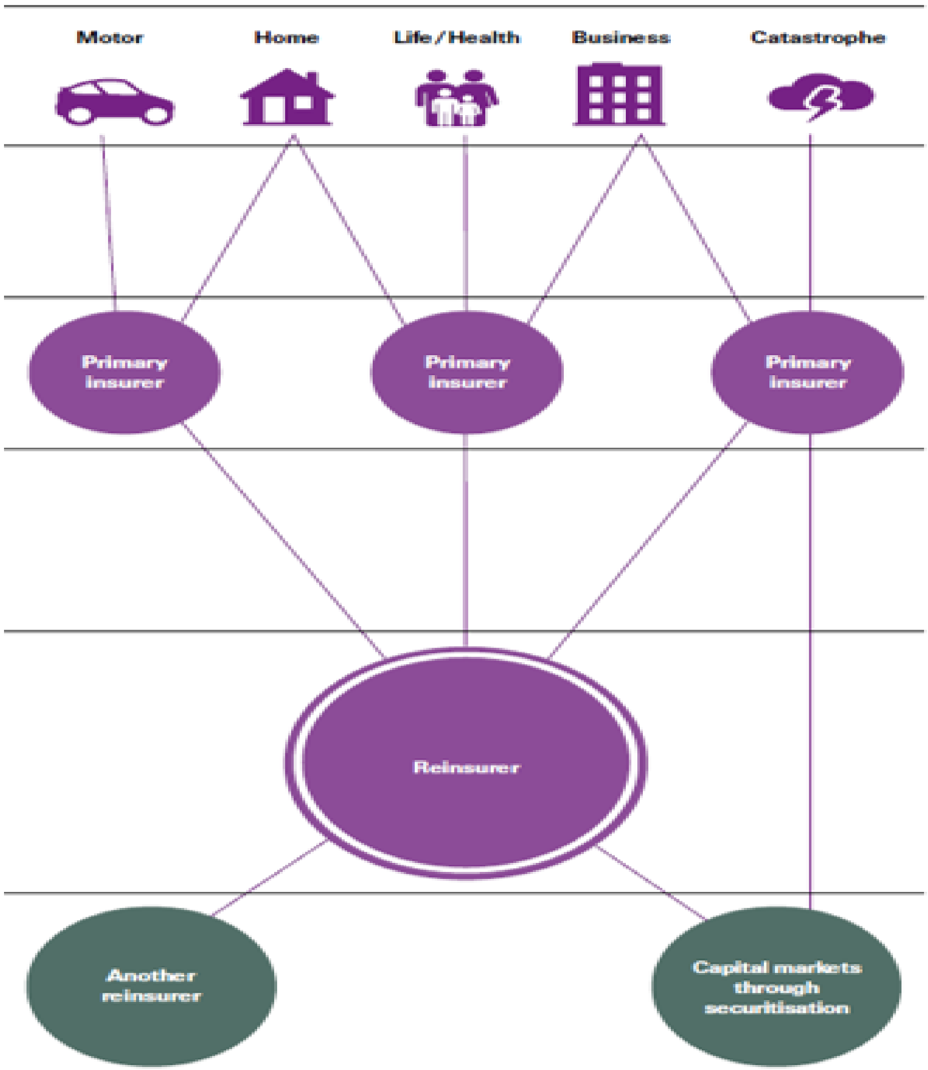
Swiss Re

2016 SCF Forum

Disaster Risk Finance Insurance incl. Cat and Resilience Bonds

Swiss Re Global Partnerships, 5 September 2016, Manila

Reinsurance and Swiss Re's Value Proposition



- Swiss Re's VISION:
  We make the world more resilient.

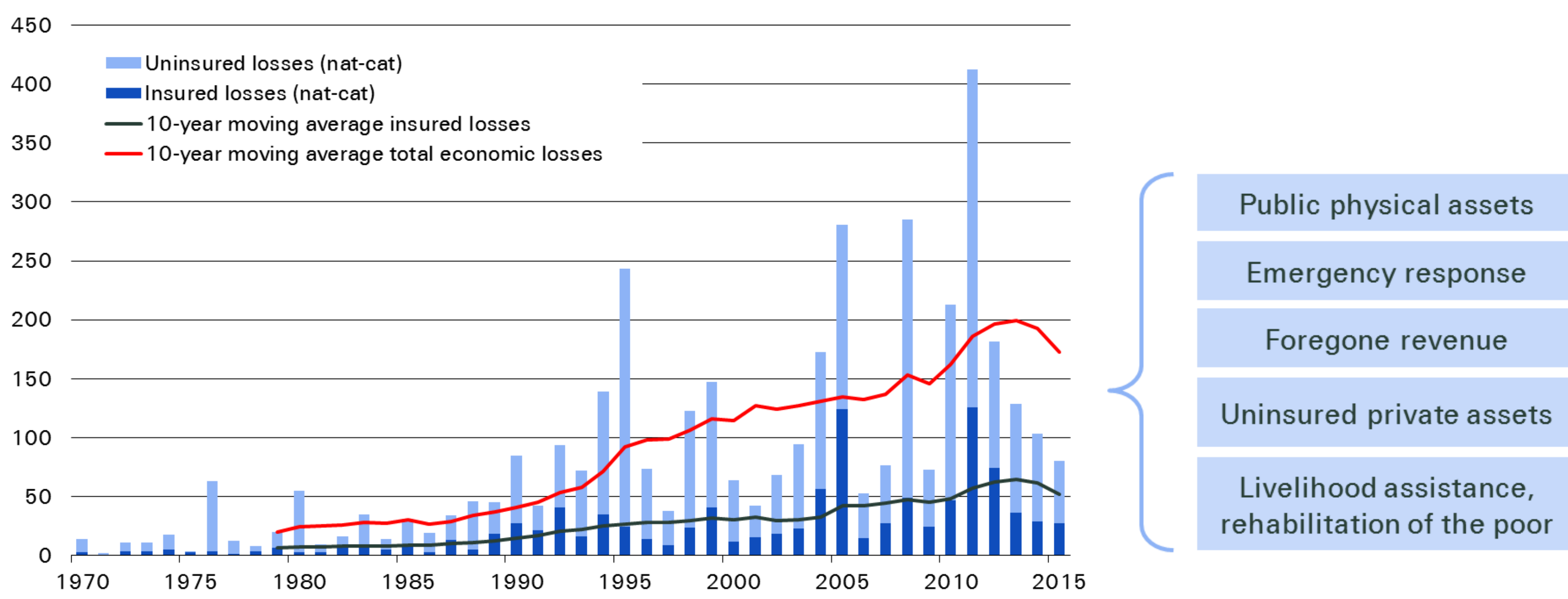
- Swiss Re's MISSION:
  Together, we apply fresh perspectives, knowledge and capital to anticipate and manage risk. That's how we create smarter solutions for our clients, helping the world rebuild, renew, and move forward.

- We offer risk transfer solutions
  -> high frequency portfolios
  -> high severity losses

- We offer innovation (re)insurance solutions with the public sector to close the PROTECTION GAP

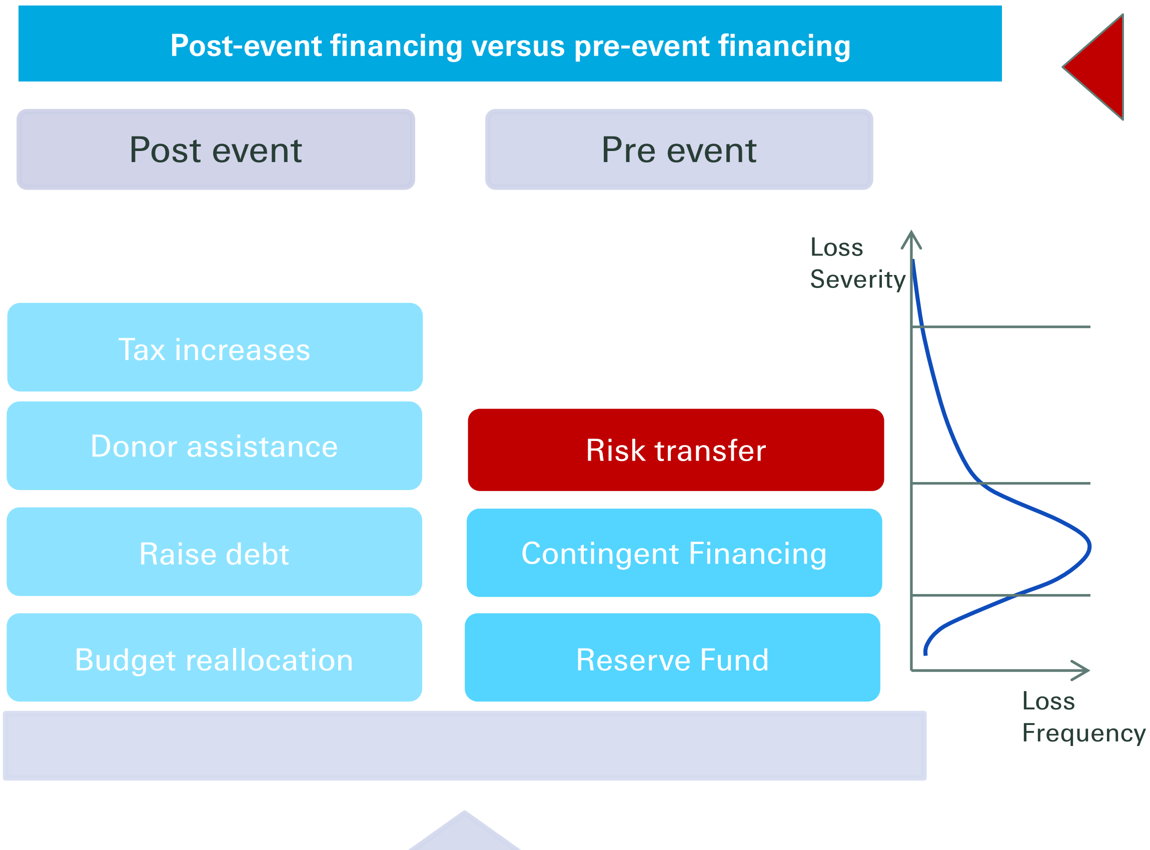
Disasters place a significant burden on the public sector

Natural catastrophe losses 1970 – 2015 (in 2015 USD billion)



- **No country can fully insulate itself** against extreme natural disasters, despite prevention and mitigation efforts
- **Individuals, corporations and governments** – both on national and sub-national level – bear the brunt of economic losses from natural disasters

A more balanced mix of financing is needed



World Bank Policy Research Working Paper 5564, "How do Governments Respond after Catastrophes", 2/2011

"From an ex-post perspective, the availability of insurance offers the best mitigation approach against real and fiscal consequences of disasters"

How to close the protection gap

Protection gap

Which risk?	Who carries the risk?	Risk transfer solution
Public physical assets Emergency response costs Foregone revenue	Governments	**Macro** *Risk transfer solutions for (sub)sovereigns to cover their direct or indirect costs*
Uninsured private assets	Businesses, homeowners, farmers	**Pooling** *Insurance schemes and pools to increase insurance penetration*
Livelihood assistance	Individuals	**Micro** *Simplified products distributed via aggregators such as MFIs, NGOs, and corporates*

Overview of Indemnity vs. Parametric Protection

	Traditional (aka Indemnity)	Parametric
Trigger	Loss of damage to the physical asset	Event occurrence exceeding the pre-defined parameter threshold
Use of proceeds	Intended to cover sustained loss	Used at buyer's discretion (i.e. emergency relief, immediate infrastructure repair, compensation to people)
Loss adjustment / Administrative Process	Yes – buyer may need own claims adjusters	No – no additional administration required
Speed of payment	Subject to loss adjustment (Full settlement can be slow and lengthy)	Very rapid, 2 to 6 weeks
Basis risk	No basis risk, actual incurred loss will be covered up to limit purchased	Yes, if there is actual damage but the trigger chosen does not react as expected there will be no payment
Transparency	Wording and structure can be complex	Parametric triggers typically easy to explain
Duration of cover	Typically 1 year contracts, multiyear no longer than 3 years	Typically multi-year 2 to 5 years
Pricing Flexibility	Limited modifications	Structure can be adjusted to price
Changes of Exposures	Annual adjustments	No adjustment needed

Catastrophe and Resilience Bonds

Overview

Catastrophe Bonds

- Catastrophe bonds ("cat bonds") are financial instruments designed to help manage the financial risks associated with potentially devastating natural disasters, and have been utilized by sponsors from both private sectors and public sectors around the globe

Resilience Bonds

- Swiss Re contributed to the RE.bound program, initiated by re:focus partners, to support resilient infrastructure investment. Through RE.bound, the team is taking steps to design a new catastrophe bond-like product that can promote project-based risk reduction solutions
- Resilience bonds would realize the potential insurance benefits from infrastructure improvements and monetize the physical and financial risk reductions associated with investments in resilient systems (e.g. seawalls to minimize the impact of flooding)

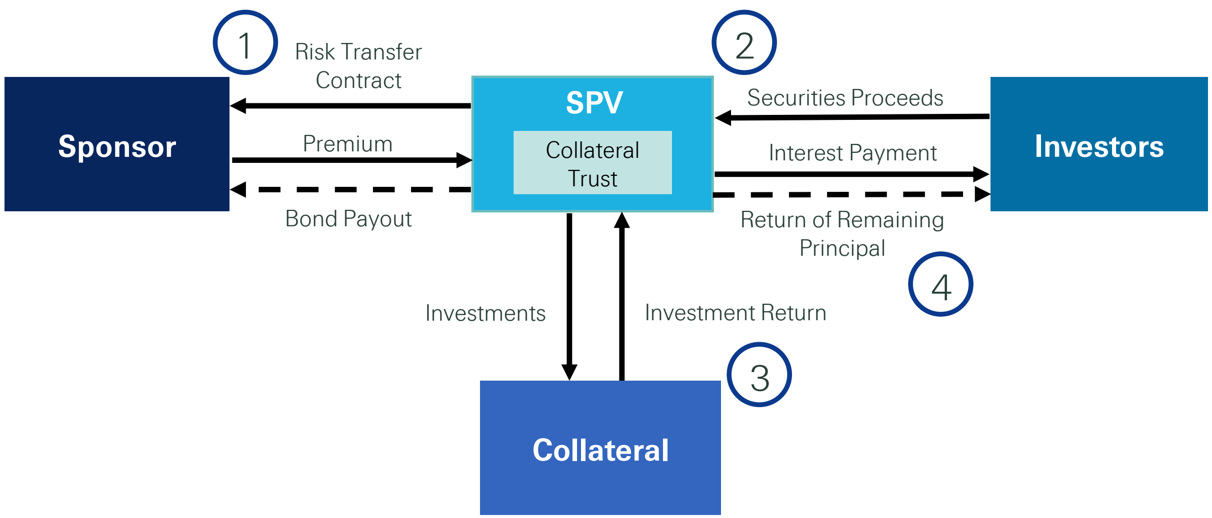
Source: Re:focus Partners

Catastrophe and Resilience Bonds

Typical Cat Bond Structure

Structure

1. The reinsured (i.e. sponsor) enters into a risk transfer contract with a Special Purpose Vehicle (SPV)
2. The SPV hedges the risk transfer contract by issuing securities to investors in the capital markets
3. Proceeds from the securities offering are invested in assets to provide a stable return on the collateral
4. If no trigger event occurs during risk period, full principal returned to investors at maturity. If a trigger event occurs during risk period, sponsor obtains the claims payment and any remaining principal is returned to investors at maturity

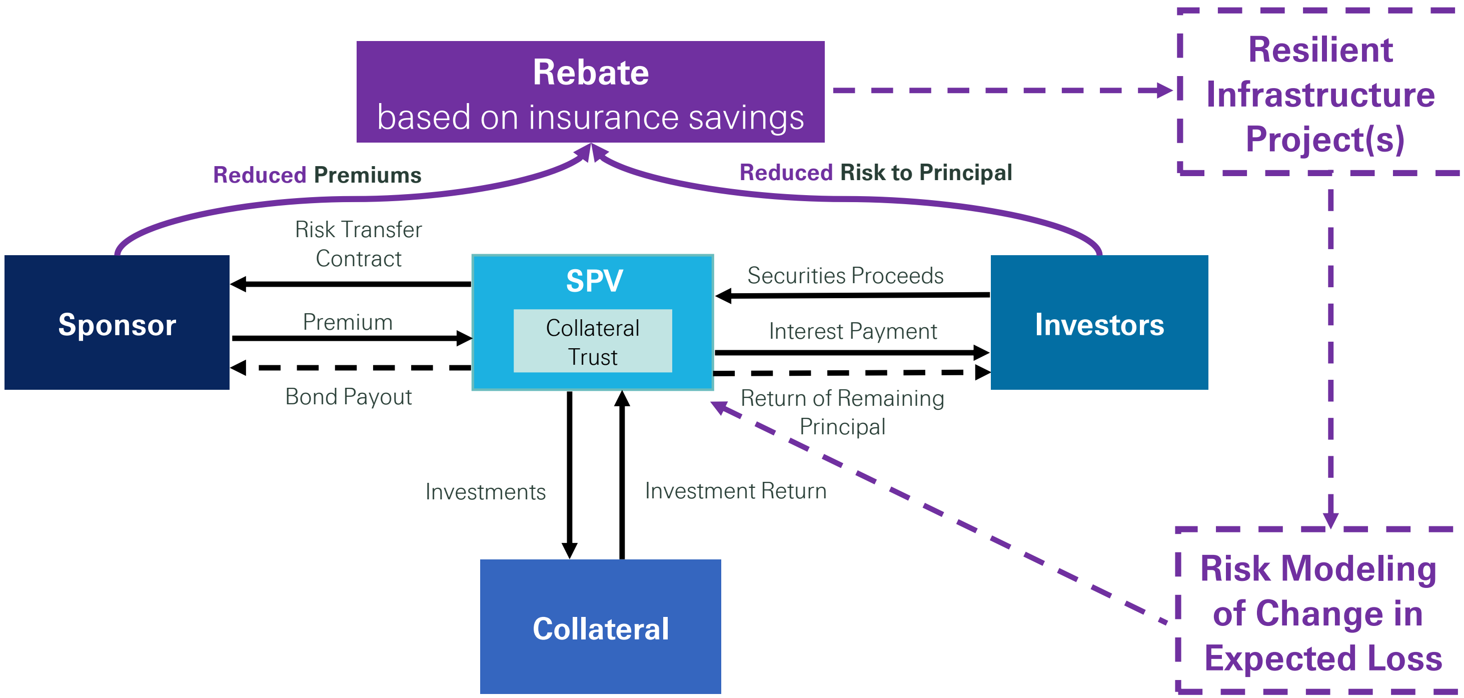


Source: Swiss Re Capital Markets

Catastrophe and Resilience Bonds
Resilience Bond Model

Structure

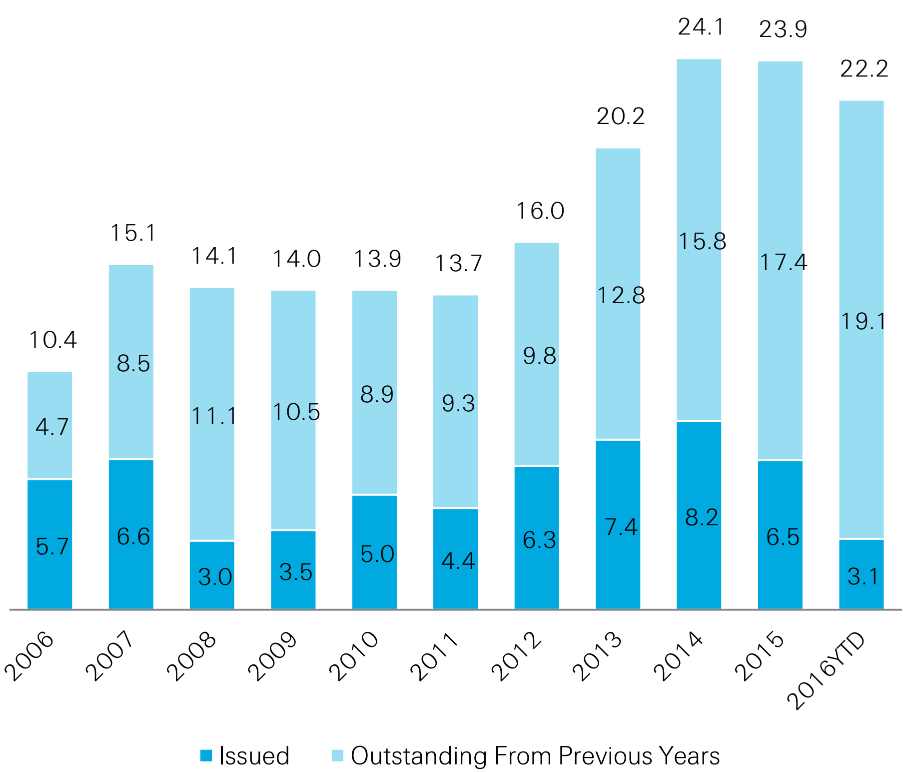
- In principle, resilience bonds can be structured similarly to conventional cat bonds except that they explicitly anticipate the impact that resilience projects can have on the chances of a trigger event occurring
- Resilience bonds are priced at two levels: one based on the chance of a trigger event *without* the resilience project; and one based on the chance of a trigger event *with* the resilience project
- The difference in the coupon pricing (resilience rebate) represents the financial value that a resilience project provides by reducing the expected loss of bonds placed in the capital markets



Source: *Leveraging Catastrophe Bonds, As a Mechanism for Resilient Infrastructure Project Finance;* Re:focus Partners

ILS Market Update
Issuance Trends

Cat Bond Issuance and Outstanding ($bn)



New Issuance

- In 1H 2016, market demand significantly outweighed supply driving issuance spreads to the record lows seen in 2014
- Total new issuance in 1H 2016 was lighter than those of the last few years, though 2016 started with a record 1Q with USD 2.07bn new issuance
- Year-to-date only $3.1 billion of 144a catastrophe bonds were issued compared to $4.7 billion of new issuance during the same period of 2015
- $4.8 billion of notes have matured year-to-date

Source: Swiss Re Capital Markets as of August 22, 2016

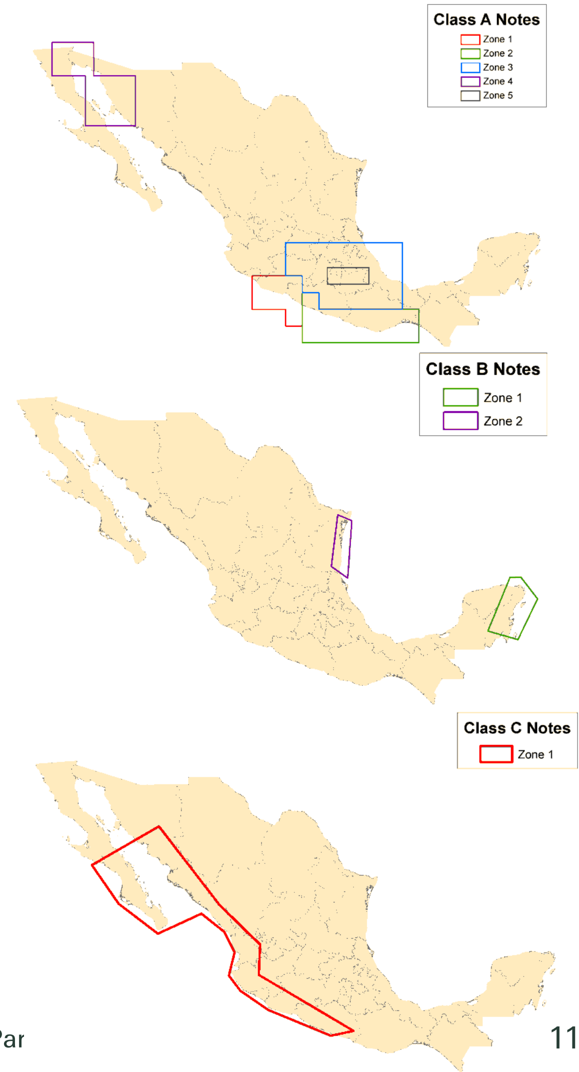
Catastrophe and Resilience Bonds
Cat Bond Case Study: Multicat Mexico 2012-1 (1/2)

Issuer	MultiCat Mexico Limited
Insured	The Fund for Natural Disasters ("FONDEN")
Reinsured	AGROASEMEX, S.A.
Counterparty	Swiss Reinsurance Company Ltd
Program Arranger	International Bank for Reconstruction and Development ("IBRD")
Issuance Date	October 12, 2012
Maturity	December 4, 2015
Risk Period	October 15, 2012 – November 30, 2015
Modelling Firm	AIR Worldwide

Key Terms	Class A	Class B	Class C
Trigger	Parametric (Binary)	Parametric (Binary)	Parametric (Step)
Notional	USD 140 million	USD 75 million	USD 100 million
Covered Perils	Mexico Earthquake	Atlantic Hurricane	Pacific Hurricane
Attachment Probability	4.40%	2.73%	5.69%
Expected Loss	4.40%	2.73%	4.36%
Coupon	TMM + 8.00%	TMM + 7.75%	TMM + 7.50%

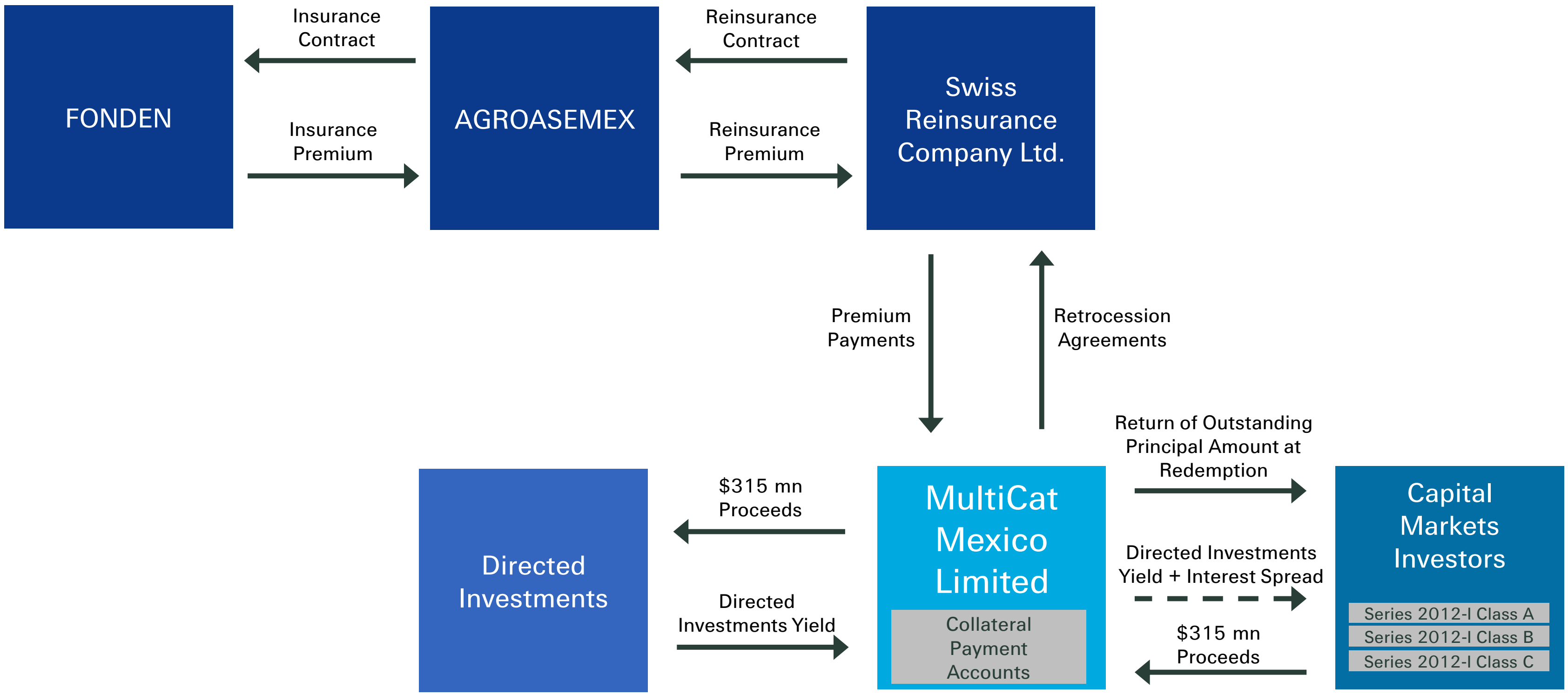
Source: Swiss Re Capital Markets

MultiCat Mexico 2012-1 Covered Zones



Catastrophe and Resilience Bonds

Cat Bond Case Study: Multicat Mexico 2012-1 (2/2)



- Hurricane Patricia
  - In October 2015, Hurricane Patricia made landfall in the defined Hurricane Zone for Class C notes
  - Based on National Hurricane Center (NHC)'s final report on the storm, the bond was triggered, and 50% of the principal was paid

Source: Swiss Re Capital Markets

Swiss Re Value Proposition

Cat Bond Issuance Paradigm

Swiss Re as your Sponsor

- SRCM's market-leading position has been fundamental to the creation of today's cat bond market; SRCM is constantly working with sponsors to further improve cat bond solutions and their relative value
- Given Swiss Re is the largest and most regular cat bond sponsor, SRCM is uniquely positioned to understand the key sponsor considerations and the importance of structuring efficient and cost effective risk transfer solutions
- Only SRCM has the all-inclusive capabilities to provide sponsors with a holistic solution

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