How Climate Change Can Impact Sovereign Ratings

Washington, DC,
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Source for all data presented: S&P Global Ratings. Swiss Re for insurance data

For more S&P climate change analysis please visit https://www.spratings.com/climatechange
Hypothetical Sovereign Rating Impact

(1-in-250-years disaster, current climate condition, downgrades in notches)
Rating impact of floods
(contribution by assessment, current climate conditions, downgrade in notches)

Germany
France
Poland
Austria
Sri Lanka
Czech Republic
Brazil
Hungary
Thailand

Economic
External
Fiscal
Debt

S&P Global
Ratings
Damage ratios tropical cyclones
(% of economic values/properties in country)

- Additional damage due to climate change
- 250-Jahr cyclone, status-quo climate
<table>
<thead>
<tr>
<th>Country</th>
<th>Status-Quo Climate</th>
<th>Climate Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Thailand</td>
<td>0.3</td>
<td>0.2</td>
</tr>
<tr>
<td>Mexico</td>
<td>0.3</td>
<td>0.1</td>
</tr>
<tr>
<td>Colombia</td>
<td>0.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Philippines</td>
<td>0.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Trinidad and Tobago</td>
<td>0.5</td>
<td>0.3</td>
</tr>
<tr>
<td>Taiwan</td>
<td>0.5</td>
<td>0.2</td>
</tr>
<tr>
<td>Honduras</td>
<td>1.2</td>
<td>0.2</td>
</tr>
<tr>
<td>Guatemala</td>
<td>1.4</td>
<td>0.2</td>
</tr>
<tr>
<td>Vietnam</td>
<td>1.8</td>
<td>0.4</td>
</tr>
<tr>
<td>Bermuda</td>
<td>1.5</td>
<td>0.8</td>
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<tr>
<td>Bangladesh</td>
<td>2.2</td>
<td>0.2</td>
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<tr>
<td>Aruba</td>
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<tr>
<td>Dom Rep</td>
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<td>0.9</td>
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<tr>
<td>Jamaica</td>
<td>3.9</td>
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<tr>
<td>Fiji</td>
<td>4.3</td>
<td>0.1</td>
</tr>
<tr>
<td>Bahamas</td>
<td>4.3</td>
<td>0.5</td>
</tr>
<tr>
<td>Barbados</td>
<td>4.8</td>
<td>0.2</td>
</tr>
</tbody>
</table>
Developing countries most at risk from climate change

- Additional damage (% of values): 0.13 (Advanced economies) vs. 0.8 (Developing- and emerging economies)
- Additional GDP per cap loss (%): 0.16 (Advanced economies) vs. 1.1 (Developing- and emerging economies)
- Additional sov. rating downgrades (notches): 0.04 (Advanced economies) vs. 0.2 (Developing- and emerging economies)

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Latin America and Asia to bear the brunt

- Additional damage (% of values)
  - Latin America and Caribbean: 1.0
  - Asia Pacific: 0.6
  - Africa: 0.3
  - Europe: 0.2

- Additional GDP per cap loss (%)
  - Latin America and Caribbean: 1.5
  - Asia Pacific: 0.8

- Additional sov. rating downgrades (notches)
  - Latin America and Caribbean: 0.3
  - Asia Pacific: 0.2

S&P Global Ratings
Insurance Can Limit Sovereign Rating Impact

(Downgrade in notches in 5% Damage-to-Value Scenario)
Additional insurance coverage required to avoid climate change downgrades: too high for many
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