Risk Management for natural disasters in Peru

### Residual Risk

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**Contingency loans:**
USD 4,000 Million
As of July 31, 2018

**Fiscal Stabilization Fund:**
USD 6,388 Million
As of July 31, 2018

**FONDES:**
S/ 319.5 Million
As of July 31, 2018
The Catastrophic Bond (CAT Bond) is one of several instruments used to hedge potential losses caused by a severe earthquake.

- The earthquake risk is common in countries of the Pacific Alliance.
- Issuing a catastrophic bond with the countries of the Pacific Alliance reduces premiums and structuring costs.
- The catastrophic bond is a risk transfer instrument.
CAT BOND OPERATIVITY

• Countries from the Pacific Alliance transfer risks to the World Bank and at the same time the World Bank transfers risks to investors.

• As compensation for the risks transfer, World Bank will pay interests to investors through CAT Bond´s coupons.

- Insurance contract (Peru, Mexico & Chile)
- Loan contract (Colombia)

• If during the hedge period, an earthquake occurs with a magnitude equal or greater than defined, World Bank will pay the country the hedge amount, that comes from initial money paid by investors.
PACIFIC ALLIANCE CAT BOND

• The CAT Bond issuance included 5 series, which hedge the risks associated with earthquakes in Chile, Colombia, Mexico y Peru. The World Bank, executed a Roadshow in New York, Zurich and London.

• On February, the World Bank priced each series, attracting a high demand around **USD 2,500 million** from more than 45 global investors, achieving the amount required by each country:
  • Peru : USD 200 million
  • Chile : USD 500 million
  • Colombia : USD 400 million
  • Mexico : USD 160 million and USD 100 million

• The Pacific Alliance issuance for USD 1,360 million is the largest CAT Bond executed by the IBRD (World Bank), the most important in Latin America, and the second in the history of the CAT Bonds.
CAT BOND: PERU CASE STUDY

- Insured entity: Republic of Peru
- Insurer / Structuring entity: IBRD – World Bank
- Insured risk: Earthquake event
- Coverage period: 3 years
- Insured amount: USD 200 million
- Payment Function: 30% - 70% - 100%
- Interest rate: 6.00%
- Trigger type: Cat-in-the-grid

The final coupon was 175 basis points below the initial rate announced (IPTs) and final allocation (USD 200 million) had a high demand (3 times the offer amount, around USD 600.5 millions).
CAT-IN-THE-GRID:

It is based on the characteristics of the earthquake as location, magnitude and depth of the earthquake. This trigger defines boxes that are located on geographical areas that cover part of the national territory.

Each box has assigned an earthquake magnitude trigger for each payment function (3 per box in the case of Peru) and the hedge is activated when an earthquake occurs in the box (place and depth of epicenter) with equal or greater magnitude than triggers.
CAT BOND PAYMENT STRUCTURE

S: Maximum insured sum

Payment function of the insurance: Linear by Steps

US$%

100% S
70% S
30% S
0% S

Magnitude

Trigger 1
Trigger 2
Trigger 3
**CASE 1:** Earthquake of 7.2 ° magnitude, with epicenter in the **red point:**

The calculation agent:

- Check latitude and longitude (epicenter) with USGS data - on average 45 calendar days (it includes magnitude and epicenter stabilization + report).
- Verify magnitude: 7.2 ° > 7.0 ° => the insurance payment is activated.
- Verify the amount to be paid:
  
  7 ° <7.2 ° <7.3 ° => Peru receives 30% of the insured amount.
- We wait for the next event.

**CASE 2:** Earthquake of 6.9 ° of magnitude, same epicenter:

- It does not pay.
- We wait for the next event.

**Trigger 1:** 7.0° (30% Insured Amount)
**Trigger 2:** 7.3° (70% Insured Amount)
**Trigger 3 :** 7.5° (100% Insured Amount)
PERU: CAT BOND

THEMATIC BONDS: BLOSSOMS OF THE BOND MARKET?

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