Uninsured losses from natural catastrophes are a growing burden for governments
Natural catastrophe losses 1970 – 2016 (in 2016 USD billion)

Source: Swiss Re Economic Research & Consulting and Cat Perils.
Beyond natural catastrophes....

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

- **Pensions**: US pensions underfunded by USD 1 trillion
- **Disasters**: Miami hurricane could cause up to USD 500 billion in economic losses
- **Pandemics**: Average annual cost of flu pandemic outbreak estimated at $60bn a year

Fiscal: S&P calculates potential sovereign rating impact of natural catastrophes

Net rating impact (select cases with more than 1/4 notch impact)

Source: Swiss Re, Standard & Poor's calculations.

© Standard & Poor’s 2015.

S&P states:

“…natural disasters (earthquakes, tropical storms, floods, and winter storms), which can be expected once in every 250 years, can weaken sovereign ratings”.

“Insurance coverage can act as a mitigant”
Monetary: Potential Inflation Impacts of Natural Disasters

- Natural disasters have a significant impact on inflation.
- Impact is muted for advanced economies with exception of largest 25% of events.
- Impact material in short term, particularly for sub-indices, but more ambiguous in medium term.

Table 2: Estimated inflation impact of disasters

<table>
<thead>
<tr>
<th></th>
<th>Headline</th>
<th>Food</th>
<th>Housing</th>
<th>Energy</th>
<th>CPIxFHE</th>
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<tbody>
<tr>
<td><strong>75th percentile</strong></td>
<td></td>
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<tr>
<td>Quarter 0</td>
<td>0.264**</td>
<td>0.164**</td>
<td>-0.069</td>
<td>-0.149</td>
<td>0.016</td>
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<tr>
<td>Quarter 1</td>
<td>0.184*</td>
<td>0.158*</td>
<td>-0.058</td>
<td>-0.149</td>
<td>-0.101*</td>
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<tr>
<td>Quarters 2-3</td>
<td>0.159</td>
<td>-0.219*</td>
<td>-0.231***</td>
<td>-0.117</td>
<td>-0.121</td>
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<tr>
<td>Year 1</td>
<td>0.607*</td>
<td>0.102</td>
<td>-0.359**</td>
<td>-0.414</td>
<td>-0.206*</td>
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<tr>
<td>Year 2</td>
<td>0.910</td>
<td>-0.030</td>
<td>-0.351*</td>
<td>0.150</td>
<td>-0.142</td>
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<tr>
<td>Year 3</td>
<td>0.769*</td>
<td>0.274</td>
<td>-0.131</td>
<td>0.203</td>
<td>0.034</td>
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<tr>
<td><strong>90th percentile</strong></td>
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<tr>
<td>Quarter 0</td>
<td>0.799**</td>
<td>0.497**</td>
<td>-0.210</td>
<td>-0.451</td>
<td>0.048</td>
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<tr>
<td>Quarter 1</td>
<td>0.557*</td>
<td>0.479*</td>
<td>-0.175</td>
<td>-0.451</td>
<td>-0.306*</td>
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<tr>
<td>Quarters 2-3</td>
<td>0.483</td>
<td>-0.666*</td>
<td>-0.702***</td>
<td>-0.355</td>
<td>-0.366</td>
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<tr>
<td>Year 1</td>
<td>1.840*</td>
<td>0.310</td>
<td>-1.088**</td>
<td>-1.257</td>
<td>-0.624*</td>
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<tr>
<td>Year 2</td>
<td>2.760</td>
<td>-0.089</td>
<td>-1.063*</td>
<td>0.456</td>
<td>-0.431</td>
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<tr>
<td>Year 3</td>
<td>2.331*</td>
<td>0.832</td>
<td>-0.398</td>
<td>0.617</td>
<td>0.104</td>
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</tbody>
</table>

Observations: 22471, 18933, 8191, 9167, 12639
R²: 0.050, 0.042, 0.046, 0.171, 0.054
Case study Uruguay: Largest Transaction to Protect Against Drought and Energy Price Risk

Solution features

- Insured peril: Drought & energy prices
- Use of proceeds: Purchase of energy when drought conditions cause lack of hydro power
- Transaction Size: USD 450m
- Client: UTE (state-owned power company)
- Arranger: World Bank Treasury

Key Takeaways:

1. Contingent liabilities can be insured for fixed costs
2. Combination of both exogenous shock + commodity risk
3. “Insurance” rewards for improved risk management
Innovative risk transfer solutions for the public sector

- **Florida**
  - Hurricane risk

- **Louisiana**
  - Hurricane risk

- **Mexico**
  - Earthquake/hurricane and livestock risk

- **Uruguay**
  - Energy production shortfalls due to drought

- **Caribbean**
  - Hurricane, earthquake and excess rainfall risk

- **United Kingdom**
  - Flood risk

- **Turkey**
  - Earthquake pool

- **Bangladesh**
  - Flood insurance

- **Heilongjiang**
  - Multiperil disaster risk

- **Beijing**
  - Agricultural risk

- **Pacific Islands**
  - Earthquake and tropical cyclone risk

- **Vietnam**
  - Agriculture yield cover

- **India**
  - Weather insurance for farmers

- **African Risk Capacity**
  - Government drought insurance pool

- **Kenya**
  - Livestock insurance

- **Thailand**
  - Crop insurance

- **Guangdong**
  - Typhoon/rainfall

- **Thailand**
  - Crop insurance

- **Mexico**
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