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S&P: Limited Visibility For Climate Change's Effects on U.S. State and Local Government Credit Quality.

Weather-related events place local governments, which are generally the first responders to disaster, on the front lines of caring for their citizens. They must also manage budget volatility following such events, as well as repair and adapt their infrastructure to prepare for changing risks. In Standard & Poor's Ratings Services' experience, U.S. municipal and state governments have historically been able to manage the risk of natural disasters without diminishing their credit quality. The credit impact of most natural disasters has been limited. There are some exceptions, however: Hurricane Katrina, which hit an underprepared Gulf Coast at a time when the federal government was ill-equipped to respond, led to a number of negative credit actions on local communities and **Louisiana**, and Hurricane Ike led to a downgrade of **Galveston**, Texas' general obligation and water and sewer ratings. To some extent, our ratings on local governments and states incorporate the potential for disasters in high-risk areas, such as the Gulf Coast and the earthquake-prone West, by considering financial flexibility and liquidity in the context of potential losses from a major storm or quake. However, the potential for increasingly frequent climate-related disasters makes the issue more relevant for local governments all across the U.S.

While the timing and severity of weather events remain unpredictable, the increasing uncertainty arising from changing climate patterns represents a difficult-to-quantify risk for local governments. This risk could result in more credit pressure for local governments if the federal government were to not provide timely and sufficient financial support for relief, or if the local government's ability to prepare for disasters — for example through improvements that reduce the impact on infrastructure of extreme weather, transportation adaptation, or flood control measures — comes at the cost of financial flexibility and increased leverage.

Overview

- Climate-related disasters have the potential to pressure some U.S. local governments' credit quality if severity increases and the federal government isn't responsive.
- However, thus far, the impact of such disasters on affected state or local governments' credit quality has been limited to a very few severe cases.
- The major threats to credit quality are depressed economic growth, increased costs for recovery and infrastructure at a time of lower revenues, and reduced federal government support.

In our 2011 article on natural disasters and credit quality (see "**Ready for the Big One? How Natural Disasters Can Affect U.S. Local Governments' Credit Quality**," on Ratings Direct), we noted that Standard & Poor's evaluates the impact of natural disasters in light of key credit factors — both quantitative (such as the government's financial position and the tax base's relative strength and diversity) and qualitative (including management's emergency preparedness and the adequacy of its response).

The Effects Of Weather Events On U.S. Municipal Governments

The immediate effects of extreme weather on local governments may include volatile fiscal performance, strained liquidity, increasing debt burdens, and economic loss during periods of extended extreme weather or disaster recovery. While federal disaster relief is available, increased recovery costs for local governments could result if future federal government austerity affects reimbursement levels. Even when federal relief is available, it might not completely cover the loss of taxing and revenue capacity for entities that rely on property taxes and retail sales, and distribution of federal funds can take several years. Municipalities, therefore, may be tasked with managing the immediate disaster costs — for emergency response costs, debris removal, and restoration of services — using immediately available liquid resources at a time when revenue streams, such as sales taxes and development-related fees, may temporarily decline. If future federal budgets were to limit disaster relief (from the Federal Emergency Management Agency, for instance), an increase in the magnitude and frequency of weather-related events could exacerbate this dynamic over time, forcing local governments to assume more of the recovery costs.

Perhaps most difficult to measure are the long-run economic consequences of a failure to prepare for climate change. In the past two years alone, major weather events have been severe enough to put a dent in national GDP growth for a short time. By some estimates, the deep freeze that gripped the eastern U.S. in early 2014 crimped national first quarter 2014 GDP growth by one- to two-tenths of a percentage point, and Superstorm Sandy lowered growth during the fourth quarter of 2012 although the recovery effort quickly boosted output once again. At the local and regional level, short-run economic effects may be more pronounced and are sometimes accompanied by lost taxing capacity when a portion of the property tax base is damaged. The interdependence of urban infrastructure, such as water and wastewater, power, transportation, and communications systems can magnify the downside risk, as we saw from the damage to the entire **New York** metropolitan region and the **New Jersey** coast following Superstorm Sandy.

These short-term losses may be followed by a rebound in GDP as construction and rebuilding activity ramp up following a disaster. Over the long run, however, taxing capacity at the local level may suffer if, for example, there are significant out-migrations as occurred following Hurricane Katrina, or if reconstruction and development are prohibited in high-risk areas following a disaster, as has occurred in many communities in the Gulf Coast. In other cases, such as in **California's** Sacramento Valley, we have observed the dampening effect of weather-related risk on private development activity in high-risk areas as insurers tighten their underwriting standards for disaster coverage, and governments place constraints on new development. This limits the tax base growth that many municipal issuers rely on to fund their recurring and disaster-related expenditures.

Responding To Climate-Change Risk: Local Strategies And Their Credit Effects

State and local governments are key stakeholders in national climate change-related efforts. States create policies and programs that encourage or discourage adaptation and mitigation at all levels of government through regulation, funding, and public adoption of "clean" technologies. Currently, many state and local governments' efforts to address climate change have focused on land-use planning and incremental improvements to public facilities and infrastructure. Some state and local efforts to reduce carbon emissions have also been undertaken: most notably, in 2012, California became the first state to implement a cap-and-trade program to reduce greenhouse gas emissions, which generates a relatively small amount of revenue for the state, but which we believe has had little effect on the state's credit quality.

A growing number of state and local governments are also making adaptive improvements to reduce

the effects of weather events on critical infrastructure. These include flood control improvements and water storage and delivery system upgrades, as well as storm-preparedness improvements by utility and transit providers to increase infrastructure resistance to severe storms.

In California's Sacramento Valley, for instance, joint federal and local efforts are currently underway to finance levee improvements designed to achieve 200-year flood protection, according to FEMA's most recent standards, which have become stricter in the wake of Hurricane Katrina and subsequent storms. These types of financing projects increase debt burdens and cost-sharing with federal and state agencies. If shared revenues and tax-supported debt together are not sufficient to cover costs, these projects may have the potential to erode credit quality by placing strain on resources available for capital spending.

New York State's Sea Level Rise Task Force is one example of a nonfederal effort to identify and address climate change. The 2010 task force report identifies the risks associated with climate change — particularly rising sea levels — to communities and infrastructure. It also recommends actions for state and local governments to undertake to address these risks, including studying the impact of sea-level change on communities, making regulatory changes to address sea level change, implementing funding mechanisms, and seeking federal aid for adaptation and disaster-prevention measures. However, the recommendations are short on cost details.

In our view, New York's task force and the California investment highlight some of the efforts underway to understand and mitigate weather-related vulnerability. We expect continued focus on this area given the pattern of natural disaster activity over the past decade. The pace and progress of actual investments will likely be slow due to funding constraints at all levels of government.

What's Costlier, Preparing Or Doing Nothing?

Ultimately, the risk for U.S. public finance issuers of a changing climate emanate from the impact of unpredictable weather patterns on infrastructure and economic growth. While we continue to believe that local governments — in collaboration with regional, state, and federal entities -– can withstand the effects of extreme weather with limited impact on credit quality, only time will tell whether an increase in the unpredictability of climate-related events will make ratings more volatile. But as evidence of climate change and related risks mounts, the costs associated with not preparing for them may continue to grow.

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