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Sistema Económico  
Latinoamericano y del Caribe

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Latin American and Caribbean  
Economic System

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Sistema Económico  
Latino-Americano e do Caribe

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Système Economique  
Latinoaméricain et Caribéen

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# Swiss Re: Financial mechanisms, insurance and reinsurance in case of disasters

Nikhil da Victoria Lobo, Vice President. Swiss Re

*Regional Seminar on Public Investment and Financial Mechanisms, Insurance and Reinsurance against Disasters in Latin America and the Caribbean: Recent Experiences*  
Mexico City, Mexico  
22 and 23 November 2010  
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The background of the slide is a composite image. The top portion shows a city skyline with several skyscrapers under a hazy sky. The bottom portion shows a wide river or floodplain with a long bridge spanning across it. The water is brownish, and there are many trees and greenery visible in the foreground and middle ground. A semi-transparent dark green horizontal band runs across the middle of the image, containing the text.

Swiss Re



# SELA Regional Seminar

Nikhil da Victoria Lobo

22 November 2010



## Agenda

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# About Swiss Re



## Swiss Re at a glance



Headquarters, Zurich



Armonk, New York



The "Gherkin", London

Swiss Re is a **leading and highly diversified global reinsurer**, founded in Zurich (Switzerland) in 1863

The company offers **traditional reinsurance products and related services** for property and casualty, as well as for life and health businesses

These traditional products are complemented by **insurance-based corporate finance solutions** and supplementary **services for comprehensive risk management**

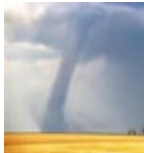

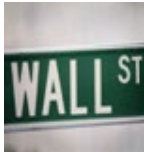

Swiss Re is the **industry leader in insurance-linked securities**

Swiss Re is rated "**A+ (positive outlook)**" by S&P, "**A1**" by Moody's and "**A**" by A.M. Best











Key statistics (CHF bn)	FY 2007	FY 2008	FY 2009
Premiums earned:	31.7	25.5	24.6
Net income:	4.2	- 0.9	0.5
Shareholders' equity:	31.9	20.5	26.2



# We enable risk-taking that is essential to enterprise and progress

Examples		
We identify and evaluate risks	Climate change identified as emerging risk almost 20 years ago	
We select and take risks	Insurance of most industrial risks	
We transfer and trade risks	Securitization of earthquake and hurricane risks	
We educate and consult on risks	Over 50 risk-related publications during the last 12 months	

# Important risks

		Examples	
Natural catastrophes	Earthquakes, Floods, Hurricanes, Tornados, ...		
Fire, terrorism	Arson, Terror attack, ...		
Pandemics	SARS, H5N1, H1N1,...		
Obesity	Health, Mortality, Liability, ...		
Financial market risks	Credit, Equity, ...		





# Swiss Re – A Leading Partner for the Public Sector

- First dedicated Public Sector team in the reinsurance industry
- Over 25 closed transactions since 2006
- Manage reinsurance and capital markets and all perils (disasters, weather, longevity etc)
- Global footprint
- Pioneer in emerging and industrialized markets

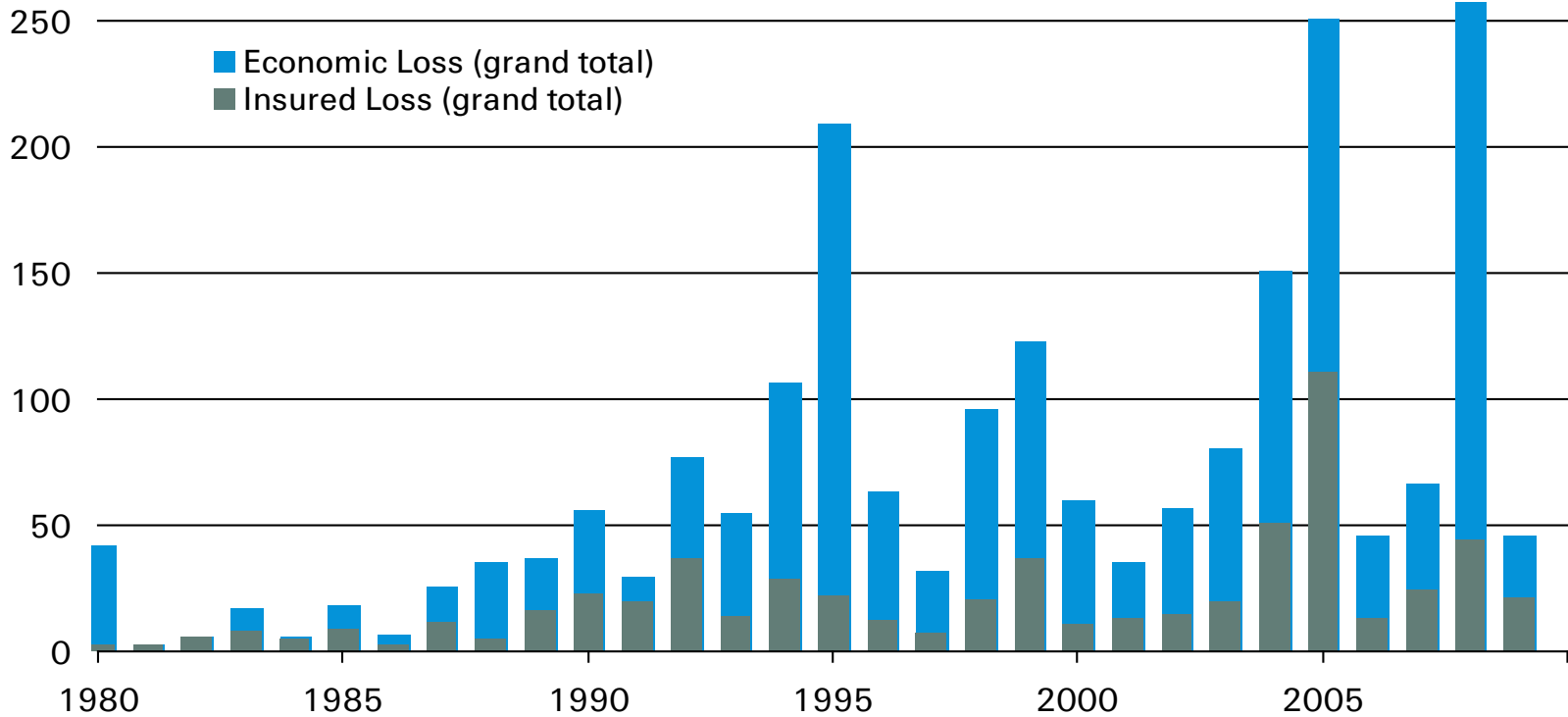
<p><b>The Caribbean Catastrophe Risk Insurance Facility</b> USD 111m Reinsurance Placement Lead Reinsurer 2010</p>	<p><b>Alabama State Insurance Fund</b> Parametric Insurance Solution Sole Structurer &amp; Insurer 2010</p>	<p><b>Tamil Nadu Health Insurance Pool</b> Microinsurance Program Multi-Year Reinsurance Solution Lead Reinsurer 2010</p>	<p><b>Government of Vietnam</b> <b>Agricultural Insurance Scheme</b> Sole Reinsurer 2010</p>	<p><b>Turkish Catastrophe Insurance Pool</b> Earthquake Cover Structured Reinsurance Solution Lead Reinsurer 2009</p>
<p><b>Beijing Municipal Government</b> Multi-Peril Agriculture Cover Stop Loss Reinsurance Program Lead Reinsurer 2009</p>	<p><b>United Mexican States FONDEN</b> Earthquake Cover USD 290m Reinsurance Placement Sole Reinsurer 2009</p>	<p><b>European Bank for Reconstruction and Development</b> (GNPP – New Safe Containment) USD 110m Professional Liability Cover Co-lead Reinsurer 2009</p>	<p><b>The Caribbean Catastrophe Risk Insurance Facility</b> USD 132.5m Reinsurance Placement Lead Reinsurer 2009</p>	<p><b>Government of Luxembourg Ministry of Environment</b> Certified Emission Reduction Credits Sole Structurer 2008</p>
<p><b>Swiss Re</b> Undisclosed Client Microinsurance Health Cover Sole Reinsurer 2008</p>	<p><b>The Caribbean Catastrophe Risk Insurance Facility</b> USD 132.5m Reinsurance Placement Lead Reinsurer 2008</p>	<p><b>Agroasemex</b> Parametric Vegetation Cover USD 7.5m Reinsurance Placement Co-lead Reinsurer 2007</p>	<p><b>Turkish Catastrophe Insurance Pool</b> Earthquake Cover Euro 1.4bn Placement Ongoing Reinsurance Support Since 2001 Inception</p>	<p><b>Providence of Alberta, Canada Forest Protection Division</b> Wildfire Suppression Cost Cover CAD 100m Reinsurance Placement Co-lead Reinsurer 2006</p>
<p><b>The Caribbean Catastrophe Risk Insurance Facility</b> USD 10m Nat Cat Swap Counterparty 2010</p>	<p><b>County of Berkshire Pension Fund</b> USD 1.6bn longevity swap Sole Counterparty 2009</p>	<p><b>United Mexican States and The World Bank</b> USD 290m At-Risk Variable Rate Notes Sole Counterparty 2009</p>	<p><b>North Carolina Joint Underwriting Association</b> USD 200m At-Risk Variable Rate Notes Joint Bookrunner 2009</p>	<p><b>The World Bank International Development Association</b> USD 5m Drought Weather Derivative Sole Counterparty 2009</p>
<p><b>The Caribbean Catastrophe Risk Insurance Facility</b> USD 10m Nat Cat Swap Counterparty 2009</p>	<p><b>The World Bank International Development Association</b> USD 5m Derivative Sole Counterparty 2009</p>	<p><b>Swiss Re</b> <b>Globecat Ltd</b> USD 85m At-Risk Floating Rate Notes Sole Bookrunner 2008</p>	<p><b>Swiss Re</b> <b>Undisclosed Client</b> USD 2.1m Drought Weather Derivative Sole Counterparty 2007</p>	<p><b>United Mexican States CAT-Mex, Ltd.</b> USD 160m At-Risk Variable Rate Notes Sole Bookrunner 2006</p>



# Why do governments need risk transfer solutions?

# Massive gap between economic and insured losses

Natural catastrophe losses 1980-2009, in USD billion



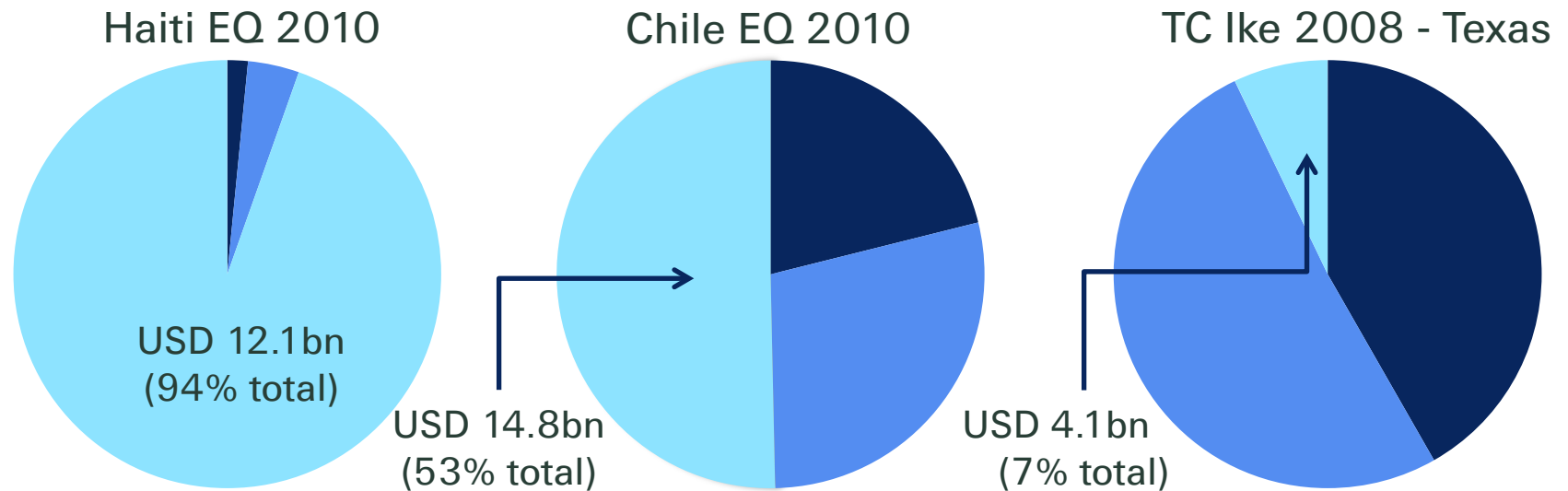
**The economic impact of natural catastrophes is increasing each year; a changing climate and demographic patterns are accelerating this trend**




Note: Loss amounts indexed to 2009

Source: Swiss Re, sigma No 2/2010

# Unfunded losses are high in both developing and industrialized nations

## Total Economic Loss from Recent Catastrophic Events



-  Insurance Proceeds: Insurance payments for private and public sector damages
-  External Funding: Funds raised from Federal government, donors or capital markets
-  Unfunded Loss: Economic losses net of External Funding and Insurance Proceeds



## Sovereign financing is not as cheap as before...

- Some exposed countries have experienced increases in funding costs:

### Greece: Yield 10-year bond



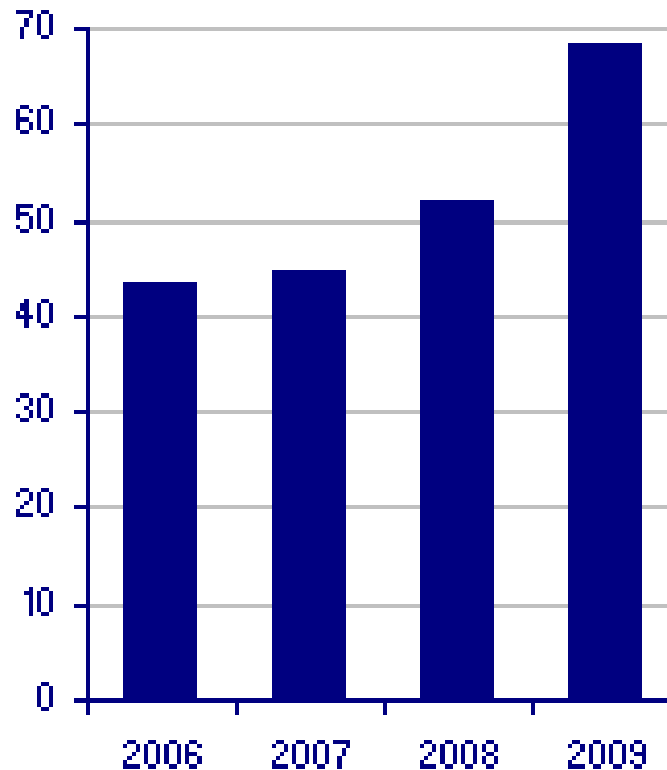
Source: Trading Economics and Bloomberg



## Debt levels may further limit post-event financing options...

- For many, debt to GDP ratios make financing more challenging:

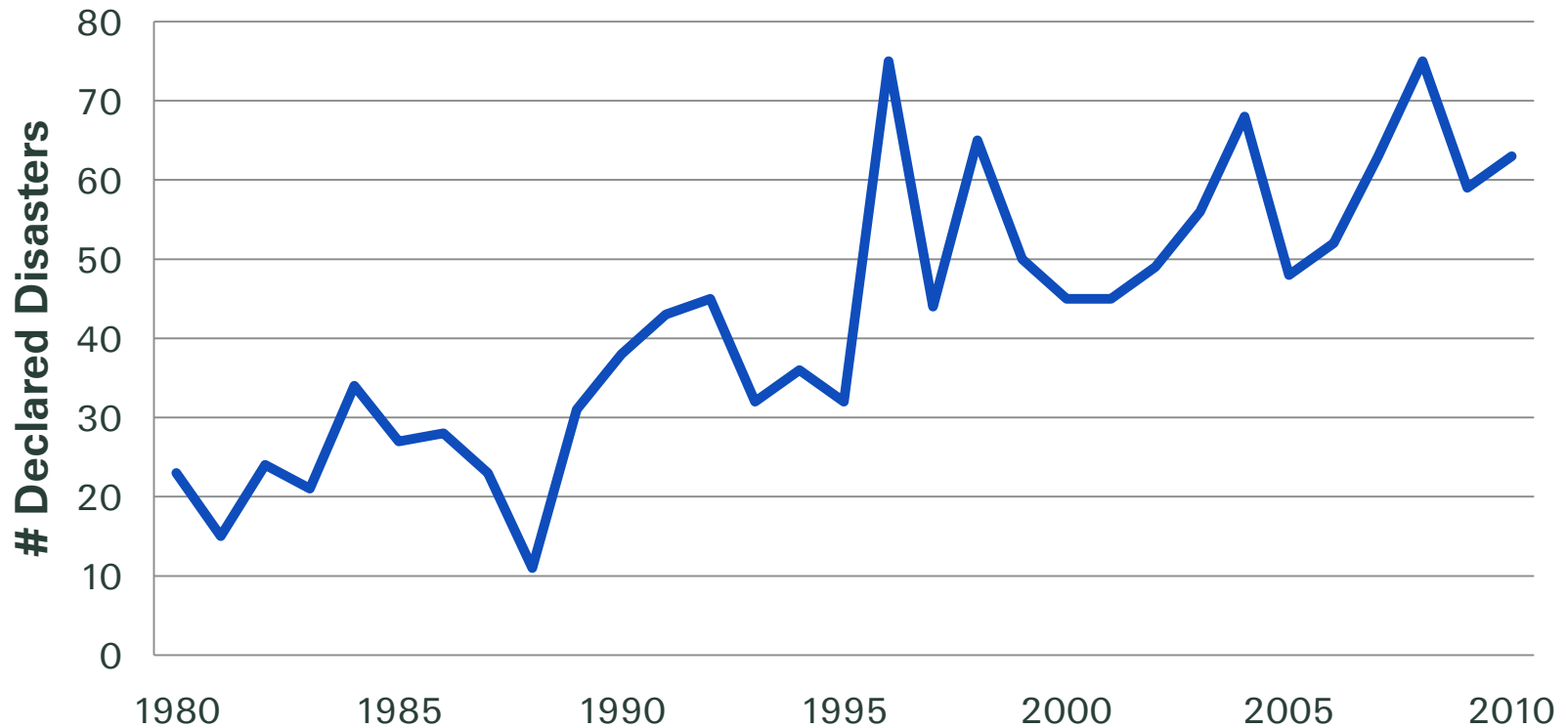
United Kingdom: Debt / GDP Ratio



Source: United Kingdom,  
Office of National Statistics

External funding sources may also be more constrained...

## United States Federal Declared Disasters 1980 - 2010



Source: US Government, Federal Emergency Management Agency

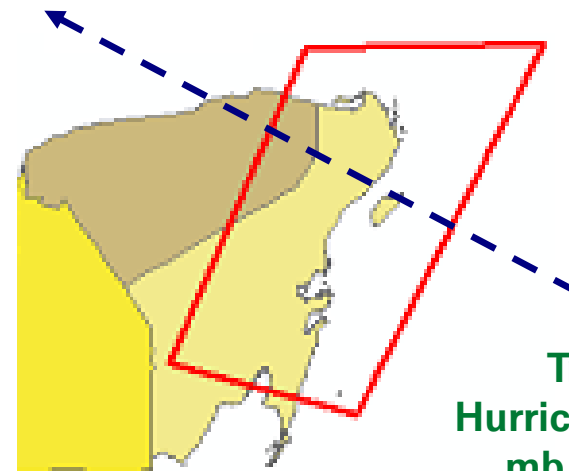
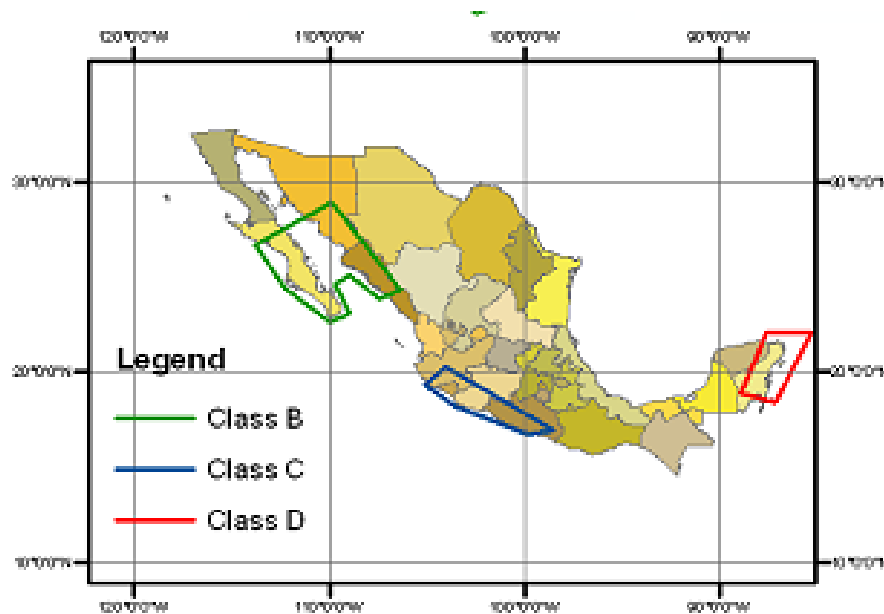


# Parametric solutions for natural catastrophes





# How do Parametric solutions work: MultiCat Mexico hurricane example



**Trigger:**  
Hurricane of 920  
mb or lower  
through box =  
payment



# Parametric solutions offer three key benefits to the Public Sector:

1. Coverage beyond traditional insurance
2. Rapid and real-time payment
3. No impact on fiscal space



## Key Characteristics of Parametric Covers

### Perils

The risks to be transferred

- ➔ Natural catastrophes
- ➔ Weather
- ➔ Pandemics etc.

### Trigger

How payment or loss is calculated / settled

- ➔ Indemnity
- ➔ Parametric / index
- ➔ Modeled loss etc

### Instrument

How is the transaction structured:

- ➔ (Re)insurance
- ➔ Cat derivatives/ swaps
- ➔ Cat bond etc.



# Swiss Re Closed Transactions



# Mexico

## Major events since 1985



### 1985 Earthquake (8.1) Mexico City

Damage	USD 8.0 bn
Insured loss	USD 0.6 bn
Fatalities	9,500

### 1995 Hurricane Opal

Damage	USD 4.2 bn
Insured loss	USD 3.5 bn
Fatalities	59

### 2005 Hurricane Wilma

Damage	USD 22.0bn
Insured loss	USD 13.8bn
Fatalities	35

Sources:  
 Swiss Re geoPortal and  
 Swiss Re Economic Research and Consulting (figures indexed to 2009)



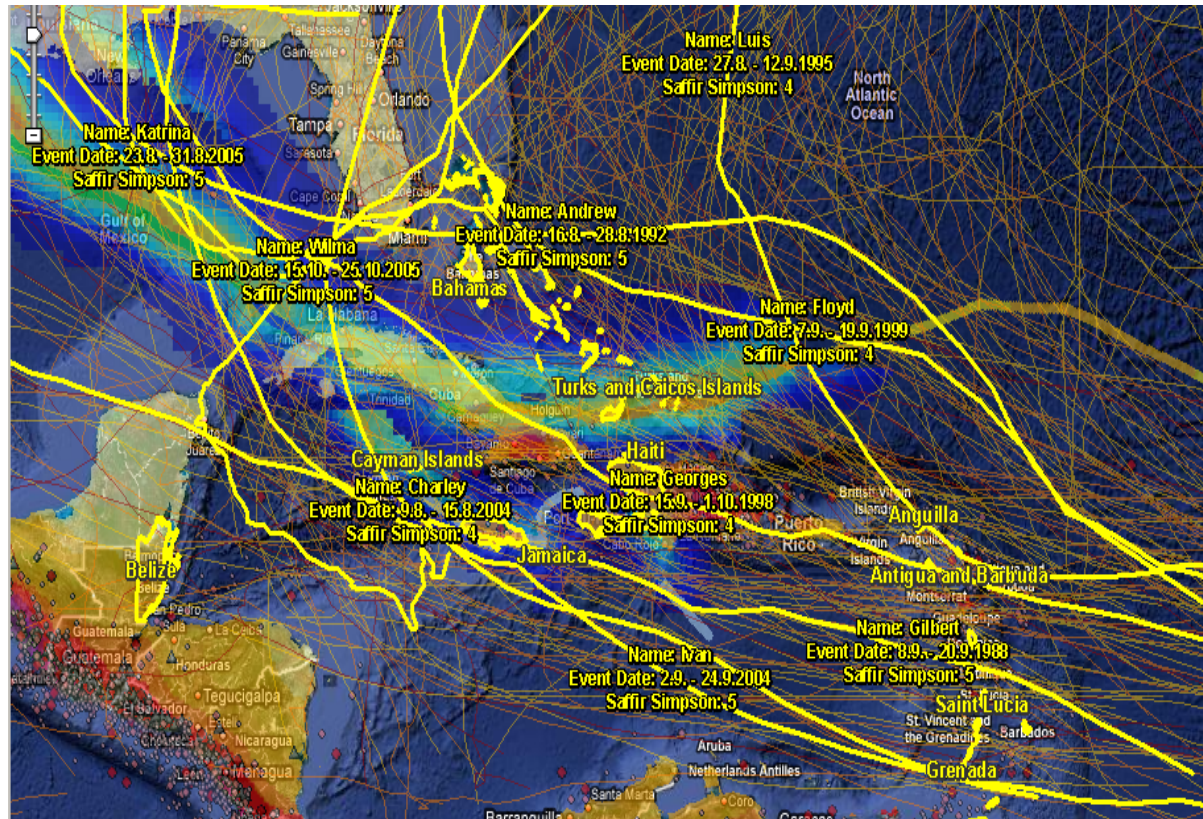
## Solution Mexico: MultiCat - Funding for immediate relief efforts

### Solution features

- Insured peril: Earthquake and Hurricane
- Insured: Fund for Natural Disasters (FONDEN) of Mexico
- Payments for immediate emergency relief after disasters
- Parametric cat bond: USD 290 million
- Trigger type: Pure parametric
  - Earthquake: physical trigger (quake magnitude)
  - Hurricane: physical trigger (barometric pressure)
- 3 year contract
- 1<sup>st</sup> cat bond launched through the World Bank's new MultiCat facility and second cat bond for Mexico



# Caribbean Major events since 1992



1992 Hurricane Andrew	
Damages	USD 40.5bn
Insured loss	USD 24.5bn
Fatalities	43

2004 Hurricane Charley	
Damage	USD 18.2 bn
Insured loss	USD 9.1 bn
Fatalities	24

2010 Earthquake Haiti	
Damage	USD 10-30bn
Insured loss	~USD 0.7bn
Fatalities	>217'000

Sources:  
Swiss Re geoPortal and  
Swiss Re Economic Research and Consulting (figures indexed to 2009)



## Solution Caribbean: Caribbean Catastrophe Risk Insurance Facility (CCRIF)

### Solution features

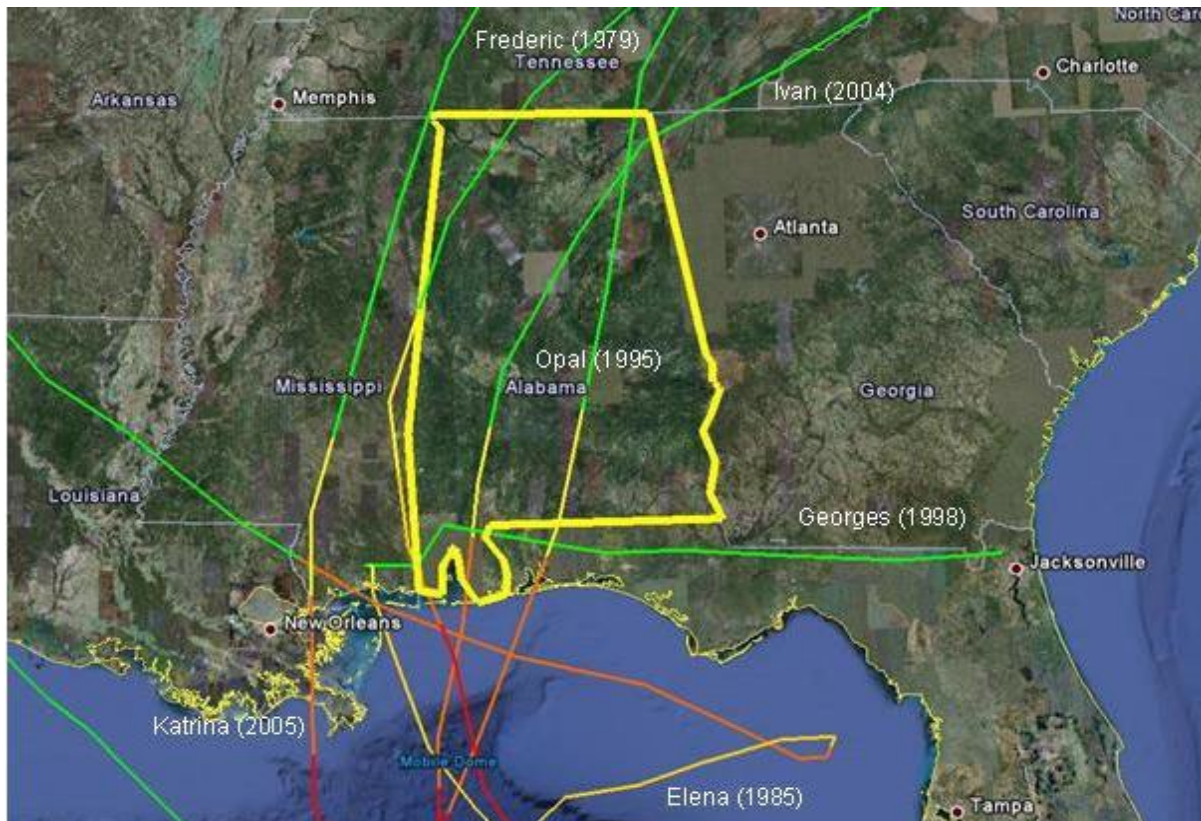
- Insured peril: Earthquake and Hurricane
- Insured: CCRIF (owned by 16 Caribbean governments)
- Payments provide immediate liquidity to finances
- Parametric reinsurance and derivative: USD111 million (total USD 600m of underlying policies)
- Trigger: Customized modeled loss
  - Earthquake: Modeled economic loss
  - Hurricane: Modeled economic loss
  - Excess Rainfall: In development
- Payments in 2010 totaling: USD 25m to 5 governments,
  - Haiti EQ payment: 20x annual premium, paid within days





# Alabama

## Major events since 1995



### 1995 Hurricane Opal

Damage	USD 4.2 bn
Insured loss	USD 3.5 bn
Fatalities	N/A

### 2004 Hurricane Ivan

Damage	USD 24.9 bn
Insured loss	USD 14.6 bn
Fatalities	124

### 2005 Hurricane Katrina

Damage	USD 153.8 bn
Insured loss	USD 71.1 bn
Fatalities	1836

Sources:  
 Swiss Re geoPortal and  
 Swiss Re Economic Research and Consulting (figures indexed to 2009)



## Solution United States: Alabama – Cover for emergency expenses

### Solution features

- Insured peril: Hurricane
- Insured: State of Alabama
- Payments to offset extra cost for cleanup or deductible
- Parametric insurance
- Trigger: Pure parametric
  - Trigger based on wind speed of hurricane
  - Payout in as little as 14 days
- Three year contract
- 1<sup>st</sup> parametric cover for government in industrialized country



# What could the future hold?

## But it's not just about disasters...

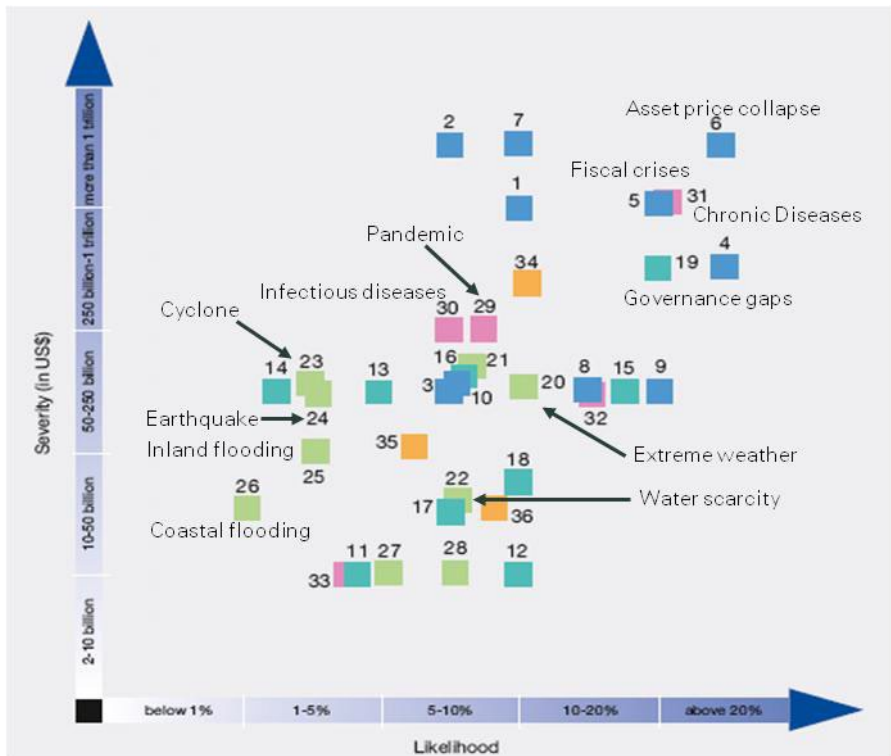
- First twelve months of financial crisis cost USD 650 billion, but the global risk landscape reveals other equally costly scenarios:

**Pensions: US public pensions underfunded by USD 1 trillion**

**Disasters: Japan Earthquake could cause losses of USD 500 billion**

**Pandemics: Mexico alone lost USD 150 million daily due to the H1N1 outbreak**

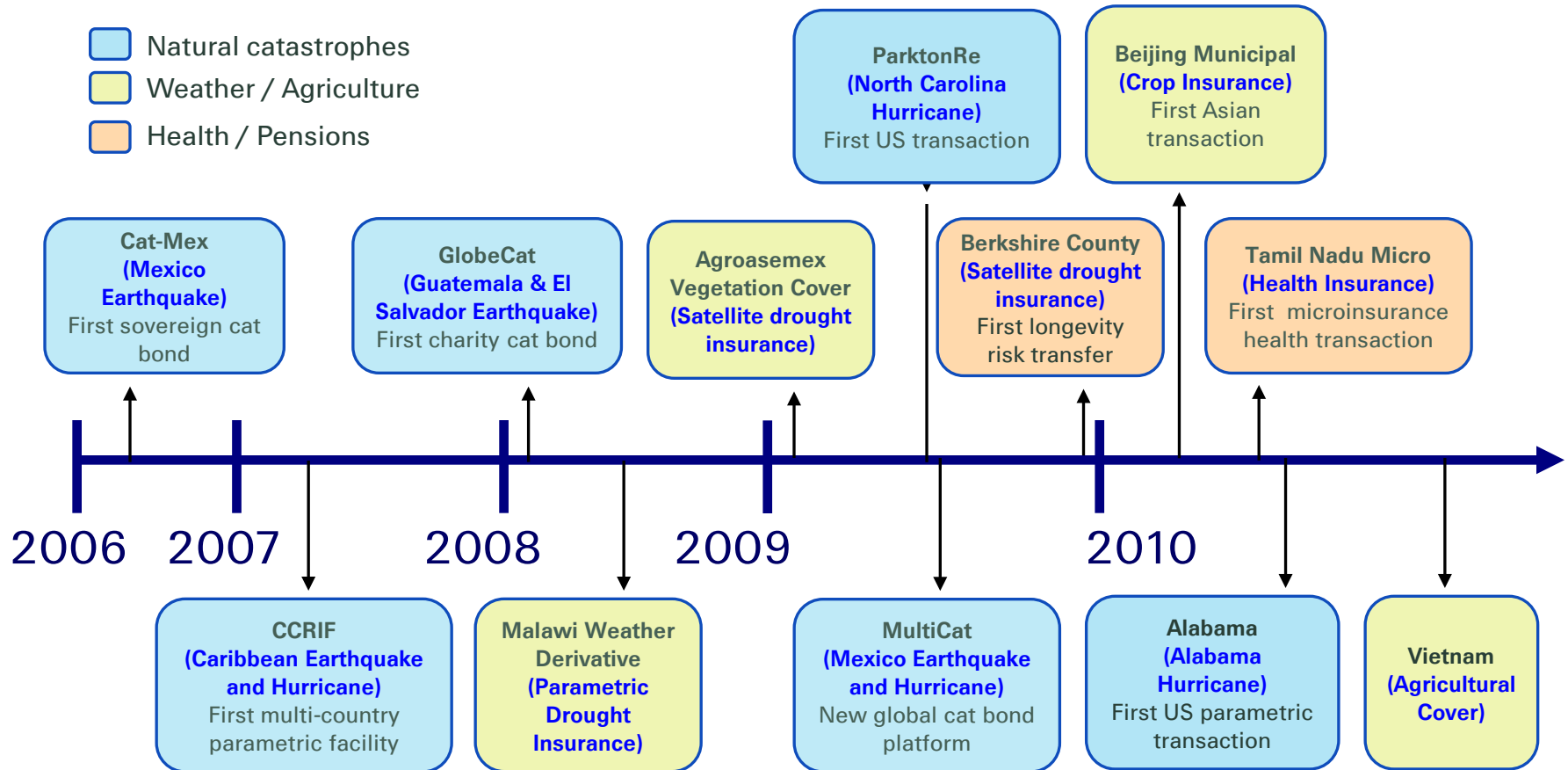
- Risk categories**
- Economic
  - Geopolitical
  - Technological
  - Environmental
  - Societal



Source: Global Risk Report 2010, World Economic Forum, January 2010



# Risk transfer tools increasingly important to the public sector





## Conclusions

### ✓ Good news...

- Governments are increasingly using insurance mechanisms for risk management and risk financing

### ✗ Bad news...

- The exposures are increasing as are the magnitude of their economic impact

### ✓ Good news...

- The private sector and government can work together to tackle this challenge



Thank you



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