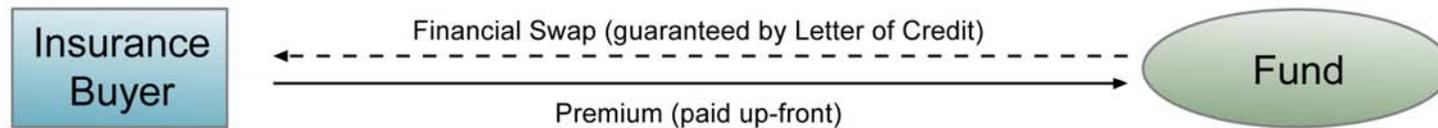
Source: Swiss Re Capital Markets (as of 31 Dec 2011)

Capital Market Solutions: Typical Structure of a Catastrophe Bond

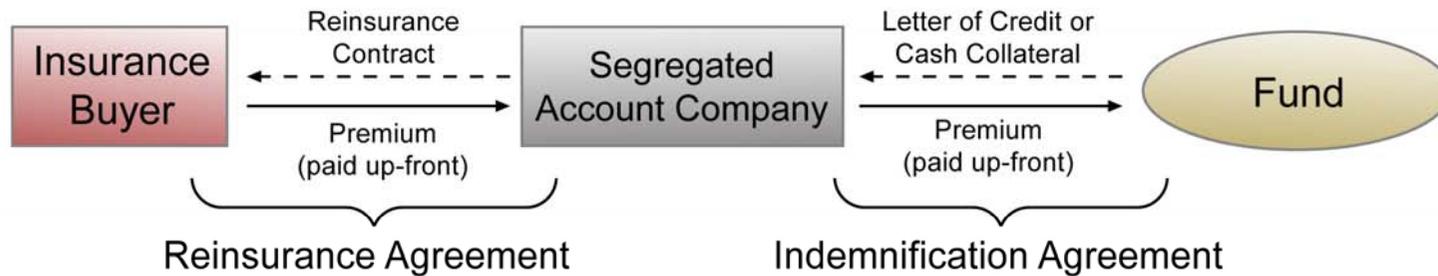


Capital Market Solutions: Financial Insurance Contract Structures

Swap Contract (or Industry-Loss Warranties)



Reinsurance Contract (Contract from Licensed Reinsurance Entity)



Capital Market Solutions: Some Characteristics of Insurance Linked Investments

Cat Bonds

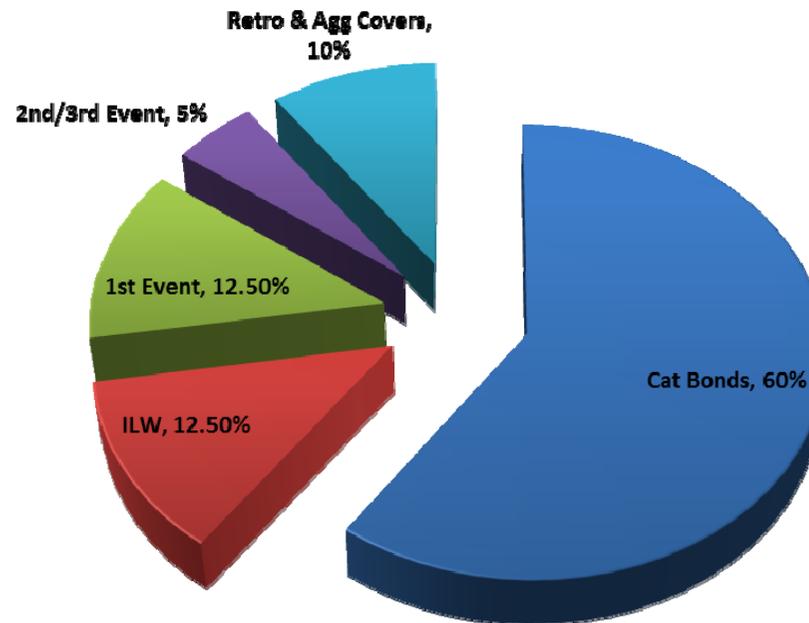
Remote risk / low return
Basis risk for Protection Buyer
Narrow coverage

Industry Loss Warranties / ILW's

Medium risk / Medium return
Clear targeted coverage
Basis risk for Protection Buyer

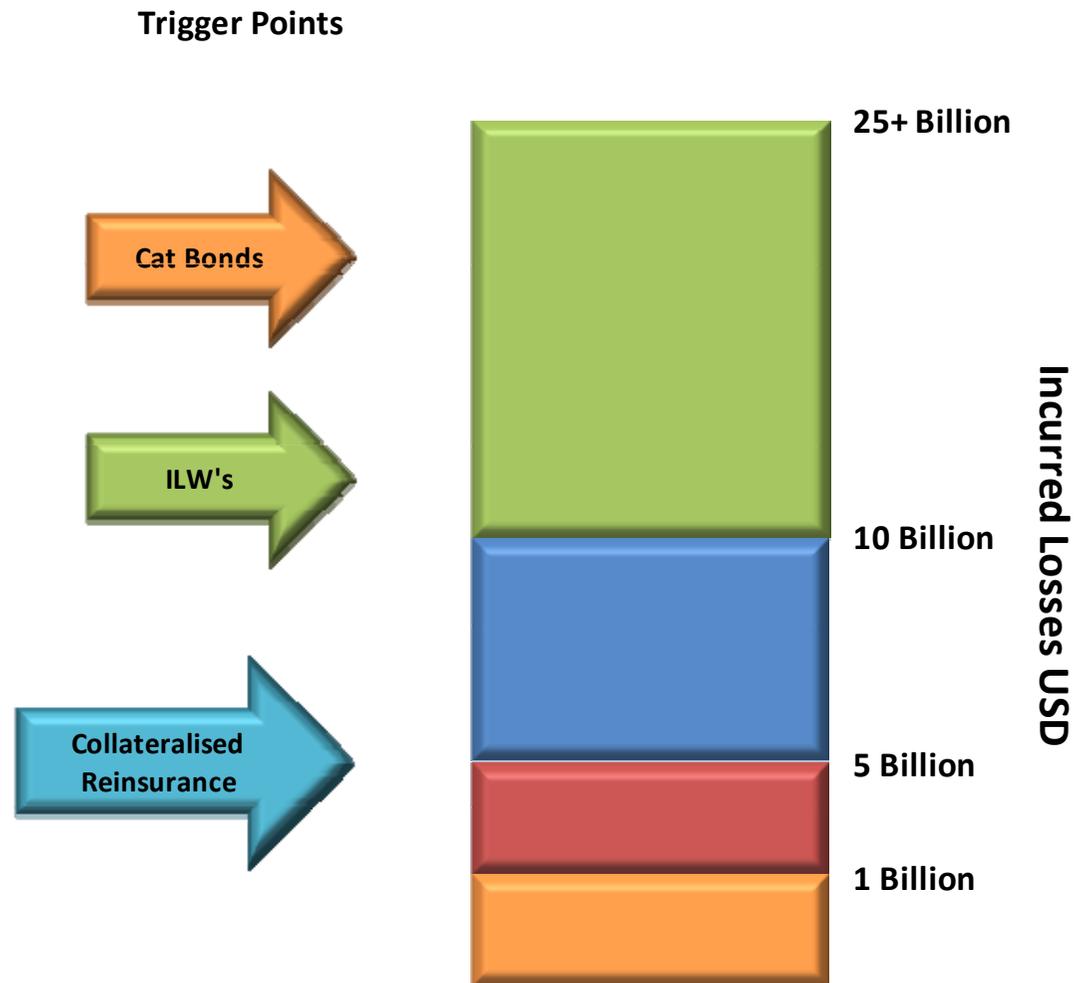
Reinsurance Contracts / Collateralised R/I

Higher risk / Higher return
Full indemnity (broad) coverage for Protection Buyer
Protection Buyer pays for the unknown, unmodelled, unexpected



Source: Beach&Associates, Company presentation February 2012

Capital Market Solutions: Trigger Points for Various Insurance Linked Investments



Source: Beach&Associates, Company presentation, February 2012

Capital Market Solutions: Suitability of different available Instruments for India

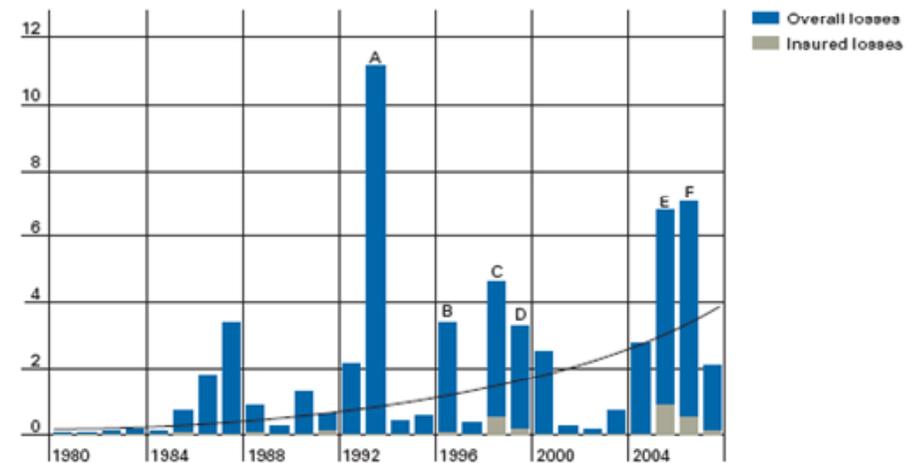
Cat Bonds or Industry Loss Warranties (ILW's)

Extreme Catastrophes such as A (1993 Flood in Punjab) could be insured with ILW's or Cat Bonds

Reinsurance Contracts / Collateralised Re-insurance

Indian Government could try to get coverage in the future for events like E (2005 Mumbai Flood) and for F (2006 Flood, Surat) and probably C (1998 Cyclone, Andra Pradesh) through R/I Contracts / Collateralized Reinsurance).

Overall losses and insured losses
(US\$ bn, 2007 values)



Quoted in Munich Re, Research Monsoon, June 2008

Triggers

Parametric or index based triggers would seem most suitable for India, based on previous experience. Moreover this would make it easier for policy holders to understand (see e.g. Thailand).

Conclusion

- Need for Proactive Domestic Risk Management Solutions in India
- Increase insurance penetration, subsidize insurance premiums where necessary
- Link insurability of property and/or premium discounts to adherence to building and safety norms incl. land-use regulations
- Partnership between Public and Private Sector:
 - ✓ Risk of **Private sector** is best covered by a **combination** of domestic insurance and the government
 - ✓ **Low up to medium private** risk level could be covered by domestic insurance
 - ✓ **Low and medium end Public Risk** to be borne by the **Government**
 - ✓ **Peak Public and Peak Private Risk** could be transferred to **Capital Markets**
- Need for publicly available national disaster database and a residential and commercial properties database to enable development of catastrophe models

References

- Alex Krutov, Investing in Insurance Risk: Insurance-Linked Securities – A practitioner's Perspective, June 2010
- Artemis.bm, Alternative Risk Transfer, Cat Bonds, ILS and Weather Risk Blog
- Aon Benfield Securities, Inc., Reinsurance Market Outlook, January 2012
- Ch. Bürer, A Primer on Insurance-Linked Securities, Essay in GesKR, 4/2010
- Beach&Associates, Company presentation, February 2012
- Clemenence et. al., co-authored by Prof. S. Kumar, NIDM, “Financing Disaster Management in India: Possible Innovations”, IFMR
- EurekaHedge an independent financial data and research company focusing on alternative investments
- Munich Re, Research Monsoon, June 2008
- Swiss Re, Insurance-linked securities market update, Volume XVII, January 2012
- Taiwan Residential Earthquake Insurance Fund
- The Handbook of Insurance-Linked Securities, P. Barrieu and L. Albertini, 2009
- The National Flood Insurance Program (NFIP)

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Biography: Stefan K. Kräuchi

Stefan K. Kräuchi is the founder of ILS Advisers together with Hansrudolf Schmid.

In his previous role he was a Member of the Executive Board of Clariden Leu Ltd., where he was in charge of the Products & Services Division (AUM over CHF 20bn and 340 employees). In his capacity he strategically positioned and developed the bank's sizable ILS business in Europe as well as in the Asia Pacific area.

Before joining Clariden Leu in 2007, he worked for over seven years at AIG Inc. as the CEO of AIG Fund Management (Switzerland) and as a member of the Management Committee at AIG Private Bank. During his time at AIG he was instrumental in pioneering and developing products in the ILS space for the Swiss market. Since 2006 Stefan acted also as Head of International Fund Business Development of AIG Investments.

After his graduation at the University of St. Gallen (Switzerland), he began his career at UBS AG in 1990 as Financial Analyst and Portfolio Manager where later on he was appointed to Head of Investment Research and Portfolio Manager for the markets Japan, Far East and North America. Afterwards, he was responsible for Global Equities and worked as Senior Representative for Private Banking Investment Services at UBS Asset Management in Chicago.

From 2003 until 2007 Stefan was also a Board Member of the Swiss Funds Association (SFA).

Stefan is a Swiss citizen residing in Hong Kong. He is married and has one daughter.

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