



Casualty Actuarial Society
Boston Panel

October 4, 2010





Agenda



- I. Catastrophe Bond as Efficient Disaster Risk Insurance Instrument
- II. The MultiCat Program and the MultiCat Mexico 2009

Executive Summary



- **Public finances can be significantly affected by natural disasters**
 - Unpredictability of the event
 - Need for short-term emergency funds to help affected population in the aftermath of the event
- **Parametric disaster insurance helps mitigate the negative impact of emergency spending on a country's budget and provides rapidly available funds for quick assistance**
- **Through a Cat Bond transaction, the cat risk is transferred to the market on efficient terms**
- **In order to facilitate member country's access to parametric insurance, the World Bank Treasury created the MultiCat Program**
 - Shelf documentation available to every client
 - Covering a multiple number of perils
 - The World Bank assists clients with the "scientific" / technical modeling of perils as well as with the preparation of the offering and issuance of the bonds
- **With MultiCat Mexico 2009, Mexico inaugurated the Program**
 - US\$290mm, 4-tranche bond covering 3 different perils (Earthquake, Pacific Hurricane, Atlantic Hurricane) in 6 different zones
 - Transaction over 2.5x oversubscribed
- **The World Bank is very pleased to incorporate the MultiCat Program to the menu of tools available to its member countries to hedge against natural disasters**
 - The World Bank, in partnership with the interested member country government, will advise and set up the necessary framework to execute the transaction (legal, technical/risk modeling, financial institutions, etc.)

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I.1 The Case for Natural Disaster Insurance



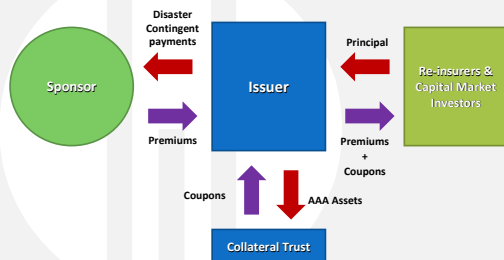
- Natural disasters have increased in frequency and cost (growing urban density and climate change)
- Emerging countries are particularly exposed with only 3% of potential loss insured vs 45% in developed countries
 - Immediate reaction post-disaster is essential in terms of impact on growth
 - International community funds are slow to arrive
- Traditional insurance has shortcomings
 - Cat risk exceeds the capacity of local insurers. With constrained government budgets, coverage must come from global insurers
 - However, global insurers show signs of undercapacity
 - Concentration of "peak risks" (Florida hurricane, European windstorms, Japan earthquake)
 - Massive capital loss following events like Mitch (1998) or Katrina (2005)
 - High absolute level and volatility of premiums
 - Opaqueness of reinsurers create barriers to entry and rationing

		Loss (\$B)	Insured Loss (% Loss)	Uninsured Loss (%GDP)	%Budget
Earthquake	Turkey	22.0	5%	5%	21%
Marmara (1999)					
Hurricane	USA	1380	49%	0.5%	1.5%
Katrina (2005)					
Floods	Poland	3.5	6%	3%	11%
(1997)					
Earthquake	India	0.6	2%	1%	7%
Gujarat (2001)					
Earthquake	USA	43.0	47%	0.3%	2%
Norridge (1992)					
Earthquake	China	85.0	0.4%	1.8%	15%
Sichuan (2008)					
Winter Storm	France	6.2	100%	-	-
(1999)					

I-2. Catastrophe Bond Structure and Cash Flows



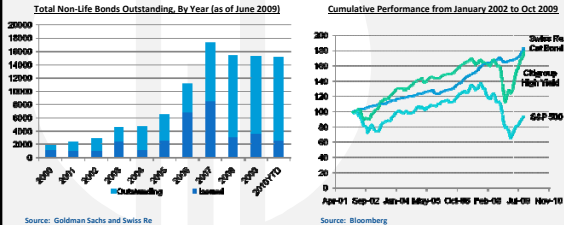
- A typical (simplified) structure of a catastrophe bond looks as follows:



I-3. Catastrophe Bonds as an Efficient Tool



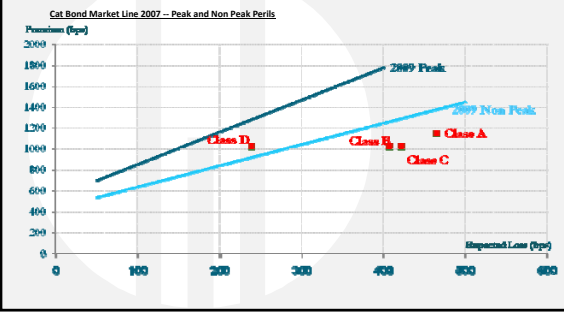
- Catastrophe Bonds offer a viable alternative and complement to insurance for dealing with disaster relief
 - Risk modeling and parametric insurance have allowed to convert disaster insurance into a new asset class
 - Cat Bonds have grown into a \$12bn market and could grow to an estimated \$180bn
 - The enlarged mutualization should reduce the cost of insurance
 - The maturity of Cat Bonds (3-5 years) helps manage the volatility of premiums
 - Cat Bonds have shown resilience and diversification value throughout the crisis



I-4. Catastrophe Bonds as an Efficient Tool



- Cat Bonds are most efficient for low-frequency, high-severity events
- For non-peak risk/regions, Catastrophe Bonds are a particularly attractive option from a pricing perspective

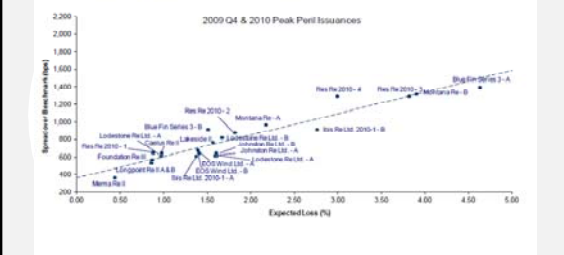


I-5. Recent Catastrophe Linked Pricing

2009-2010 Issuance Pricing for Selected Transactions



- Insurance spreads have tightened considerably since H1 2009, when spreads were wider as a result of increased funding costs, attractive returns in other asset classes, and anticipation of potentially higher traditional reinsurance market pricing.
- Pricing for a Mexico City earthquake bond will be lower than the pricing implied by the regression line below due to the fact that Mexico City earthquake risk is a diversifying peril (or "non-peak" peril) for investors.



Source: Goldman Sachs

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II. The MultiCat Program and the MultiCat Mexico 2009

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II-1. The World Bank's MultiCat Program



- In order to facilitate the access of sovereign entities in member countries to the cat bond market on efficient terms, the World Bank established the "MultiCat Program" in October 2009.
- The program offers parametric insurance to help ensure access of governments to immediate liquidity to finance emergency relief and reconstruction work after a natural disaster.
- The program supports a wide variety of structures, including the pooling of multiple risks (earthquakes, floods, hurricanes and other wind storms) in different regions.
- Mexico was the first country to issue notes using the MultiCat Program, with a four tranche US\$290 million transaction in October 2009.
- The World Bank Treasury is in discussion with a number of governments on using the MultiCat for their own purpose

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II-2. The World Bank's MultiCat Program (continued)

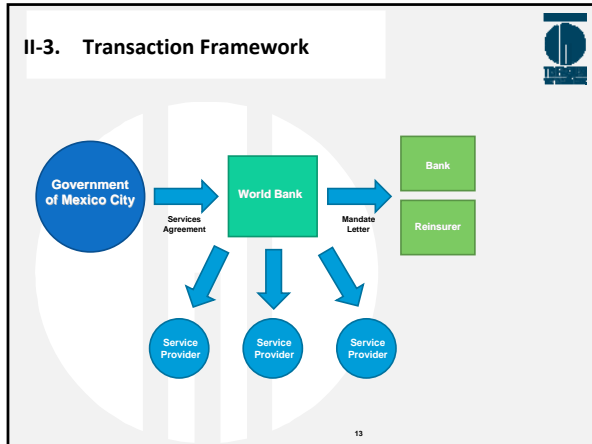


- The MultiCat Program is a shelf documentation that facilitates the issuance of notes covering multiple perils and for multiple zones
- Some of its key features are the following:
 - Common documentation
 - Legal and operational framework for the offerings
 - "MultiCat" brand name, offering name recognition with investors
 - Wide variety of structures
- The World Bank acts as arranger in all MultiCat issues and selects on a competitive basis the lead managers and other service providers



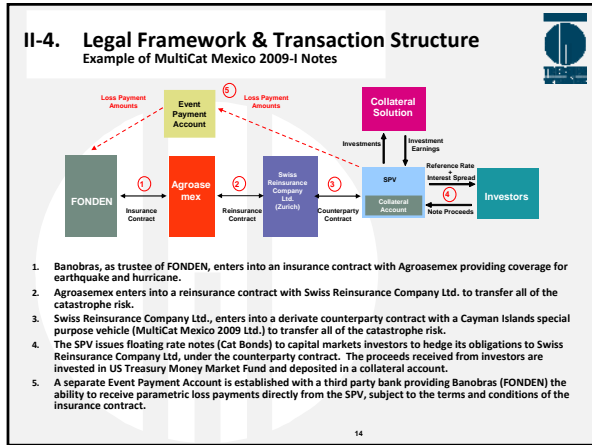
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II-3. Transaction Framework



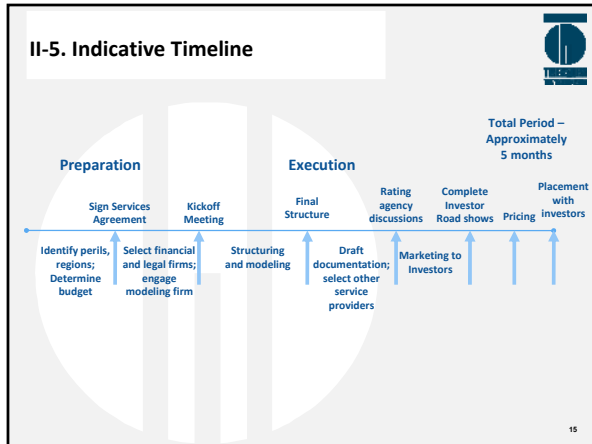
II-4. Legal Framework & Transaction Structure

Example of MultiCat Mexico 2009-1 Notes



1. Banobras, as trustee of FONDEN, enters into an insurance contract with Agrosemex providing coverage for earthquake and hurricane.
2. Agrosemex enters into a reinsurance contract with Swiss Reinsurance Company Ltd. to transfer all of the catastrophe risk.
3. Swiss Reinsurance Company Ltd., enters into a derivate counterparty contract with a Cayman Islands special purpose vehicle (MultiCat Mexico 2009 Ltd.) to transfer all of the catastrophe risk.
4. The SPV issues floating rate notes (Cat Bonds) to capital markets investors to hedge its obligations to Swiss Reinsurance Company Ltd, under the counterparty contract. The proceeds received from investors are invested in US Treasury Money Market Fund and deposited in a collateral account.
5. A separate Event Payment Account is established with a third party bank providing Banobras (FONDEN) the ability to receive parametric loss payments directly from the SPV, subject to the terms and conditions of the insurance contract.

II-5. Indicative Timeline



II-6. MultiCat Mexico 2009-I Notes



- MultiCat Mexico 2009 offers parametric-based insurance to Mexico's FONDEN covering 3 different perils and 6 regions
 - Earthquake in the Pacific coast and the area surrounding Mexico City
 - Pacific Hurricanes in two different parts of the coast
 - Atlantic Hurricanes in the Yucatan peninsula
- MultiCat Mexico 2009 successfully issued US\$290mm of 3-year bonds
 - Swiss Re and Goldman Sachs, Joint-Lead Managers; Munich Re, advisor
 - AIR conducted the risk modeling
 - Pricing after a successful 4-day roadshow in Europe, Bermuda and the US
 - Books over 2.5x oversubscribed
 - Pricing at the tight end of the original price guidance

	Class A	Class B	Class C	Class D
Peril	Earthquake	Pacific Hurricane	Pacific Hurricane	Atlantic Hurricane
Notional (US\$mm)	140	50	50	50
Risk Period	3 years	3 years	3 years	3 years
Trigger Type	Parametric	Parametric	Parametric	Parametric
Trigger*	7.9; 8.0	944	944	920
AIR Modified Annualized Expected Loss	4.65%	3.94%	4.00%	2.30%
S&P Ratings	B	B	B	BB



*Trigger for Earthquake is Magnitude and for Hurricanes is Central Pressure (millibars)

**II-7. MultiCat Mexico 2009-I Notes
Investor Distribution by Investor Type**



Investor Type	Amount Invested	Share
Dedicated Funds	\$117.50 million	40%
Reinsurers	\$98.75 million	34%
Money Managers	\$43.75 million	15%
Hedge Funds	\$16.75 million	6%
Insurers	\$13.25 million	5%

**II-8. MultiCat Mexico 2009-I Notes
Investor Distribution by Region**



Region	Amount Invested	Share
US	\$149.75 million	51%
Bermuda	\$101.00 million	35%
Europe	\$37.00 million	13%
Japan	\$1.75 million	1%
Canada	\$0.50 million	<1%