March 2, 2022

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Chief Executive Officer
Municipal Securities Rulemaking Board
1300 I Street NW, Suite 1000
Washington, DC 20005

Ronald W. Smith
Corporate Secretary
Municipal Securities Rulemaking Board
1300 I Street NW, Suite 1000
Washington, DC 20005

Dear Mr. Kim and Mr. Smith:

We are writing regarding the MSRB Request for Information on Environmental, Social and Governance (ESG) Practices in the Municipal Securities Market. As the principal regulator of the $4 trillion municipal securities market, the MSRB plays a vital role for municipal securities across the country.

It is a pleasure to submit comments on behalf of Ceres and the Ceres Accelerator for Sustainable Capital Markets. Ceres is a nonprofit organization with over 30-years of working on climate change. The Accelerator works to transform the practices and policies that govern capital markets in order to reduce the worst financial impacts of the climate crisis. It spurs capital market influencers to act on climate change as a systemic financial risk—driving the large-scale behavior and systems change needed to achieve a just and sustainable future and a net zero emissions economy. It was also a pleasure for the Accelerator to host the MSRB and other industry leaders during our recent webinar on *The Changing Climate for Municipal Securities*.

Ceres works with leading global investors and companies. Our Investor Network currently includes 217 investors that collectively manage over $49 trillion in assets. Our investors are concerned about the impact of climate risk on all elements of the capital markets, including the municipal debt market. Ceres is a founding partner of the Investor Agenda, the Net Zero Asset

Managers Initiative and the Paris Aligned Investor Initiative, which includes investors focused on sustainable investments within their portfolios and other assets. Our Company Network includes approximately 60 of the largest global companies with whom we work on an in-depth basis on climate strategy and disclosure, among other issues.

Executive Summary of our Comments

We conducted interviews with industry leaders in preparing this response. Our interviews found general agreement that:

- Climate risk represents a systemic risk to the municipal bond market,
- Climate risk is material, affecting all market participants (and investors in particular),
- Climate risk disclosure as currently practiced, is fragmented, incomplete, inadequate, inconsistent, and inefficient.

Although in the short run municipal issuers may enjoy the cost savings associated with minimal disclosure requirements, in the long run this perceived benefit could be more than offset by a rapid loss of public confidence in the municipal market[1]. As a result, Ceres respectfully recommends that the MSRB undertake the following actions to protect investors, municipal issuers and the public interest against the risks posed by climate change. We urge the MSRB to:

1. Publicly acknowledge that climate change poses a systemic risk to the U.S. municipal bond market,
2. Recommend that municipal issuers adopt the TCFD disclosure framework in order to provide investors and stakeholders with timely, decision-useful climate-relevant information,
3. Support efforts to amend the SEC Continuing Disclosure Rule[2] to include Climate Risk disclosure,
4. Enhance Board Governance and Senior Management expertise as it pertains to climate risk and create a Board Level Standing Committee on Municipal Bond Market Climate Risk Management,

[1] As discussed in "Climate Change and Municipal Finance", financial markets rely on participants' belief that the prices of debt and equity securities and other financial products more or less approximate the underlying real economy and its risks. "When a natural disaster, pandemic, or other economic shock reveals a large gap between actual risk and asset prices, markets can experience severe volatility. When investors do not understand what is happening in a particular market, they withdraw their capital and look for safe havens. Stated differently, capital markets rely on steady investor demand to provide liquidity. Investor demand in turn relies on accurate pricing. Accurate pricing relies in turn on effective risk assessment. And effective risk assessment relies in turn on transparency and comprehensive disclosures." Center for American Progress, May 2020

[2] https://www.msrb.org/msrb1/pdfs/SECRule15c2-12.pdf

5. Further update EMMA to facilitate timely, machine-readable disclosure of climate risk and ESG factors. This aligns with the MSRB's Strategic Plan to improve the user experience and system security, performance and functionality of EMMA[3],
6. Update the Municipal Securities Exams (for example the Series 52, Series 53 exams) to test for climate risk management competency,
7. Conduct research and educate municipal issuers, investors and other stakeholders about climate-related physical and transition risks,
8. Encourage all U.S. municipal bond market stakeholders - such as bond counsel, data vendors, valuation services, bond insurers, municipal advisors and especially rating agencies and other standard setters - to fully incorporate climate risk management into their internal processes.

More detail on each recommendation can be found in the Appendix to the Letter, starting on page 10.

The municipal market faces unique risks from climate change. While issuers, investors and regulators in corporate securities have become increasingly aware of the significant climate change risks inherent in their business activities and investment portfolios, sensitivity to climate risk in the municipal market has thus far remained minimal. Yet, municipal bond investors and the municipalities themselves are at greater risk in unique ways. In theory, corporations facing the effects of climate change can move their headquarters and critical facilities, shift their product mixes and supply chains, and pivot their strategies. Public entities including state, counties and municipalities, on the other hand, are place-based and mission-constrained.

The other unique risk in this sector relates to the number of issuers. The $4 trillion[4] U.S. municipal securities market is unparalleled in the number of participating issuers. Of the 90,126 governmental units nationwide[5], it is estimated that over 50,000 have outstanding municipal debt, representing approximately 1 million securities, dwarfing in size the approximately 6,000 issuers and 43,000 securities in the U.S. corporate bond market[6]. No other U.S. capital market encompasses so many issuers and so many securities[7].

The fact that municipalities typically issue very long-dated debt liabilities makes this market particularly sensitive to the risk of climate change. Bonds maturing in 15-30 years are the norm in the municipal debt market[8]. These long-dated liabilities make it imperative for investors to

[3] MSRB Strategic Plan Fiscal Years 2022 - 2025
[4] MSRB, Muni Facts, 2021
[5] From Municipalities to Special Districts, Official Count of Every Type of Local Government in 2017 Census of Governments, United States Census Bureau, October 29, 2019
[6] In terms of debt outstanding, the corporate debt market's $10.6 trillion debt outstanding is more than twice the $3.9 trillion municipal debt outstanding. MSRB, MuniFacts 2020, 2021
[7] MSRB, Self Regulation and the Municipal Securities Market, 2018
[8] The maturity of tax exempt debt must be tied to the useful life of the asset(s) financed, which for public infrastructure and buildings is often quite long. In Jan.-May 2021, the average tenor of municipal bonds was 17 years, according to ESG Integration in Sub-Sovereign Debt: The U.S. Municipal Market.

incorporate the effects of climate change into investment decisions, especially climate change-related physical risks such as damage from fires, floods, cyclones, hurricanes, tornadoes, droughts, and rising sea-levels (henceforth referred to as “physical risk”).

Finally, these bonds are typically considered among the safest available, and so many investors purchase them as “buy and hold” investments. Given this long term investment horizon, bond holders may be less focused on the risks (such as climate risk). This is especially true if they hold them through a mutual fund or related instrument.

The frequency and severity of extreme weather events has increased significantly in recent years. The latest Intergovernmental Panel on Climate Change (IPCC) report states that “climate change is a threat to human wellbeing and the health of the planet” and that “any further delay in concerted global action will miss a brief and rapidly closing window to secure a liveable future”[9]. Also, according to NOAA’s National Center for Environmental Information (NCEI), 2020 was the most expensive year yet for weather and climate disasters: “There were 22 separate billion-dollar weather and climate disasters across the United States, shattering the previous annual record of 16 events, which occurred in 2017 and 2011”[10]. During 2021, climate disasters killed 688 people and cost the US more than $145 billion[11].

Climate change is intensifying extreme weather events. America's coasts are at risk of flooding caused by rising seas, stronger hurricanes and torrential rain. As the climate crisis accelerates, extreme flooding threatens more critical infrastructure in the United States. A recent analysis found 25% of all critical infrastructure in the US, including assets like hospitals, police stations and power plants, are at risk of being rendered inoperable due to flooding. This report also found nearly 2 million miles of road, representing 23% of US roadways, at risk of becoming impassable due to flooding[12] [13].

These acute and progressive physical risks have the potential to seriously disrupt the economies of these municipalities as well as the communities that live there. For example, more than 40 percent of Americans live in counties hit by climate disasters in 2021 and more than 80 percent of Americans experienced a heat wave[14]. Climate impacts are already manifesting in the largest state economies. In just the last few years, California has experienced recording-breaking wildfires[15], in both number and size, that have taken hundreds of lives, bankrupted the state’s largest utility, left millions regularly without power and brought home insurability into question. Florida is facing rapidly rising sea levels and now-routine flooding that

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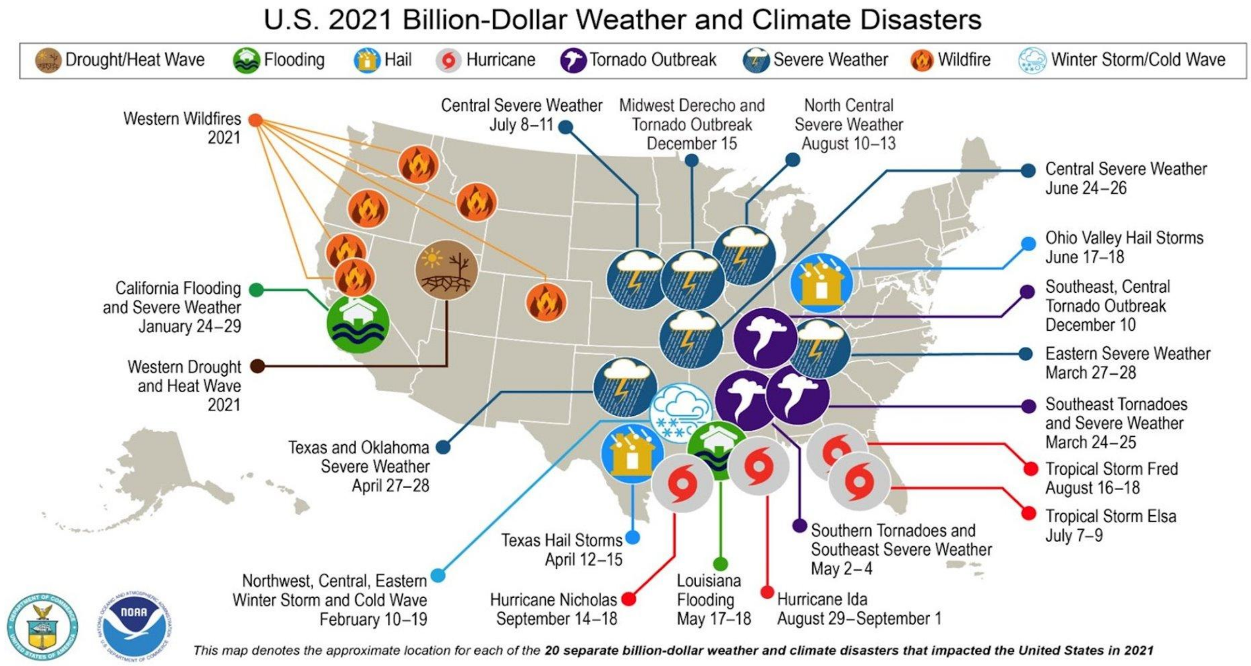
[9] IPCC, https://www.ipcc.ch/report/ar6/wg2/resources/press/press-release, February 2022
[10] NOAA, “2020 U.S. billion-dollar Weather and Climate Disasters in Historical Context”, January 2021
[11] Business Insider, January 11, 2022
[12] The Cost of Climate: America’s Growing Flood Risk, Feb. 22, 2021 (First Street Foundation)
[13] ‘*25% of all critical infrastructure in the US is at risk of failure due to flooding, new report finds*’, CNN October 11, 2021
[14] ‘More than 40 percent of Americans live in counties hit by climate disasters in 2021’, Washington Post, January 5, 2022
[15] Wildfires Destroy Thousands of Structures Each Year, Nov. 2020, California Contemplates a Dark and Fiery Future, October 2019

are eroding coastal property values and wiping out freshwater supplies[16]. In fact, these are just the most recent events. Between 1980 and 2020, Texas experienced 124 separate billion dollar disasters – the most of any state[17].



https://www.ncdc.noaa.gov/billions/

The Fourth National Climate Assessment[18] outlines the impact of climate change on the economy, water, health, tourism and recreation, and other direct impacts that are relevant to municipal bonds: “The impacts of climate change are already being felt in communities across the country. Future climate change is expected to further disrupt many areas of life, exacerbating existing challenges to prosperity posed by aging and deteriorating infrastructure, stressed ecosystems, and economic inequality.”

Local and regional economies, which are key drivers of revenue for municipal entities, are at risk from climate change, according to the report.

The Fourth National Climate Assessment also addresses differential regional impacts, and the outsized impact on marginalized communities, including people of color and indigenous peoples: “Impacts within and across regions will not be distributed equally. People who are already vulnerable, including lower-income and other marginalized communities, have lower

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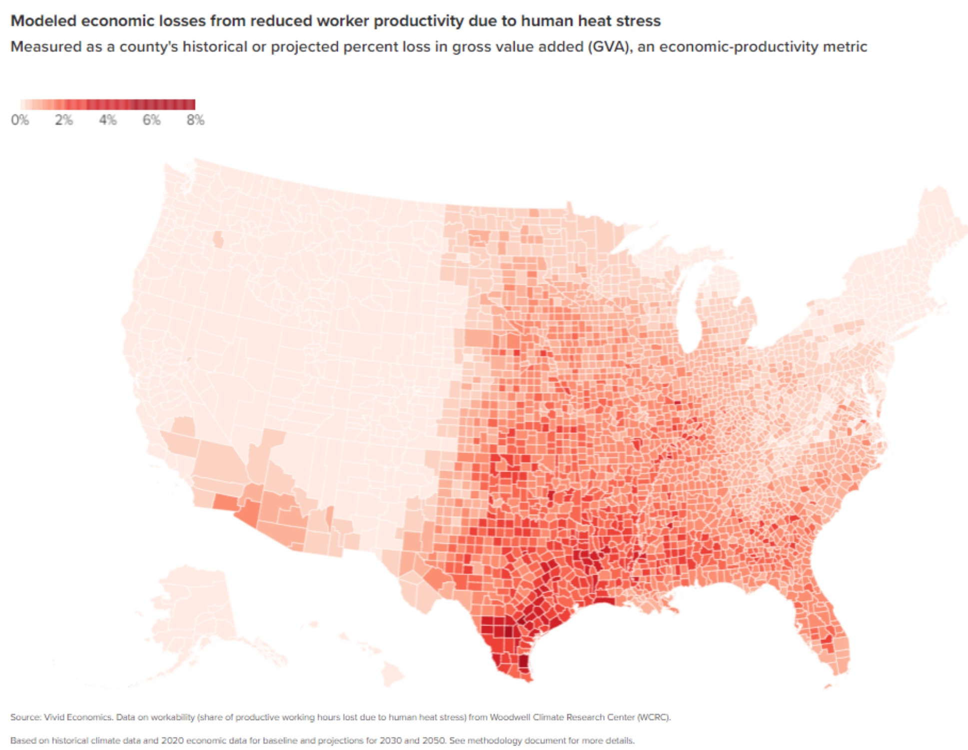
[16] Salt Levels in Florida’s Groundwater Rising At Alarming Rates; Nuke Plant is One Cause, Howard Center for Investigative Journalism, November 23, 2020, Your Florida Coastal Home Could Lose 15% of Value by 2030 Due to Sea Level Rise, Tampa Bay Times, January 17, 2020

[17] NOAA, 2021

[18] The National Climate Assessment is produced by the US Global Change Research Program, which is operated by 13 federal agencies

capacity to prepare for and cope with extreme weather and climate-related events and are expected to experience greater impacts. Climate change increasingly threatens Indigenous communities' livelihoods, economies, health, and cultural identities by disrupting interconnected social, physical, and ecological systems."

Data modeling techniques have advanced significantly in recent years, allowing municipal bond market stakeholders to understand both the macro impact of climate change on the economy, infrastructure, health, and safety, and differential impacts on locations, sectors, and historically marginalized communities. In "Extreme Heat: The Economic And Social Consequences for the United States"[19] the Atlantic Council demonstrates the impact of one aspect of climate change – the increase in extreme heat days – on labor productivity, tourism, agriculture, and health at a county-by-county level: "Under baseline climate and demographic conditions, the United States loses an average of $100 billion annually from heat-induced declines in labor productivity. Without meaningful action to reduce emissions and/or adapt to extreme heat, labor productivity losses could double to nearly $200 billion by 2030 and reach $500 billion by 2050." In some counties, lost productivity is upwards of 8% of gross value added (GVA) (see below).



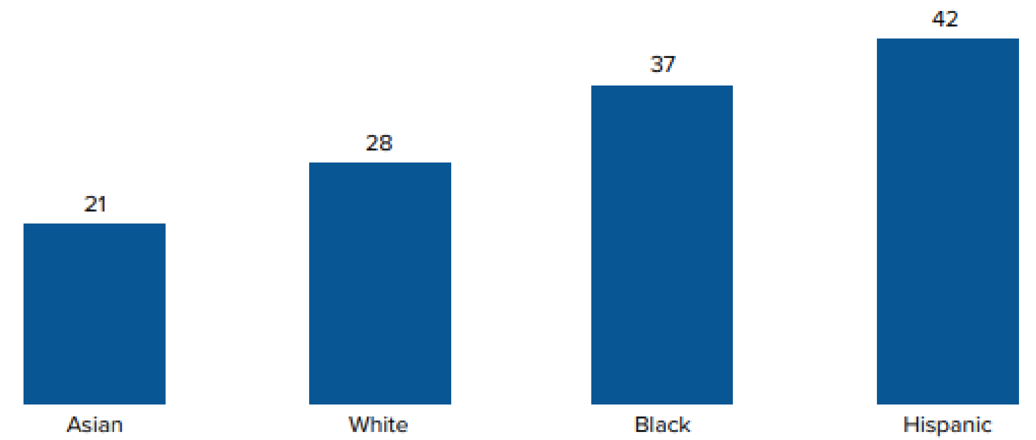
Source: Extreme Heat: The Economic and Social Consequences for the United States, Atlantic Council, August 2021

[19] Extreme Heat: The Economic And Social Consequences for the United States, Atlantic Council, August 2021

The impact of extreme heat falls more heavily on Black and Hispanic workers who tend to live and work in more heat-exposed regions of the country. They face proportional productivity losses 18% percent greater than non-Hispanic White workers[20].

Figure 5: Exposure to Heat by Race, Baseline Climate Conditions

Average Annual number of days with exposure to maximum daily temperature above 90°F by race, baseline



Note: Based on historical climate data from 1986 to 2005 and demographic details from the 2019 American Community Survey.

Source: Vivid Economics.

Source: Extreme Heat: The Economic and Social Consequences for the United States, Atlantic Council, August 2021

Americans are taking note of climate science and increasingly connecting the dots between climate change and negative effects on property values, the cost of public services, and the loss of tax revenues which their communities rely on to provide public services and service debt. According to the Pew Research Center, six-in-ten U.S. adults believe that climate change will hurt them personally[21], and a study by the Yale School of the Environment found public concern about climate change at a record high, with 73% of Americans believing that climate change is happening[22]. Across the country, taxpayers are feeling the direct impact of climate change:

- On the Outer Banks of North Carolina, homeowners in Avon are confronting a 50% increase in taxes to protect their homes and the only road to their town[23].
- Along the Arizona-Utah border, tourism has plummeted as the water level on Lake Powell hits record lows, leaving boat ramps high and dry[24].

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[20] Extreme Heat: The Economic And Social Consequences for the United States, Atlantic Council, August 2021
[21] Pew Research Center "Americans are Less Concerned - But More Divided - On Climate Change Than People Elsewhere"
[22] Yale School of the Environment, "Public Concern About Climate Change Remains at Record High", May 2020
[23] New York Times, "Tiny Town, Big Decision: What Are We Willing to Pay to Fight the Rising Sea?", March 14, 2021
[24] The Guardian, "Climate Change Has Become Real: Extreme Weather Sinks Prime U.S. Tourism Site", July 29, 2021

- Farming communities in Iowa have suffered damage to crops, livestock and livelihoods from climate change-related extreme weather including droughts, extreme rains, floods, and most recently, a severe derecho[25].
- Residents of Galveston, Texas are grappling with repeated property damage from extreme weather events including ice storms, hurricanes, and heat waves[26].
- Sea levels along the U.S. coastline are projected to rise, on average, 10 - 12 inches in the next 30 years (2020 - 2050). This is as much as the rise measured over the last 100 years (1920 - 2020). Effects may vary, but no U.S. coastal city will be left unaffected[27].
- Maryland power customers are concerned about the rising costs of protecting the power grid from extreme weather events[28].

In many cases, local taxpayers are also municipal bondholders, wondering whether climate change will result in a form of expanded risk, where both their community and investment portfolio is at risk. Unfortunately, current municipal market disclosure of climate risk is rare, climate-related regulation is limited and bond pricing demonstrates little differentiation between issuers with greater and lesser exposure to climate risk factors[29].

A thoughtful and well-researched Brookings Institution study of the offering statements for 1,500 municipal bonds found that only 10.5% of revenue bond offerings mentioned climate change risks, and that figure is just 3.8% for general obligation bond offerings. Moreover, several highly climate-change-at-risk cities make no mention of climate change in their bond offering memorandum. By overlaying geospatial climate risk data against the location of various municipal bond issuers, no correlation was found between climate risk disclosure and the severity of local climate risks, including issuers such as New Orleans, Los Angeles, Charleston South Carolina, and Mobile, Alabama[30].

Unintuitive as it may sound, market prices and municipal bond credit ratings do not currently seem to be influenced by climate risk – positively or negatively. One municipal market expert put it very bluntly: “These risks are not incorporated in the municipal market. At all. Because investors want the tax exemption, they’re not saying ‘no’ because they want the product. They

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[25] Iowa State University Extension and Outreach, “Iowa Farmers Are Pursuing Actions in Response to Changing Weather”, September 15, 2021
[26] Inside Climate News, Ice Storm Aftermath: More Climate Extremes Ahead for Galveston, April 2021
[27] National Ocean Service, National Oceanic and Atmospheric Administration, 2022 Sea Level Rise Technical Report
[28] Towson Times, “As Extreme Weather Events Rise, So Do the Costs of Protecting The Power Grid”, September 15, 2021
[29] In “Muni Bond Investors Need Straight Talk About Climate-Change Risk”, MarketWatch March 2021, the author provides an example of two securities with similar ratings and pricing, but one has substantially greater physical risk from extreme weather events, in this case wildfire: “For example, compare the municipal bonds recently issued by Middletown Unified School District and Red Bluff Unified Elementary School, both in California. Both bonds mature in 2048 with AA ratings and similar pricing. Yet the risk of serious property damage from wildfires is more than five times higher in Middletown than in Red Bluff.”
[30] Brookings, Flying Blind: What Do Investors Really Know About Climate Change Risks in US Equities and Municipal Debt Markets?, October 2020

don't discern risk. It's not a prioritized risk in the ratings. So the rating agencies aren't penalizing the issuer, no-one is telling the issuer you have to disclose risks. No one wants their cost of capital to go up"[31]. Furthermore, many municipal debt financings are backed by revenues from a single asset such as a water treatment facility or tolls from a road. These assets face climate change related supply chain risks such as the availability of water for treatment and sale in drought conditions[32]. Many of those we interviewed in support of the recommendations included in this filing believe the provision of additional disclosure related to these increasing physical risks is critical to protect investors and other market participants.

Once again, we congratulate the Municipal Securities Rulemaking Board (MSRB) for issuing this Request for Information (RFI). Your leadership on this critical issue is deeply valued. More background on our recommendations is included in the appendix that follows. We would be pleased to discuss any questions you may have on our feedback.

Sincerely,

Steven M. Rothstein
Managing Director
Ceres Accelerator for
Sustainable Capital Markets

Jim Scott, CFA
Senior Advisor, Financial Institutions
Ceres Accelerator for
Sustainable Capital Markets

[31] Thomas Doe, President of Municipal Market Analytics as quoted in MarketWatch, "Cities and States on the Frontline of Climate Change Aren't Always Upfront About Risks. Does the Municipal Bond Market Care?", August 2021

[32] FitchRatings, "Arizona Water Rates Rise as Colorado River Water Shortage Declared', August 18, 2021

Appendix to the Letter

Systemic Importance of the U.S. Municipal Bond Market

The municipal securities market includes general governmental borrowers such as cities, counties, and states, and special purpose governments like school, fire, and library districts. As noted, of the 90,126 governmental units nationwide[33], it is estimated over 50,000 have outstanding municipal debt. Because these entities generally enjoy monopoly status for the provision of designated public services within their jurisdictions, possess the authority to raise revenues through taxes, fees, and user charges, and are vested with a very high level of autonomy compared with municipal governments outside the U.S., credit quality is very high and default rates are extremely low[34].

American households are the primary holders of municipal debt, accounting for 72% of municipal securities, including direct holdings, mutual funds, and exchange traded funds (ETFs) in 2020[35]. Holders of municipal bonds are frequently taxpayers of the issuer, further underscoring the intertwining of public policy and the municipal market. The citizen bondholder is also dually exposed to climate risk – first through the risk to property values and the vibrancy of their local community, and second through the risk of loss on the value of their investment.

Additionally, the municipal market is systemically important because of how central it is to funding our nation's infrastructure. In addition to financing America's new infrastructure needs, it provides the capital to rehabilitate our existing buildings, roads, bridges, water, wastewater and ports to withstand the impact of increased physical risks.

State and local governments fund 90% of their infrastructure needs by issuing municipal securities[36]. Public policies such as those affecting taxes, land use, the environment, economic development and others have intertwined effects on local communities' livability and fiscal health as well as the debt that those communities issue in the municipal securities market. These factors render the municipal securities market systemically important as acknowledged by the Securities and Exchange Commission (SEC): "It is generally accepted that the continued functioning of this market is essential to the continued funding and operation of state and local governments and our economy more generally" [37].

The municipal securities market also includes governmental enterprises such as housing agencies; electric, water, sewer and solid waste utilities; transportation authorities such as roads, bridges, mass transit, ports, and airports; and narrow service providers such as community development districts that finance infrastructure supporting new housing

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[33] From Municipalities to Special Districts, Official Count of Every Type of Local Government in 2017 Census of Governments, United States Census Bureau, October 29, 2019
[34] MSRB, MuniFacts 2021
[35] SEC, The Importance of Disclosure for Our Municipal Markets, May 4, 2020
[36] MSRB, Municipal Securities: Financing The Nation's Infrastructure, 2021
[37] SEC, The Importance of Disclosure for Our Municipal Markets, May 4, 2020

development. These agencies, utilities and service providers may be departments of a general government or independent authorities. Additionally, the municipal securities market includes non-governmental nonprofits, many of which are eligible to issue municipal debt, including nonprofit hospitals, charter schools, universities, foundations, and cultural institutions. There are over 1.5 million of such nonprofits[38], among them essential service providers in healthcare and education including almost 4,000 hospitals[39], 3,300 universities[40], and 7,500 charter schools[41].

In addition to the broad spectrum of entity types in the municipal debt markets, U.S. municipal debt is issued with security features that are unique in the fixed income world. Municipal securities can be backed by a broad repayment pledge of all the entity's revenue raising authority ("general obligation" bonds), or can be secured by revenues produced by a revenue-generating asset (such as a water treatment plant), pool of assets (mortgages on affordable housing properties), or enterprise (a hospital, charter school or university). This second category is often referred to as "revenue bonds". A single municipal entity, such as a large city, can issue bonds backed by some or all of these sources. For example, a city can issue general obligation bonds backed by its "full faith and credit", bonds backed by revenues generated from its electric department or waste management department, and bonds backed by specific revenue streams such as sales taxes, hotel taxes, or gas taxes. The Bloomberg Barclays Municipal Bond Index includes bonds representing at least 18 distinct municipal sectors[42]. Securities backed by slices of an entity's revenue or departmental revenue are rarely found outside the US municipal securities market.

Key Challenges Posed by Climate Change

Climate change has the potential to impact many of the revenue streams that municipalities rely on to provide services to their residents and service debt. Furthermore, municipalities often secure debt with revenues collected from the operation of physical facilities, such as power plants, water treatment plants, and affordable housing communities. These are all at risk. There are physical risks to our nation's non-defense public infrastructure, 95% of which is owned by state and local governments[43], in addition to the economic costs of climate change to communities, including damaged property values, unlivable communities, and unequal impact on disadvantaged portions of society. And because the nation's infrastructure is overwhelmingly in state, county and local hands, climate risk mitigation costs will fall most heavily on them.

The large variety of security types adds complexity to addressing climate risk in the municipal market. For example, within the same city, climate change could impact certain of its pledged streams more severely than others. These differences lead a few market participants to assert

[38] Urban Institute National Center for Charitable Statistics
[39] American Hospital Association
[40] Bestcolleges.com
[41] National Alliance for Public Charter Schools
[42] UN PRI, ESG Integration in Sub-Sovereign Debt, July 2021
[43] MSRB, Municipal Securities: Financing The Nation's Infrastructure, 2021

that climate change disclosure cannot be standardized and thus should be left up to each municipality to determine its unique situation and the level of necessary disclosure.

However, the current voluntary approach has led to uneven and generally inadequate disclosure[44]. Furthermore, in recommending additional climate risk disclosures, we believe that the municipal market can take into account both the uniqueness of the security pledge and the broader economic underpinnings that all municipal securities rely upon, while allowing investors to conduct the necessary comparability research that underpins market efficiency.

The municipal securities market lacks standardized analytic tools and products to measure climate risks for municipalities. Currently, disclosure by municipal debt issuers is limited, highly variable, unstructured, and not machine-readable. These limitations, combined with the very large number of municipal debt issuers, make it prohibitive for regulators and investors to create searchable databases, conduct comparable analysis and assess climate risks using a consistent framework. In other words, nobody knows the full extent of climate change risks embedded in municipal securities today and it's prohibitive to find out under the current structure. These conditions represent market inefficiencies that should be addressed by regulators to ensure investors have the information to assess risks consistently across the entire market and make meaningful distinctions between those with greater and lesser exposures.

Although in the short run municipal issuers may enjoy the cost savings associated with minimal disclosure requirements, in the long run this perceived benefit could be more than offset by a rapid loss of public confidence in the municipal market[45]. In fact, investors are already demanding more climate-relevant information as evidenced by the SEC's plans to issue proposed mandatory climate disclosure rules. Investors are also making their voice felt. A record 733 institutional investors from around the world, with more than $52 trillion in assets under management, have signed an ambitious statement to governments, calling for a number of measures that would help avoid catastrophic temperature rise and manage climate risk. We urge the MSRB to follow suit and ensure disclosure, education, ongoing focus and regulation of this systemically important market evolves to meet the existential challenge posed by climate change.

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[44] Examples of the limited nature and uneven quality of climate change disclosure in municipal debt markets can be found in several sources, including "Climate Change DIsclosure Among California Enterprise Issuers" "Flying Blind: What Do Investors Really Know About Climate Change Risks in US Equities and Municipal Debt Markets?", and "Muni-bond Investors Need Straight Talk About Climate-Change Risk"

[45] As discussed in "Climate Change and Municipal Finance", financial markets rely on participants' belief that the prices of debt and equity securities and other financial products more or less approximate the underlying real economy and its risks. "When a natural disaster, pandemic, or other economic shock reveals a large gap between actual risk and asset prices, markets can experience severe volatility. When investors do not understand what is happening in a particular market, they withdraw their capital and look for safe havens. Stated differently, capital markets rely on steady investor demand to provide liquidity. Investor demand in turn relies on accurate pricing. Accurate pricing relies in turn on effective risk assessment. And effective risk assessment relies in turn on transparency and comprehensive disclosures." Center for American Progress, May 2020

An Overview of the Qualitative Methodology Used to Develop Our Recommendations

To align our recommendations with the views of leading market participants and to solicit recommendations on best practices, Ceres worked with industry experts with decades of experience in the municipal market, and conducted in-depth interviews with market participants including institutional investors ('40 Act Funds), Registered Investment Advisors, independent standard-setters, rating agencies, bond insurers, green bond verifiers, data providers, service vendors, and industry trade groups. In aggregate, the 17 municipal market stakeholders we interviewed represent total municipal bond assets under management of over $356 billion, rating agencies with published rating opinions on over $3,890 billion par outstanding bond issues, bond insurers with underwritings in excess of $87.1 billion, standard-setters of generally accepted industry financial reporting principles, and industry trade groups composed of government financial professionals and financial service industry professionals with national memberships. For the purpose of brevity in this submission, we will refer to these as market participants or stakeholders, such terms being used interchangeably.

After speaking with each of these market participants, it is clear that there is now an increasing and pressing need for enhanced transparency and clarity in climate risk disclosure. As one registered investment advisor diplomatically put it, "the status quo is untenable." Current practices contribute to opacity and confusion. The large majority of market stakeholders agreed that the existing market-based solution, premised on increased use of voluntary disclosure posted in an unstructured format, lacks the necessary completeness, standardization, data, accessibility, and reporting timeliness for the market to function efficiently.

The general tone was succinctly summed up by one institutional investor who stated, "Climate risk is going to be around forever. It is ever present. It is not going away. We cannot ignore it". What follows are recommendations for the MSRB's consideration.

Recommendations to the MSRB to protect investors, municipal issuers and the public interest against the risks posed by climate change

The mission of the MSRB is threefold[46]: (1) to promulgate rules for the municipal securities dealers and municipal advisors that engage in the offer and sale municipal securities or provide financial advisory services to municipalities; (2) to support market transparency by making trade data and disclosure documents available on its Electronic Municipal Market Access (EMMA) website; and (3) to serve as an objective resource on the municipal market, by sponsoring education and outreach to market stakeholders on key policy issues, thereby providing market guidance and leadership.

[46] The Role and Jurisdiction of the MSRB, 2021

As part of fulfilling its mission, the MSRB is uniquely positioned to tackle the difficult challenge of climate change. In a marketplace that prides itself on self-regulation and market-wide consensus building, there is no alternative leadership choice to address this critical issue.

There was unanimous agreement among municipal participants that the solution to appropriately assessing, quantifying, ranking, and valuing the effect of climate risk lies in receiving better disclosure. Several market participants expressed the sentiment that it would be best to have a strong directive from the MSRB on climate risk disclosure.

As such, Ceres respectfully recommends that the MSRB undertake the following actions to protect investors, municipal issuers and the public interest against the risks posed by climate change:

Recommendation #1: MSRB should publicly acknowledge that climate change poses a systemic risk to the U.S. municipal bond market. [47]

In order to mobilize all relevant stakeholders to take appropriate and immediate action, it is imperative that the MSRB publicly state clearly and decisively that climate change poses a systemic risk to the stability of the U.S. municipal bond market. Such a public statement aligns with the 2021 finding of the U.S. Department of Treasury's Financial Stability Oversight Council[48] (FSOC) that climate change is an "emerging threat to the financial stability of the United States". FSOC members, including the Federal Reserve[49], U.S. Comptroller of the Currency[50] and other financial regulatory agencies have endorsed the Council's findings. Many FSOC members have separately stated that climate change is a systemic risk to the U.S. financial system and committed to concrete action steps. While we understand that MSRB is not an FSOC member, because the effects of climate change present the risk of destabilizing a specific and systemically important market, the imperative for the MSRB to make a declaration is even greater.

Recommendation #2. MSRB should recommend that municipal issuers adopt the Task Force on Climate-Related Financial Disclosures (TCFD) framework in order to provide investors and stakeholders with timely, decision-useful climate-relevant information.

Many U.S. federal and state regulators have already taken, or are currently proposing, actions such as enhanced disclosure to combat the systemic threat of climate change. We strongly encourage the MSRB (which is subject to SEC oversight) to follow the leadership shown by the SEC and take all efforts necessary in the establishment of a disclosure regime for the U.S. municipal bond market.

[47] MSRB Strategic Plan Fiscal Years 2022-2025
[48] The Financial Stability Oversight Council's Response to Climate-Related Financial Risk, October 21, 2021
[49] Climate Change and Financial Stability, Board of Governors of the Federal Reserve System, March 19, 2021
[50] Principles for Climate-Related Financial Risk Management for Large Banks, December 16, 2021

As a leading disclosure framework, Ceres recommends the adoption of the Task Force on Climate-related Financial Disclosures (TCFD) framework for municipal issuers so that ESG information is comparable marketwide. This framework is already widely used by corporations in the U.S. and internationally, and by several municipalities. Use of TCFD is also consistent with the recommendations of the Financial Stability Oversight Council[51]. It also parallels the MSRB's comments that ideally, all disclosure would be standardized so "investors can compare apples to apples"[52].

The TCFD divides climate-related risks into two major categories: (1) Risks related to the transition to a lower-carbon economy ("transition risk") and (2) risks related to the physical impacts of climate change ("physical risk"). The impact of climate risk on the municipal market differs fundamentally from the corporate market. As stewards of public infrastructure, state and local governments (and political instrumentalities thereof) are primarily impacted by physical risk[53].

A report published in October 2019 by the Chartered Public Accountants of Canada demonstrates how the TCFD Framework can be adopted by cities[54]. Members of the Working Group that collaborated with the CPAs of Canada were drawn from a coalition of leading Cities and Climate Change advocacy groups. These included:

- C40 Cities Climate Leadership Group
- Canadian Urban Sustainability Practitioners' (CUSP) Network
- City of Montreal (Environment Department)
- City of Montreal (Finance Department)
- City of Toronto (Environment & Energy Division)
- City of Toronto (Accounting Department)
- City of Vancouver (Sustainability Department)
- City of Vancouver (Finance Department)
- Delphi Group
- Federation of Canadian Municipalities (FCM) Partners for Climate Protection (PCP) Program
- International Council for Local Environmental Initiatives (ICLEI) Canada

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[51] The Financial Stability Oversight Council's Response to Climate-Related Financial Risk, October 21, 2021. The TCFD's core elements and recommended disclosures offer a useful structure for promoting the consistency, comparability, and decision-usefulness of climate-related disclosures, and have been widely adopted, in whole or part, by financial regulators around the world. According to the TCFD's 2021 status report, more than 120 regulators and governmental organizations support the TCFD, including the governments of Belgium, Canada, Chile, France, Japan, New Zealand, Sweden, and the United Kingdom. The TCFD's recommendations are also incorporated in the European Commission's Guidelines on Reporting Climate-Related Information.

[52] Cities and states on the frontline of climate change aren't always upfront about risks. Does the municipal bond market care? MarketWatch, 9/1/2021

[53] Final Report: Recommendations of the Task Force on Climate-Related Financial Disclosures, June 2017, pgs. 3-6.

[54] Enhancing Climate-related Disclosure by Cities: A Guide to Adopting the Recommendations of the Task Force on Climate Related Financial Disclosures (TCFD), Chartered Professional Accountants of Canada, October 2019

- Public Sector Accounting Board (observer role)

As climate-related risks and opportunities impact most organizations, including municipal issuers, the TCFD framework offers broad applicability. The TCFD recommendations are relevant to municipal issuers because:

- Cities are generally focused on climate-related risks and opportunities and similarly will endeavor to formulate related strategy, risk management and governance as illustrated in the table below.
- Cities are on the frontlines of climate change, and it is therefore critical to apply a climate risk lens on short- and long-term financial planning, operational budgets and capital investments.

Here are two examples representative of the TCFD framework reporting for a city. The first is the City of Toronto - 2020 Annual Financial Report[55]. A dedicated segment of the report sets forth climate-related financial disclosure and contains the following sections: (i) Why climate disclosures are important; (ii) Why climate impact is important; (iii) the City's Commitment to climate action; (iv) key climate-related disclosures for the year 2020; and (v) the City's TCFD alignment assessment.

Similarly, the City of Vancouver - 2018 Annual Financial Report incorporates climate related disclosures containing the following key components: (i) a statement of commitment to environmental stewardship and its leadership role in promoting sustainability; (ii) following the TCFD framework, management enumerates specific actions being undertaken advance climate risk in the areas of Governance, Strategy, Risk Management and Adoption of Metrics and Targets; (iii) an explanation and description of how the City has integrated sustainability and resilience criteria into its current capital planning process; (iv) a detailed discussion of Climate action strategies being undertaken accompanied by summaries of concrete action plans; and (v) an assessment with prescribed time frames of projected climate impacts to Vancouver, which also features scenario analysis[56].

The TCFD requirement to conduct climate scenario analysis can be readily applied to the municipal bond market[57]. As noted previously, data modeling techniques have advanced significantly in recent years, allowing stakeholders to understand both the macro impact of climate change as well as differential local and regional impacts[58]. Also, the recent U.S. Financial Stability Oversight Council report makes clear that scenario analysis is an important risk mitigation and opportunity identification tool for capital markets participants[59].

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[55] City of Toronto's 2020 Annual Report, pgs. 135 to 147
[56] City of Vancouver - 2018 Annual Financial Report, pgs. 29 to 37
[57] Final Report: Recommendations of The Task Force on Climate-Related Financial Disclosures, June 2017
[58] Extreme Heat: The Economic And Social Consequences for the United States, Atlantic Council, August 2021
[59] Report on Climate Related Financial Risk, Financial Security Oversight Council, October 2021

In addition to the TCFD, there are ample tools, data, metrics, methodologies, and taxonomies currently available as resources to the market in developing its disclosure framework and metrics. There are well-established disclosure frameworks used extensively in other capital markets, with metrics and paradigms from industry sources, regulatory authorities, and standard setters.

2a. Adopting TCFD Recommendations on Climate-Related Financial Disclosures for Use by Municipal Revenue Bond Borrowers. With over $10.9 trillion in municipal revenue bonds issued between 1986 and 2021 across ten general categories[60] and an estimated $2.793 trillion revenue bonds currently outstanding, these bonds comprise an estimated 64.3% of the $4 trillion in aggregate outstanding US tax-exempt debt[61]. This includes 501(c)3's (i.e. hospitals, cultural institutions), public authorities backed by fees for services (i.e., utilities, toll roads, public transportation), geographically focused (i.e., tax increment financings), and project dependent borrowers. The TCFD disclosure framework, originally developed for corporate issuers, all of which fall under one or more of the 1,057 North American Industry Classifications[62], can readily accommodate a majority of the 33 revenue bond sectors recognized by market-standard indices[63] as well as sector-focused metrics covering the various sectors in the municipal bond market.

2b. Convene a TCFD Implementation Committee. As a self-governing organization, the MSRB should provide the infrastructure for members to self-determine the best way to adapt the TCFD framework for use in the U.S. municipal bond market. Again, nearly all market participants interviewed for this analysis agreed that an organized market-wide effort among stakeholders regarding the development and implementation of climate risk disclosure standards is necessary. Since disclosure standards reach all market stakeholders, the Committee should draw from all participants of the municipal bond market. As noted earlier, we believe it is important to include individuals selected from an inclusive and diverse pool of candidates (representing a range of ethnic, racial and socio-economic backgrounds), with proven climate risk management competence and experience, reflecting the diversity of U.S. municipal market stakeholders. Given the wide variety of both municipal issuers and consumers of municipal-entity disclosure, having an established framework such as TCFD, is crucial.

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60 The Bond Buyer Market Statistics, Market Data (Annual 1986-Date). Note that reported revenue bond sector categories vary by source. While there is general agreement as to categories, there is no market agreed upon standard taxonomy.

61 Board of Governors of the Federal Reserve System, Federal Reserve Statistical Release Z.1 Financial Accounts of the United States, Flow of Funds, Balance Sheets, and Integrated Macroeconomic Accounts 3rd Quarter 2021, p. 121. Table L.212 Federal Reserve Board (12-9-21) indicates total aggregate US tax-exempt debt through Sep. 30, 2021 amounted to $4.344 trillion. The breakdown of revenue bonds as a total percentage of US tax-exempt debt derives from an estimate of the ratio of Revenue bonds to GO Bonds based upon the average annual percent for years 1986 through 2021.

62 North American Industry Classification System, U.S. Bureau of the Census

63 S&P Global Fixed Income Directory, S&P Dow Jones Indices, p. 10. Note that U.S. Municipal Sector-Based Indices include land-based sectors such as S&P Municipal Bond Dedicated Tax Index and the S&P Municipal Bond Appropriation Index.

2c. Use of TCFD in MSRB Annual Report. With the goal of providing leadership by example, the MSRB should also include TCFD-aligned disclosure in its own annual report. By assessing and disclosing its own impact using this framework, the MSRB would demonstrate not only its commitment to transparency, but also show how a U.S. government entity can apply TCFD metrics.

Recommendation #3. The SEC Continuing Disclosure Rule should be amended to include Climate Risk disclosure.

Codifying the MSRB's stated perspective that climate risk is material to investors, the MSRB should ensure that Climate Risk, Resiliency, and ESG are included in issuing documents, continuing disclosure, and material events and other relevant sections of SEC Rule 15c2-12 regarding disclosure for all borrowers[64]. Such amendments are consistent with the views of the institutional investors we interviewed.

Furthermore, climate risk should be included in the Official Statement (i.e., the securities prospectus). As currently written, Rule 15c2-12 sets a low bar for municipal disclosure in new issue offering documents. Since the SEC can't require municipal issuers to register securities or provide disclosure, the rule subjects the broker-dealers to requirements that accomplish similar goals. Specifically, underwriters must review and provide an Official Statement, an offering document to investors which is the equivalent of a corporate securities prospectus, which provides disclosure of material information[65]. Climate risk should be addressed in new issue offering documents.

Climate risk should also be a part of Continuing Disclosure. Prior to purchasing or selling bonds in the primary market, the underwriter must determine that the issuer has signed what is commonly referred to as a "continuing disclosure agreement" promising to provide annual disclosure in an electronic format to a central repository, EMMA[66] [67]. The agreement itself is subject to very minimal requirements[68]. Currently, the impacts of climate risks are generally not enumerated in continuing disclosure agreements.

Specifically, the disclosure agreement must include the provision of "annual financial information"; a statement of whether financial information will be audited, and the accounting principles used to prepare the financial information; and the date each year by which annual financial information will be provided. In practice, continuing disclosure agreements are negotiated for each bond issue and typically fall far short of providing annual updates of all the

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[64] MarketWatch, Cities and States on the Frontline of Climate Change Aren't Always Upfront About Risks. Does the Municipal Bond Market Care?, August 2021

[65] National Archives and Records Administration, Code of Federal Regulations, §240.15c2-12 Municipal Securities Disclosure, [17 CFR § 240.15c2-12, (b)(1) and (2)]

[66] Overview of Continuing Disclosure Requirements for Bond Issuers, Smith Gambrell & Russell LLP

[67] Municipal Securities Rulemaking Board, Continuing Disclosures

[68] National Archives and Records Administration, Code of Federal Regulations, §240.15c2-12 Municipal Securities Disclosure, [17 CFR § 240.15c2-12, (b)(5)(i)(A) and (B), and subsequent sections, such as (b)(5)(ii), (iii) and (iv)]

information provided in the official statement[69] [70]. This is even more troubling when considering that the information deemed relevant at the time of bond issuance can quickly become dated. As conditions change, information relevant to investors does as well.

Continuing Disclosure Agreements should contain all of the climate risk disclosure presented in the offering documents. It is inconsistent for a municipal issuer to create a climate action plan, initiate climate mitigation and adaptation projects, make public statements about the risks of climate change to their economy or infrastructure, join climate action groups, create a dedicated climate agency, or hire a climate department head, but not include climate risks in their primary and secondary market disclosure[71].

Under SEC Rule 15c2-12, municipal issuers must agree to file material event notices within 10 business days from occurrence of any of 16 “material events”, such as delinquent payments, rating changes, and bankruptcies[72].

However, there is no requirement for disclosure of important risks that aren’t among the 16 material events and fall outside of the Continuing Disclosure Agreement. For example, climate related disasters such as flooding, fires, or tornadoes are not among the material events, nor are the broader impacts of climate change such as the increasing frequency of extreme weather events, costs of climate mitigation, and impacts on the tax base. Unquestionably, investors view these broader impacts as posing material risks.

A proposed amendment to SEC Rule 15c2-12 adding a special subsequent material event reporting notification as a new subsection (17) to paragraph (b)(5)(i)(C) of this Rule is set forth below:

> *The occurrence of a weather or other natural event or series of events, including floods or flooding, droughts, rising sea levels, earthquakes, wildfires, tornadoes, hurricanes or other weather or nature-related circumstance having a material impact on the ability of an Obligated Person to pay when due, or over the time to a final maturity on outstanding debt, accruing principal and interest payments on*

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[69] Overview of Continuing Disclosure Requirements for Bond Issuers, Smith Gambrell & Russell LLP

[70] Bond counsels often advise municipal issuers to limit their promises in continuing disclosure agreements, as in this example: “The issuer should carefully review the section of the Continuing Disclosure Agreement describing the contents of the annual report. The description of non-audit information to be provided should be specific (as opposed to a general statement requiring the issuer to provide information “of the type included in the Official Statement”), *and the issuer may want to limit the requirement to information that the issuer already updates each year and plans to continue to update*.” (emphasis added), Orrick, Herrington & Sutcliff LLP, Disclosure Obligations of Issues of Municipal Securities, 2018

[71] The SEC is beginning to question corporations about the gap between climate actions and disclosure. For example, the SEC’s Sample Letter To Companies Regarding Climate Change Disclosure includes this question: “We note that you provided more expansive disclosure in your corporate social responsibility report (CSR report) than you provided in your SEC filings. Please advise us what consideration you gave to providing the same type of climate-related disclosure in your SEC filings as you provided in your CSR report.”

[72] Code of Federal Regulations, §240.15c2-12 Municipal Securities Disclosure, [17 CFR § 240.15c2-12, (b)(5)(i)(C)]

that outstanding debt or to meet contract requirements under other financial obligations.

In February 2021, Acting SEC Chair Allison Lee Herren directed the SEC's Division of Corporation Finance to enhance their focus on climate-related disclosure in public company filings "Now more than ever, investors are considering climate-related issues when making their investment decisions. It is our responsibility to ensure that they have access to material information when planning for their financial future" [73].

Unfortunately, as shown in an extensive study of climate change disclosure by corporations and municipalities conducted by the Hutchins Center for Fiscal and Monetary Policy at Brookings, the materiality of climate change disclosure is similar for corporates and municipals, but disclosure of climate change risks in municipals is "much worse" [74]. As such, urgent change is needed.

The MSRB exhibited important leadership in establishing the high priority of climate risk disclosure by noting it is material to an investor's decision making. As MSRB CEO Mark Kim stated in a recent interview about climate risks: "I think the market's understanding of climate risk is evolving. Today, reasonable investors consider climate risk material" [75].

Recognizing climate risk as material to municipal bond investors is a turning point in correcting this glaring disclosure void. Materiality to a reasonable person is a key concept in securities law, triggering disclosure obligations. A commonly accepted definition is that something is material if there is a substantial likelihood that the disclosure would be considered by a reasonable investor to alter the 'total mix' of information made available[76]. Regulators have increasingly recognized the materiality of climate change risks, as have investors, rating agencies, and professional organizations[77].

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[73] SEC, "Statement on the Review of Climate-Related Disclosure", February 2021

[74] Adopted in 1989, Rule 15c2-12 addresses the issue raised by the effects of the Securities Act Amendments of 1975, often referred to collectively as the Tower Amendment. The Tower Amendment exempts municipal issuers from requirements to which issuers in other securities markets are subject. It is designed to keep municipal issuers from being subject to federal registration and disclosure requirements.

[75] MSRB CEO Mark Kim, as quoted in MarketWatch, "Cities and States on the Frontline of Climate Change Aren't Always Upfront About Risks. Does the Municipal Bond Market Care?", August 2021

[76] Orrick, Herrington & Sutcliff LLP, Disclosure Obligations of Issues of Municipal Securities, 2018

[77] Evidence that climate change risks are material abound for municipal securities. An example related to regulator statements is in the subsequent paragraph. Examples of rating agency statements include S&P Global Ratings, "Could the U.S. Western U.S. Drought Threaten Municipal Credit Stability", Aug 2021 and "California Wildfires, Blackouts Highlight Utility Operating Risk", FitchRatings Aug. 2020. Examples from investors include Brown Advisory "A Climate Change Reckoning for the Municipal Bond Market" and BlackRock, "Getting Physical: Scenario Analysis for Assessing Climate Related Risks", April 2019. Finally, the Government Finance Officers Association (GFOA), in "ESG Disclosure", March 2021 noted "The increase in the number of extreme weather events in recent years has raised public awareness about climate change. Investors and rating analysts are not just looking to see if risks are present, but also want information regarding what plans a government has to address these risks."

This was re-emphasized in another venue when, discussing issuer disclosure more broadly, MSRB CEO Mark Kim made it expressly clear that "the standard against which those disclosures will be evaluated is whether a reasonable investor would consider them important in the context of the 'total mix' of all the information made available"[78]. Mr. Kim went on to note that "investors are incorporating ESG factors into the total mix of the information being used in their portfolio valuation and risk models." This was also discussed by Mr. Kim and other market stakeholders during Ceres' recent webinar on *The Changing Climate for Municipal Securities*.

The emphasis on materiality is at the crux of creating policy regarding climate risk disclosure in the municipal bond market. Unfortunately, as noted[79], municipal issuers are not required to register securities or provide disclosure. Consequently, the primary guardrails for issuer's disclosure practices are the securities law provisions related to fraud. This is the only area where the SEC has direct enforcement authority over municipal issuers. In general, the fraud provisions make it illegal for anybody connected with the sale of a municipal security to make untrue statements of material facts or to omit material facts.

Overall, the current continuing disclosure framework for municipal securities leaves several sizable gaps. It's inherently backward-looking, reporting often delayed (6-9 months after the end of the fiscal year is not uncommon[80] [81] and forward-looking projections and scenarios are not required), and the baseline requirements are very minimal.

Currently under 15c2-12 there is an exemption from the disclosure rule for small and infrequent issuers[82]. However, the adverse effects of climate change affect all municipal bond issuers to some extent, and correspondingly affect the assessment of credit risk and valuation of those holdings by municipal bond investors. It follows that, regardless of the amount of debt offered and outstanding, all issuers should be required to disclose their climate risks. It is up to the MSRB to balance the cost of compliance with the benefits of regulations and rule changes.

As noted previously, the municipal bond market has over 50,000 issuers with outstanding long-term debt. While municipalities and authorities with large, multi-year capital programs tend to come to market frequently, the majority of bond issuers are infrequent, smaller borrowers issuing less than $10 million in long term debt[83]. Market data reflects that from 2015 to 2021, there were an average of 7,450 such borrowers in the market, comprising 57% of total market issuers. The average total par amount of these bonds issued over that same period was $33 billion, roughly 7% of the market's total long term bond issuance[84].

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[78] Prepared remarks by MSRB CEO Mark Kim at the GFOA MiniMuni Conference, October 10, 2021

[79] Hutchins Center on Fiscal and Monetary policy at Brookings, "Flying Blind: What Do Investors Really Know About Climate Change Risks in US Equities and Municipal Debt Markets?" September 2020

[80] Merritt Research Services Recognizes the Winners when it comes to Timely Municipal Bond Audit Reporting Times, March 25, 2021

[81] Chronically Late Municipal Bond Audits Further Delayed in FY 2018, Merritt Research Services, January 1, 2020

[82] Code of Federal Regulations, §240.15c2-12 Municipal Securities Disclosure, [17 CFR § 240.15c2-12, (b)(5)(d)(2)]

[83] EMMA Market Statistics

[84] MSRB, Primary Market Statistics, New Municipal Issuance

Some stakeholders mentioned that a specific framework with a readily duplicated structure reduces disclosure costs for issuers. This is particularly true for smaller and infrequent borrowers. We believe that use of TCFD should help reduce these costs for some issuers.

Recommendation #4. MSRB should enhance Board Governance and Senior Management Expertise as it Pertains to Climate Risk and Create a Board Level Standing Committee on Municipal Bond Market Climate Risk Management.

During our interviews in support of this RFI, nearly all of the market stakeholders that we spoke with expressed the view that the MSRB Board and MSRB senior managers should lead by example on climate risk and environmental matters. During this discussion, the MSRB's plans to report its own energy efficiencies in XBRL on its website were applauded.

Consistent with the MSRB's positive market-facing statements and actions regarding climate risk, we respectfully recommended that the MSRB consider the following:

4a. Enhance Board Governance and Senior Management expertise as it pertains to climate risk. This can be accomplished via the following steps:

- Include climate expertise as a criteria in the selection process for board members and senior managers,
- Conduct climate training for existing board members and senior managers to improve climate expertise,
- Similar to actions already taken by financial regulators, such as the OCC [85], expand the senior management team to include a senior climate risk policy role, such as Climate Change Risk Officer.

4b. Create a Board Level Standing Committee on Municipal Bond Market Climate Risk Management. The MSRB should enhance its board governance by including a Standing Committee on Municipal Bond Market Climate Risk. The Committee's role should be to develop a detailed plan to lead the MSRB's efforts to institute a multifaceted strategy addressing the risks of climate change to the municipal marketplace. Such a Standing Committee, with proven climate risk management competence and experience, would further strengthen the Board's abilities to review and create policy regarding climate risk. We would recommend that this standing committee be selected from an inclusive and diverse pool of candidates (representing a range of ethnic, racial and socio-economic backgrounds), with proven climate risk management competence and experience, reflecting the diversity of U.S. municipal market stakeholders.

[85] https://www.occ.gov/news-issuances/news-releases/2021/nr-occ-2021-78.html

By way of background, Ceres has provided guidance to many corporate boards on how they can effectively oversee the risks inherent in various sustainability dimensions. This includes concrete recommendations for boards looking to improve their companies' resilience in the face of climate change and other ESG risks[86]. To ensure that board members have access to climate and ESG training, Ceres has partnered with Berkeley Law school to offer an online training program which pinpoints how corporate board members can embed ESG into their oversight role. We encourage all board directors to participate in appropriate continuing education on these vital issues.

Recommendation #5. Further update EMMA to facilitate timely, machine-readable disclosure of climate risk and ESG factors. This aligns with the MSRB's Strategic Plan to improve the user experience and system security, performance and functionality of EMMA.

The SEC designated Electronic Municipal Market Access ("EMMA") as the official source for municipal securities data and disclosure documents[87], directing the MSRB to fund and provide administrative oversight in the management of all aspects of EMMA[88]. This is the basis for the MSRB serving as the market's central – and sole – repository for market data[89]. Correspondingly, it follows that the MSRB can and should use EMMA as the market's climate risk disclosure platform.

All market participants we talked with, without exception, expressed unanimous support for the MSRB's strategic initiative of enterprise-wide migration to the cloud as well as the $17 million budget commitment to modernize the entire suite of market transparency systems, including EMMA[90]. The creation of the EMMA Labs platform to fuel innovation for market data and transparency, potentially ultimately establishing for the municipal bond market structured data standards commonly used in the majority of major global capital markets, was widely lauded.

However, it was also widely viewed that the current EMMA reporting in PDF format is outmoded. This issue was also discussed by the participants at Ceres' recent webinar on *The Changing Climate for Municipal Securities*. As one institutional investor put it, "EMMA is a dinosaur rapidly becoming a fossil." Searchable, machine-readable data, would facilitate comparative analysis, and greatly increase the usability of this vast amount of reported data[91]. As such, we

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[86] Running the Risk: How Corporate Boards Can Oversee Environmental, Social and Governance (ESG) Issues, Ceres, November 20, 2019
[87] EMMA, 2021
[88] SECURITIES AND EXCHANGE COMMISSION (Release No. 34-59061; File No. SR-MSRB-2008-05) December 5, 2008 Self-Regulatory Organizations; Municipal Securities Rulemaking Board; Notice of Filing of Amendment No. 1 and Order Granting Accelerated Approval of Proposed Rule Change, as Modified by Amendment No. 1 Thereto, Relating to the Establishment of a Continuing Disclosure Service of the Electronic Municipal Market Access System (EMMA)
[89] Prepared remarks by MSRB CEO Mark Kim at the GFOA MiniMuni Conference, October 10, 2021
[90] Municipal Securities Rulemaking Board, *Building the Foundation for the Future*, 2021 Annual Report
[91] Market stakeholders have called for years on the MSRB to require that municipal bond disclosure be in machine-readable form. Increasingly these stakeholders have mentioned climate risk disclosure as a key driver of the need for standard taxonomies and machine readability. In January 2021, the MSRB received feedback on

recommend that the MSRB require that all significant primary and secondary disclosures, including offering statements, audited financial statements, and management discussion & analysis, be reported in a searchable, machine-readable format such as XBRL. (Having documents in PDF also limits access to those with visual impairments).

The MSRB has the regulatory authority to accomplish this. In 2008, it was noted as part of the final Rule that the MSRB "could encourage the establishment of the necessary taxonomies and permit states and local governments to make use of the XBRL in the future" [92]. Moreover, as part of the final rule adopted in 2008, the SEC gave the MSRB the authority to prescribe the electronic format and accompanied by identifying information in EMMA[93].

Should this not be immediately actionable, as an interim step towards the ultimate goal, we suggest that the MSRB provide improved tools on the EMMA website to search for climate-related disclosure in municipal bond filings. This in turn will allow users to better assess potential climate risk exposure in municipal bonds. An example of such a search tool is Ceres' SEC Sustainability Disclosure Search Tool[94]. The SEC Sustainability Disclosure Search helps one understand how companies are tackling material risks and opportunities they face from sustainability issues like climate change, carbon asset risk, water availability and quality, and hydraulic fracturing. Ceres would encourage EMMA Labs participants to apply the SEC Search tool to develop their own work in fully digitizing data in EMMA.

The vast majority of stakeholders interviewed expressed that, just as financial information is initially reported in offering documents and then updated separately by issuers by posting financial information reports on their EMMA pages, each issuer should have a Climate or ESG section on their EMMA page. Time and again investors expressed the view that issuers are disadvantaged by not having a place to highlight their ESG efforts and tell their story. Creating a specific location to post climate risk exposure developments, mitigation, and resiliency planning makes tangible the message that climate risk is material and will be measured by the marketplace. Stakeholders viewed this as an interim step as the municipal bond market as a

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strategic priorities from market participants. Letters to the MSRB in 2021 from Ceres, Climate Advisory LLC, Geos Institute, Global Legal Entity Identifier Foundation (GLEIF), Allyson Ugarte, and XBRL US all recommended that the MSRB require machine-readable disclosure. In their letter, Climate Advisory LLC observed "the way in which the current municipal reporting is carried out precludes real-time analytics or efficient comparisons across municipalities. It also fails to capture or disclose the actual costs of climate change". Other stakeholders have made similar recommendations: "To facilitate searches on climate risks and comparisons among municipal issuers, the MSRB should require that all offering statements for municipal bonds be filed in a singular, machine-readable format. At present, analysts must pull climate risks by hand from these disclosure documents", Robert Pozen in MarketWatch: Opinion: Muni-Bond Investors Need Straight Talk about Climate-Change Risk, March 2021

[92] Federal Register, August 7, 2008 [17 CFR Part 240 Proposed Amendment to Municipal Securities Disclosure; Proposed Rule; Notice, p. 46144, n. 64 states "In addition, the availability of audited financial statements and other financial and statistical data in an electronic format by issuers subject to the Rule could encourage the establishment of the necessary taxonomies and permit states and local governments to make use of XBRL in the future, should they wish to do so."]

[93] Securities and Exchange Commission, 17 CFR Part 240 [Release No. 34-59062; File No. S7-21-08] Amendment to Municipal Securities Disclosure.

[94] Ceres SEC Sustainability Disclosure Search Tool

whole moves forward to the goal of fully integrating disclosure on these issues into bond offering documents and subsequent annual reporting prescribed under Rule 15c-2-12. All stakeholders interviewed envision that ultimately climate risk disclosure will be a standard part of all disclosure.

Recommendation #6. MSRB should update the Municipal Securities Exams (for example the Series 52, Series 53 exams) to test for climate risk management competency.

The MSRB should update the curriculum and examination to test for climate risk management competency as part of the Municipal Advisors Series 52 [95] and Municipal Principals Series 53 [96] exam qualifications. Professionals seeking these designations will be in positions of responsibility, and having a climate risk management skill set is necessary for licensure as it ensures that all risk vectors will be properly considered when engaging in investment and advisory activities.

Additionally, climate risk should be included as part of the Maintaining Qualifications Program[97] with CE credits awarded for those completing certified programs on climate risk management, ESG, or sustainability more broadly.

Recommendation #7. MSRB should conduct research and educate municipal issuers, investors and other stakeholders about climate-related physical and transition risks.

Working in conjunction with interested parties, the MSRB should examine the quality of climate-related disclosures in the Official Statements and Continuing Disclosures Agreements of municipal bonds, as a collaborative means of determining whether disclosure is adequate for market participants to assess any underlying climate risks. If disclosure is found to be deficient, the MSRB should issue a public statement calling on key stakeholders, including municipalities, underwriters, and banks, to improve disclosure guidelines. The MSRB should offer written and online resources in support of proper disclosures.

While we understand that it is not a member itself, the MSRB would benefit from collaborating with FSOC members that are actively analyzing data gaps and will work together via the Climate-related Financial Risk Committee (CFRC), as well as the Climate-related Financial Risk Advisory Committee (CFRAC) once established [98]. MSRB could also collaborate with the Department Of Treasury's Office of Financial Research, as well as the very well-resourced Research Division of the Federal Reserve, at both the Board and district-level.

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95 FINRA Series 52 Municipal Securities Principal Qualifications Examination
96 FINRA Series 53 Municipal Securities Principal Qualifications Examination
97 FINRA Maintaining Qualifications Program
98 https://home.treasury.gov/system/files/261/FSOC-Climate-Report.pdf p.119

With the focus on climate change across numerous federal, state and local agencies and departments, the MSRB is encouraged to collaborate with those government efforts so as to identify and curate reliable and relevant data sources for municipal issuers to use in their disclosure. In addition to continuing building relationships with key governmental stakeholders, this would be a significant service to other stakeholders and in keeping with the MSRB's mission.

7a. MSRB should add a section to its website with access to climate risk data and research. This would include links to public resources. For example, in the Federal government, the Environmental Protection Agency, NOAA, FNMA, FEMA, and Federal Housing Finance Agency and others have programs and extensive data pertaining to climate risk that could benefit and expand existing municipal bond market stakeholder resources. Additionally, there would be links to third party research (as vetted by MSRB) and original research. Original research conducted by leading independent think tanks or research universities would also be linked. In conjunction with this, there may be an opportunity by the MSRB for collaborative research efforts as to how climate risk is affecting the municipal bond market.

This could well become a clearinghouse for municipal bond market climate risk resources that stakeholders could both draw upon and, with appropriate vetting, contribute to. Such a compendium of web-based resources could potentially increase the consistency of disclosure data within overlapping jurisdictions[99].

Moreover, by identifying and making available these resources, the MSRB would be taking tangible steps to reduce resource constraints on smaller issuers and non-institutional investors, who seek a one-stop information source.

Providing these resources to the market can benefit all investors, particularly non-institutional investors, as well as reduce the burden on smaller issuers. Both of these market stakeholders may share the same impediment of not having in-house expertise or resources to hire technical experts. Both may be grappling with trying to understand and assess the effects of climate change – investors on their bond holdings, issuers on their community – but feel overwhelmed by the vast amount of data out there and the level of expertise needed to understand and use it.

[99] Other stakeholders that have made similar recommendations include the Center for American Progress. In "Climate Change and Municipal Finance", May 2020, they recommend: "Moving to a new disclosure regime that includes climate risk will require most issuers to engage with outside technical experts. State and local issuers should not bear the full cost of creating a new set of disclosure standards, since a well-functioning muni market provides significant benefits to the economy and society at large. For this reason, the U.S. The Environmental Protection Agency and the SEC, working with other relevant agencies and regulators, should establish a clearing house for climate data and establish best analytical practices." They also recommend going beyond the creation of the clearing house to provide technical assistance to municipal issuers: "additionally, these agencies should provide direct technical assistance during the early years of implementing any new climate disclosure requirements"

A climate risk resource web-page would be consistent with existing on-line educational efforts, such as the MSRB Education Center [100] and MSRB EdPro Courses[101]. The MSRB is a leader in this education effort. The MSRB website states "The MSRB Education Center is a multimedia library of information about the municipal securities market. Free and objective resources are geared toward investors and state and local governments to help them make informed decisions. The MSRB encourages widespread use of its educational materials." The MSRB offers a range of fact sheets, webinars, videos and podcasts that cover a range of topics. But there needs to be more resources for investors, state and local governments and other stakeholders. The MSRB could play an unparalleled role in this important work.

Recommendation #8. MSRB should encourage all U.S. municipal bond market stakeholders - such as bond counsel, data vendors, valuation services, bond insurers, municipal advisors and especially rating agencies and other standard setters - to fully incorporate climate risk management into their internal processes.

In addition to those we have already referenced, there are many other important municipal bond market stakeholders, including bond counsel, data vendors, valuation services, bond insurers, and municipal advisors. We urge all of these groups to more fully incorporate principles of climate risk management into their part of the U.S. municipal bond market.

As it relates to the MSRB RFI, we would like to specifically address the role of rating agencies and other standard setters such as auditors and GASB.

8a. Recommendations for Rating Agencies

As standard setters for credit risk assessment methodologies, Ceres recommends that rating agencies enhance transparency regarding how climate risk factors into an issuer's credit rating.

To accomplish this, we suggest that rating agencies disaggregate climate risks from broader ESG frameworks in credit ratings to increase transparency to the market. This approach has also been endorsed by many market participants, particularly investors. Even though all major rating agencies have made statements about the importance of incorporating climate risk into their ratings methodology, researchers have called into question whether they are truly reflecting these risks in their ratings[102]. By increasing transparency, rating agencies can accelerate the understanding and adoption of climate risk analysis by all stakeholders[103].

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[100] MSRB Education Center

[101] https://www.msrb.org/Regulated-Entities/MuniEdPro

[102] Extensive discussion of rating agencies' statements and actions with respect to climate change can be found in Flying Blind: What Do Investors Really Know About Climate Change Risks in US Equities and Municipal Debt Markets?, Brookings, September 2020

[103] Other market observers have noted the rating agencies' outsized impact on changing market behavior: "If ...credit rating agencies take bigger steps to integrate physical risk into their standards and evaluations of issuers,

Ceres also recommends that rating agencies recognize those issuers that demonstrate excellence in climate risk disclosure. Rating agencies should consider creating a Certificate of Recognition program for municipal issuers, such as a "Climate Awareness Leadership Award", providing support and encouragement to the entities that have been showing leadership in this area.

8b. Recommendations for Auditors and Governmental Accounting Standards Board

Ceres recommends that accounting firms performing audits of municipal bond issuers consider climate-related risks to the issuer's financial condition and operating performance.

There has been a glaring absence of climate risk disclosure in financial reporting for municipal issuers. However, accounting standard setters and independent auditors are being asked more frequently by investors and regulators to consider more directly climate-related risks in financial reporting[104]. Last year Ceres issued a report on the challenges focused on auditing in the oil and gas sector[105]. These issues are also relevant for the municipal debt sector.

Accounting and auditing standards are established in order to give investors the information they need, via financial reporting, to compare issuers, allocate capital and undertake stewardship. Failure to meet these standards suggests that investors will lack the necessary information to carry out those tasks. If the underlying judgements used to prepare financial statements ignore climate considerations, there is a risk that capital is misallocated[106].

Auditors play an important role in assessing and enforcing rigorous sensitivity analyses. U.S. audit standards for public issuers require that auditors obtain an understanding of how management analyzed the sensitivity of its significant assumptions to change, based on other reasonably likely outcomes that would have a material effect on the company's financial condition or operating performance, and, among other things, evaluate the potential for management bias[107]. This is the same for audits of nonprofits, municipalities, and governmental

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companies, and securities due to increased knowledge of the exposure and the materiality of the risk, it will quickly alter behavior. There is a history of analogies for such circumstances where the knowledge regarding materiality and risk evolves over years until the point that the risk is clearly known and material, such as what happened with exposure to subprime assets, asbestos, unfunded pensions, and smoking. Once the depth of the issue and the materiality on valuations were broadly understood, information was demanded by market participants, rating agencies, and regulatory bodies that quickly altered market practices and pricing of financial assets and the legal environment regarding disclosure of those with fiduciary responsibility ", Brookings, Flying Blind: What Do Investors Really Know About Climate Change Risks in US Equities and Municipal Debt Markets?, September 2020

[104] The Role of Accounting and Auditing in Addressing Climate Change, *Center for American Progress*, March 3, 2021

[105] Lifting the Veil: Investor Expectations for Paris-Aligned Financial Reporting by Oil and Gas Companies

[106] Flying blind: The glaring absence of climate risks in financial reporting - Carbon Tracker Initiative

[107] Public Company Accounting Oversight Board, "Auditing Accounting Estimates, Including Fair Value Measurements"

entities. If an auditor determines that its work to test and evaluate an estimate or assumption constitutes a critical audit matter (CAM), then it must discuss the matter in its audit report. A CAM is defined as any matter arising from the audit of the financial statements that was communicated or required to be communicated to the audit committee, and that 1) relates to accounts or disclosures that are material to the financial statements; and 2) involves especially challenging, subjective, or complex auditor judgment. Since climate risk is material to many borrowers in the municipal bond market, the risk may constitute a critical audit matter.

Outside the United States, accounting and auditing standards-setters have provided detailed guidance to companies on how climate change and climate-related commitments could be reflected in corporate financial statements. In November 2019, the International Accounting Standards Board (IASB) issued a report detailing how climate change and mitigation strategies should be reflected in companies' financial statements[108]. The International Financial Reporting Standards (IFRS) Foundation, which oversees the IASB, published additional educational material to highlight how existing requirements in IFRS require companies to consider climate-related matters when their effect is material to the financial statements[109]. These are important statements and analyses by the IASB, the IFRS Foundation, and their staff that are justifiably receiving significant attention from both capital market regulators and climate policymakers, as well as from investors; companies; and, importantly, their auditors.

The mission of the Governmental Accounting Standards Board[110] is to promote the provision of higher quality financial information through standard setting. It is this body that is the standard setter for many municipal issuers.

To this end, Ceres recommends that MSRB advocate that the GASB review governmental accounting standards and provide guidance on the financial impacts of climate-relevant risks as there is a strong connection between climate risk and accounting topics such as Valuation, Depreciation, Asset Impairment and Useful Life of physical assets.

Ceres also recommends that the MSRB encourage GASB to conduct and publish research on climate-related physical and transition risks and educate municipal issuers, investors and other stakeholders about climate-related physical and transition risks and how they may affect relevant accounting topics.

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[108] Nick Anderson, "IFRS Standards and Climate-related Disclosures" (London: International Financial Reporting Standards Foundation, November 2020)
[109] IFRS "Educational Material: The effects of climate-related matters on financial statements prepared applying IFRS Standards"
[110] Government Accounting Standards Board