Assessing Local Adaptive Capacity to Understand Corporate and Financial Climate Risks

April 2019
Adaptive Capacity

- Ability to “adjust to potential damage, take advantage of opportunities, and adjust to consequences” (IPCC, 2014)

- Exposure, sensitivity, and adaptive capacity together inform if a city is likely to experience adverse impacts due to extreme weather events and chronic stress driven by climate change
Why it Matters

- Corporations
  - Businesses depend on regional infrastructure (water, energy, transport) to operate; the resilience of this infrastructure underpins their success.
  - Risks identified in risk screenings may be more or less critical depending on the adaptation efforts of the surrounding area.

- Investors
  - Muni bond investors rely directly on the ability of a city to repay its debt.
  - Climate hazards can negatively impact community well-being, real assets, and activities, undermining the local economy and leading to lower city revenues and higher expenditures.
## Table 1

Indicators used to gauge three dimensions of climate preparedness of surveyed water utilities. All metrics were dichotomous, unless noted with other scoring in *parentheses*. See Supplemental Information for scale definitions and normalization.

<table>
<thead>
<tr>
<th>Preparedness Dimension</th>
<th>Indicator Variable</th>
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<tbody>
<tr>
<td>Awareness</td>
<td>1. Agreement: climate change is happening</td>
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<tr>
<td></td>
<td>2. Agreement: climate change is or will affect global water quality</td>
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<td>3. Agreement: climate change is happening in CA</td>
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<td>4. Agreement: climate change is or will affect local water quality</td>
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<tr>
<td>Analytic Capacity</td>
<td>5. Have operations model and can use climate modeled input (3 point scale)</td>
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<td>6. Communication with climate experts</td>
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<td>7. Have Urban Water Management Plan</td>
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<td>8. Participate in regional water plan</td>
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<td>Adaptation Action</td>
<td>9. Any reported climate adaptation activity</td>
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<td>10. Stage of adaptation process (4 point scale)</td>
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<td>11. Participate in a regional climate collaborative</td>
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Credit Rating Agencies

Exhibit 9

CLIMATE TRENDS

CLIMATE SHOCKS

CLIMATE CHANGE CREDIT RISKS FOR PUBLIC SECTOR ISSUERS

Economic disruption

Physical damage

Health and public safety

Population displacement

» e.g. Property loss, supply chain disruption, declining agricultural production

» e.g. Physical loss of roads, utilities, buildings, communication networks, transportation assets

» e.g. Loss of life, jeopardization of critical emergency provisions (medical care, food, water, shelter, power)

» e.g. Short-term forced displacements, long-term population loss

Source: Moody’s Investors Service

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Question from investors and businesses
- How well positioned is a community to manage climate risks?

Requirements
- Context-specific
- Scalable framework that can be applied to any city

Three pillars of adaptive capacity in our framework:
- Awareness
- Economic Characteristics & Financial Resources
- Planning & Implementation
Awareness

- A city’s acknowledgement that climate change is a threat and adaptation is essential

- Qualitative
  - Where is leadership on adaptation situated within the government? How aware are key departments?
  - Are there public resources to build awareness of the community?
Economic Characteristics & Financial Resources

Qualitative

- Is there budget allocated to both adaptation planning and implementation?
- What sources does the city rely on for financing/funding adaptation?
- Are the city’s primary industries sensitive to the hazards that they are exposed to?
- Are there other, macroeconomic and geopolitical factors that may exacerbate a city’s climate vulnerabilities and impact its ability to implement adaptation?
Adaptation Planning and Implementation

- Quantitative

- Qualitative
  - Do plans have stakeholder engagement and monitoring and evaluation built in?
  - Is there evidence of implementation of plans?
  - Do plans incorporate forward-looking climate change projections?
  - Do actions address the most pressing risks?
  - Does adaptation consider the distribution of vulnerabilities and resources across the city?
Augment risk assessments with comparable, qualitative assessments of cities’ adaptive capacity

Inform public-private collaboration to build resilience
Thank you!

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