Excerpts From

SPECIAL REPORT
CLIMATE CHANGE, Preparing for the Long Term

Standard & Poor's Credit Week

May 28, 2014

S&P Report Demonstrates Imperative Need for Criteria to Avoid Climate Downgrades Covering:

- Ongoing Systemic Climate Damages
- Unmanageability / Contagion
- Unabated Increasing Climate Risk Causing Downgrades
- Risk Reduction Criteria are Needed to Avoid Downgrades
- The Market & Investors are Supporting Financial Products Reducing Climate Risk

Ongoing Systemic Climate Damages

"In the past decade, the biggest losses from weather events occurred in 2005 following hurricanes Katrina, Wilma, and Rita. Those losses were either the main reason or a contributing factor to our downgrades of four of the more than 130 reinsurers that we rate (p. 20)."

"The increasing frequency of extreme weather events such as flooding, intense storms, heat waves, and cold snaps is putting pressure on companies to identify, quantify, and disclose the material risks related to such events (p. 29)."

"Extreme weather events are on the rise (p. 30)."

"Climate event risk can have a significant impact on an economy. According to Allianz SE, weather and climate directly or indirectly affected $5.7 trillion of the UIS economy in 2012, representing over 30% of GDP. … Comparable exposures for the EU in 2012 were $5.9 trillion, equivalent to 35.8% of GDP (p.

32).”

Sandy lowered [GDP] growth during the fourth quarter of 2012 (p. 54).”

Unmanageability / Contagion

It’s well documented by a consensus of leading climate scientists that climate change is close to becoming unmanageable globally with systemic damages in all economic sectors (warning by Former RepublicanTreasury Secretary Hank Paulson in NY Times / WSJ (2014) using Updated Wall Street Due Diligence released at NYSE 2013).

“Key points from our report are that the impact on creditworthiness will mostly be negative and probably be felt via drags on economic growth and public finances (p. 6).”

“For both governments and industry, the lack of clear signals means that risk mitigation strategies may be delayed or lose out to more immediate problems, leaving businesses and investors vulnerable to rapid policy shifts and the weather itself (p. 6).”

Unabated Increasing Climate Risk Causing Downgrades

“Hurricane Katrina, which hit an unprepared 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. … [T]he potential for increasingly frequent climate- related disasters makes the issue more relevant for local governments all across the US (P. 53).”

“We think industry regulators and investors are likely to focus more closely on climate and carbon risks and an indicator of company performance. …(at 1)*”*

“[I]ncreasing uncertainty caused by changing climate patterns represents a growing risk for local governments that can be difficult to quantify … and could result in more credit pressure for local governments, … [especially if] *strategies*

that protect infrastructure and transportation, and control flooding — come at the cost of financial flexibility and increased leverage." (p. 7)."

"Climate change is likely to be one of the global mega-trends impacting sovereign creditworthiness, in most cases negatively (at 9)."

"The evidence suggests that it is probably safe to expect that for most national economies, other things being equal, climate change will negatively impact national welfare and economic growth potential. Observations corroborating this expectation could lead Standard & Poor's to lower sovereign ratings on the most affected sovereigns (p. 13)."

"[I]f there is an increase in the occurrence of extreme weather events [including rising seas], this could trigger negative rating actions [on insurers / reinsurers], particularly if they weaken re / insurers' capital positions (p. 20)."

"[i]nvestors are starting to focus on indirect carbon price risk and its impact on corporate credit quality. Standard & Poor's analyzes the effect of carbon price risk on a company's creditworthiness by considering the direct and indirect financial effects of exposure through the profitability, asset and liability valuation, and cash flow (p. 27)."

"Worsening financial performance as a result of climate event risk can negatively impact both short-term liquidity and long term debt financing positions, leading to an increase in credit risk (p. 29)."

"Climate event risk has the potential to damage profitability, impair asset value, and constrain cash flow. This can weaken a company's liquidity position and compromise its ability to raise funding and service debt over both the short term and log term. In Standard & Poor's Rating Services' opinion, corporate credit quality may suffer if companies do not implement adequate risk management measures regarding climate events (p. 30)."

"Variations in weather can impair a company's financial risk profile from the supply or demand side, as well operationally, with potential knock-on effects on creditworthiness arising from fluctuating revenues and capital expenses. … Consequently, companies that fail to take account of these long-term risks may suffer significant stress and have little flexibility to manage their exposure (p. 33)."

"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 Hurricane Sandy.

Risk Reduction Criteria are Needed to Avoid Downgrades

"Both short and long term risk management strategies need to take into account not only the gradual effects of increasing temperatures, but also the sudden and often profound effects that extreme weather events can have (p. 3)."

"Managing climate event exposure is becoming critical (p. 33)."

"Overall, we believe that credit quality may deteriorate if a company does not implement adequate risk management measures to cope with climate events (p. 33)."

"[A]s evidence of climate change and related risks mounts, the costs associated with not preparing for them may continue to grow (p. 55)."

The Market & Investors are Supporting Financial Products Reducing Climate Risk

"In our view, corporate green bond issuance is likely to accelerate not only because this aids diversification of investor pools for issuers, but because of the growing intent of investors to implement environmental, social, and governance goals (p. 41)."

"We believe that growth in the green bond market is the result of a number of converging trends:

- *The growing awareness of climate change by investors and the public, and* *of its potential impact on businesses, human life, and asset values;*

- *The recognition that a low carbon pathway for the global economy to keep global temperatures within acceptable limits requires vast amounts of long-term cost-effective capital, which only institutional investors can provide on a scale via fixed-income instruments that are rated at least investment grade; and*

- *The development of voluntary criteria and standards for green bonds (p. 48)."*

"[I]nvestments in low-carbon infrastructure could range from 1% to 3% of global GDP, or in excess of $1 trillion a year through 2050 (p. 49)."