BlackRock April 2019 Report Takeaways - Getting Physical, Scenario Analysis for Assessing Climate- Related Risks (for Investors)

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2. BlackRock's collaboration with **Rhodium Group** combines our asset-level expertise with the latest climate science and big-data capabilities. The result — generating some **160 terabytes of data — is a granular picture of investment-relevant physical climate risks**. We can now assess direct physical risks to assets on a local level — today and under different future climate scenarios. We can also estimate knock-on effects, such as the impact on energy demand, labor productivity and economic activity.

3. **Physical climate risks vary greatly by region for long-dated assets**: **(1) U.S. municipal bonds, (2) commercial mortgage-backed securities (CMBS) and (3) electric utilities.** A localized assessment of such risks under different climate scenarios can provide investors with 1) a sharp lens for risk management and diversification; and 2) an informed basis for engaging with companies and issuers about their climate resiliency and capital spending plans.

4. Extreme weather events pose **growing risks for the credit worthiness of state and local issuers in the $3.8 trillion U.S. municipal bond market**. Some 58% of metropolitan areas face climate-related **GDP hits of 1% or more by 2060–2080** under a "no climate action" scenario, we find. **In the highest risk areas, the importance of assessing muni issuers' resolve and financial ability to fund adaptation projects to mitigate climate risks.** We see potential to extend this analysis to sovereign issuers, including emerging markets.
5. **There is little evidence that climate-related risks are priced into the municipal bond market today. Insurance coverage in climate-affected areas is likely to become more expensive — if still available.** Estimated climate impact on GDP of top-15 U.S. MSAs by economic weight, 2018–2100 indicates **Boston with GDP of $439 billion is ranked 9th in top-15 U.S. metropolitan statistical areas (MSAs) by GDP. Boston's total outstanding debt municipal bond issuance is $67 billion, and Boston's MSA's weight in the S&P National Municipal Bond Index is 3.2%.**

6. **Hurricane-force winds and flooding are key risks to commercial real estate.** Our analysis of recent hurricanes hitting **Houston and Miami** finds that roughly **80% of commercial properties tied to affected CMBS loans lay outside official [FEMA] flood zones** — meaning they may lack insurance coverage. **This makes it critical to analyze climate-related risks on a local level.** The economic impacts of a warming climate could lead to **rising CMBS loan loss rates over time.**

7. **Aging infrastructure leaves the U.S. electric utility sector vulnerable to climate shocks such as hurricanes and wildfires.** We assess the exposure to **climate risk of 269 publicly listed U.S. utilities** based on the physical location of their plants, property and equipment. **A key conclusion: The risks are underpriced.** Electric utilities with exposure to extreme weather events typically suffer temporary price and volatility shocks in the wake of natural disasters. **We find some evidence that the most climate-resilient utilities trade at a premium.** We believe this premium could increase over time as the risks compound and investors pay greater attention to the dangers.

8. **Climate Complacency exists today, and markets are short-sighted.** Investors who are not thinking about climate-related risks, or who view them as issues far off in the future, may need to recalibrate their expectations. Some physical changes — such as slowly rising sea levels — can seem outside of a traditional investment horizon. **Yet the most pressing risks, such as exposure to hurricanes, wildfires and droughts, are clear and present — and often hidden in investors' portfolios *today*.**

9. **The Financial Stability Board's *Task Force on Climate-Related Financial Disclosures* separates climate risks into two categories. Transition risks:** The risks to businesses or assets that arise from **policy, legal, technological and/or market changes** as the world seeks to transition to a lower-carbon economy. **Physical risks:** The risks to entities or assets from **the climate change impacts already occurring** and expected to continue in the years ahead under different greenhouse gas emissions scenarios.

10. **Scenario analysis draws attention to key factors that will drive future developments.** This, in turn, can help in assessing how resilient an organization is against potential disruptions. Does it have the ability to adapt to the changes — and take advantage of related opportunities? Does it have plans in place to mitigate the risks? Scenarios can provide investors with a framework for answering such questions.

11. Rhodium Group found **the median risk** to any one of 60,000 CMBS loan properties (in BlackRock's proprietary U.S. database) **being hit by a Category 4 or 5 hurricane has risen by 137% since 1980**. By 2050, the risk of being hit by a Category [4 or] 5 hurricane is projected to rise 275% under a "no climate action" scenario.

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