Principles for Responsible Investment

ESG INTEGRATION IN SUB-SOVEREIGN DEBT

THE US MUNICIPAL BOND MARKET

UN environment programme finance initiative

United Nations Global Compact

An investor initiative in partnership with UNEP Finance Initiative and UN Global Compact

THE SIX PRINCIPLES

PREAMBLE TO THE PRINCIPLES

As institutional investors, we have a duty to act in the best long-term interests of our beneficiaries. In this fiduciary role, we believe that environmental, social, and governance (ESG) issues can affect the performance of investment portfolios (to varying degrees across companies, sectors, regions, asset classes and through time). We also recognise that applying these Principles may better align investors with broader objectives of society. Therefore, where consistent with our fiduciary responsibilities, we commit to the following:

1 We will incorporate ESG issues into investment analysis and decision-making processes.

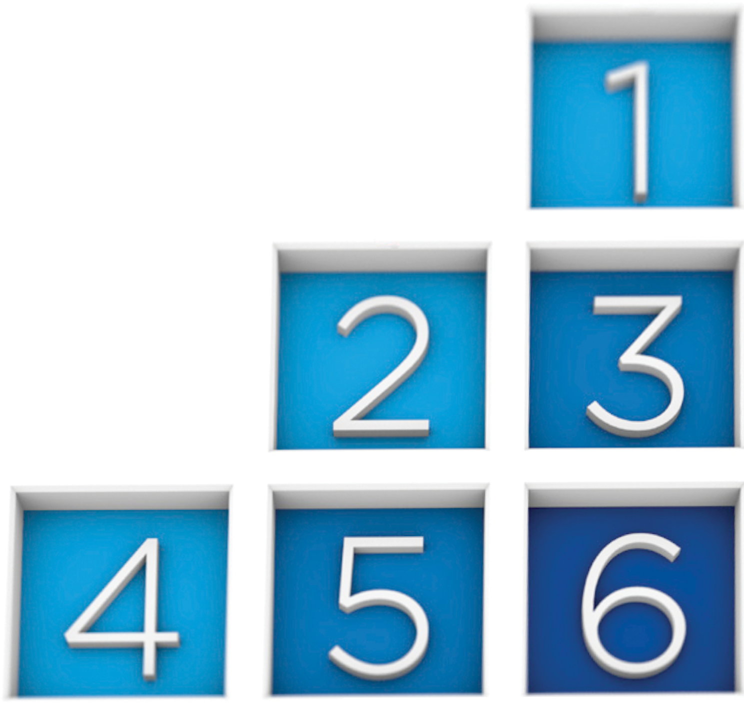
2 We will be active owners and incorporate ESG issues into our ownership policies and practices.

3 We will seek appropriate disclosure on ESG issues by the entities in which we invest.

4 We will promote acceptance and implementation of the Principles within the investment industry.

5 We will work together to enhance our effectiveness in implementing the Principles.

6 We will each report on our activities and progress towards implementing the Principles.



PRI's MISSION

We believe that an economically efficient, sustainable global financial system is a necessity for long-term value creation. Such a system will reward long-term, responsible investment and benefit the environment and society as a whole.

The PRI will work to achieve this sustainable global financial system by encouraging adoption of the Principles and collaboration on their implementation; by fostering good governance, integrity and accountability; and by addressing obstacles to a sustainable financial system that lie within market practices, structures and regulation.

CONTENTS

ACKNOWLEDGEMENTS

The PRI would like to thank the sub-sovereign debt advisory committee (SSDAC) members for their guidance:

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EXECUTIVE SUMMARY

Momentum is building for investors in US municipal bonds (munis) to incorporate environmental, social and governance (ESG) factors systematically in their analysis and valuations.

As with other fixed income sub-asset classes, ESG factors have traditionally been integrated in muni bond valuations to an extent. However, the need to explicitly integrate ESG factors has historically not been a priority due to muni characteristics, such as their tax-advantaged status, a better credit quality relative to corporate bonds and higher returns compared with Treasuries.

New developments have heightened awareness of the need for an explicit ESG risk assessment, including:

- Rising commercial pressure on asset managers to demonstrate ESG incorporation in bond assessment to asset owners;
- Growing demand from non-US investors, including European investors, who are now required to explain how they consider ESG factors in their investment choices;[1]
- Shifting priorities at the federal level, where the administration has shown increased ambition to tackle climate change and boost infrastructure projects, many of which are funded by state and local governments;
- Changing expectations from financial regulators around ESG disclosure and transparency, starting in Europe and spreading to the US, where signals are increasing.[2]

Despite an increasingly favourable environment for ESG incorporation, challenges remain:

- Assessing factors relevant to munis is more nuanced. Topics such as physical or transition climate risk and inequality are similar for munis and other sub-asset classes, however munis may benefit from federal or state support, potentially mitigating the effect on valuations.
- Risks vary with the type of muni bond. Munis can at times resemble sovereign borrowers and at times corporate issuers (see Figure 1).
- Data is inconsistent. For governance and social factors data is plentiful and often free but not disseminated effectively; for environmental factors it is still insufficient. Moreover, some issuers lack the necessary resources or perceive disclosure as a burden rather than a benefit to risk management and borrowing costs.

This report looks at ESG integration, an approach focused on measuring and managing ESG risks to investment performance. Future work will address thematic and screening approaches to ESG investing and investor engagement on ESG topics. Sub-sovereign debt in other countries will also be a future topic.

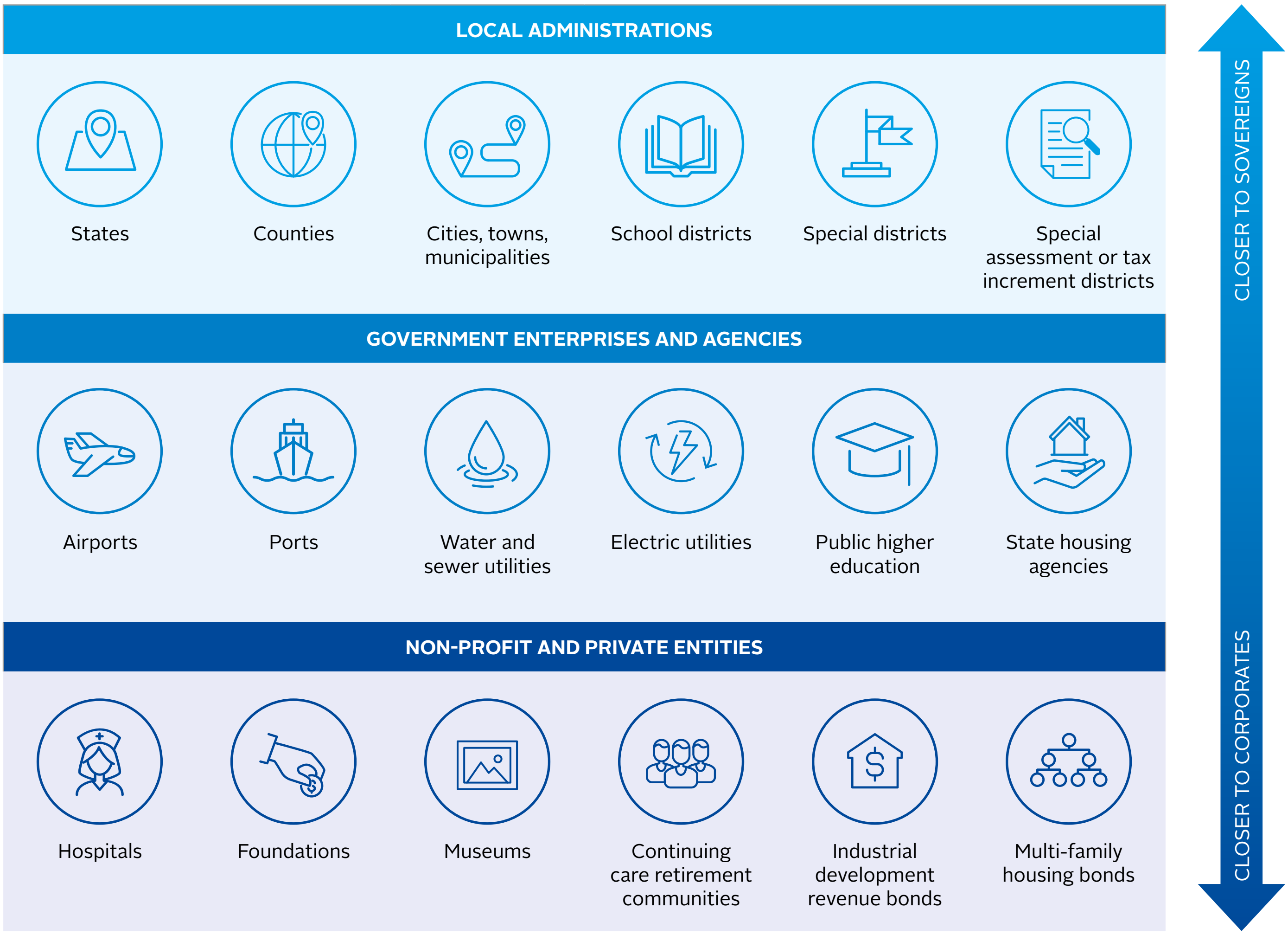
Importantly, the PRI will also endeavour to broaden the investor dialogue with issuers, credit rating agencies (CRAs) and ESG information providers,[3] along the lines of a similar PRI programme in the corporate market. Such dialogues have helped stakeholders understand expectations, challenges, and market nuances from a variety of perspectives.

1 Since the EU Commission launched its action plan on sustainable finance in 2018 and the European Green Deal in 2019, it has introduced several regulations. These include the EU sustainability-related disclosures in financial sector regulation and the EU taxonomy for sustainable activities – a classification system establishing a list of environmentally sustainable economic activities. It is also working towards an EU green bond standard.

2 These signals include the US Securities and Exchange Commission requesting public input from investors, registrants and other market participants on climate change disclosure; the Commodity Futures Trading Commission establishing a new climate risk unit; the Federal Reserve creating a new committee to examine the effects of climate change on banking and the economy; and the Federal Housing Finance Agency issuing a request for input on the current and future natural disaster risk to the housing finance system.

3 See PRI's ESG in credit risk and ratings initiative and Do ESG information providers meet the needs of fixed income investors?

Figure 1: The universe of muni bond issuers is complex[4]



4 The source of information for figures is PRI unless otherwise noted.

FOREWORD

I spoke recently with a county finance officer who remarked that when it comes to ESG issues, investors often take what makes sense for corporate research and apply it to public finance. But as any public official will tell you, companies and municipalities aren't the same – public finance operates with different stakeholders, laws, mandates, pressures, and revenue-raising mechanisms than a public company – and investors' approach to ESG assessment in muni bonds needs to reflect this.

While we have seen growth in market participants' appreciation of the need to assess ESG risks, systematic incorporation of ESG in credit analysis still lags in the municipal market. Muni credit analysts rightly point out that some ESG factors overlap with traditional municipal credit analysis. However, an enormous amount of research, critical thinking, and collaborative effort is needed to further the understanding of rapidly evolving ESG risks and their impact on credit quality.

This report is particularly timely: in the last 18 months, not only has our world been entirely upended by the coronavirus pandemic, but we have also seen record-breaking wildfires, extreme drought in many regions of North America, a deep freeze in Texas that drove several electric utilities to bankruptcy, and one of the largest protest movements in US history, leading to renewed attention to racial injustice.

The combined impact of these events and a growing recognition of ESG risks have escalated many ESG issues on the investor and issuer agenda. But ESG research isn't all about risks – it's about opportunities, too. The number of municipalities establishing greenhouse gas emission reduction targets is increasing.[5] The number of cities paying attention to, and deploying resources toward, racial equity and social justice is also growing.[6] Finally, early regulatory signals point to possible changes that could significantly affect sustainable investment practices in US markets. We expect these efforts to implement positive change on ESG issues will only increase in the coming years.

I would like to thank my committee colleagues for their collaboration, dedication, and willingness to engage on these topics, and the PRI for its interest in exploring this topic in greater depth.

Emily Robare
Chair, PRI Sub-Sovereign Debt Advisory Committee
Vice President, PIMCO

5 Forty-five of the 100 most populated US cities have established greenhouse gas reduction targets and corresponding baseline inventories, with the most common representing an 80% reduction in emissions by 2050. See Brookings (2020) Pledges and progress: Steps toward greenhouse gas emissions reductions in the 100 largest cities across the United States.

6 See Truth, Justice and Reconciliation Commission (2020) Grassroot Law Project and Leading Reform District Attorneys Announce Truth, Justice & Reconciliation Commissions to Address Decades of Harm Caused by Law Enforcement and Prosecutorial Overreach.

ABOUT THIS PAPER

This report provides an overview of current muni market practices and challenges to ESG integration in investment decisions. ESG integration focuses primarily on measuring and managing ESG risks to investment performance. It is one of three approaches that investors use to incorporate ESG into their valuation process.

The report's content is suitable for fixed income investors and credit analysts in muni bonds who have not yet started incorporating ESG factors in their investment practices or are only just beginning to formalise them. The report is based on desk-based research and draws on the experience of the members of the SSDAC.

The US muni market is one of the largest and most liquid sub-sovereign bond markets in the world. Muni bonds are unique in many ways. They are similar to sovereign bonds in that the issuer can often raise and collect taxes.[7] However, the issuers may not be as large or as diverse as sovereigns. Moreover, some muni issuers are focused on only one sector or service, making them more comparable to corporates than sovereigns. As a result, when it comes to ESG integration, some considerations are similar to those for corporate bonds, while others resemble sovereign debt due to the public-sector nature of the issuers.

Future work will examine ESG screening, which is driven by ESG-related norms and rules; a thematic approach, reflecting a desire to achieve specific real-world outcomes; and engagement around ESG topics.

With this report, the PRI is expanding its fixed income work of recent years beyond ESG incorporation in corporate and sovereign bonds, private debt and securitised products. Anyone new to responsible investment concepts should refer to the PRI's series of guides, An introduction to responsible investment and to the Reporting Framework glossary. The PRI's fixed income resources can be found on its fixed income page.

7 See OECD Library for a definition of the differences between central and local government.

OVERVIEW OF US MUNI MARKET

KEY MESSAGES

- The US muni bond market is characterised by a myriad of issuers operating in different sectors.
- Issuers may receive varying levels of support from state or federal governments and muni bonds generally offer a tax benefit. Some are backed by the revenue streams from specific projects; others are general obligation (GO) issues.
- Retail investors own a large share of muni bonds although this has declined in recent years.

At nearly US$4trn[8], the muni market represents about 8% of the US bond market and is one of the largest sub-sovereign markets in the world (see Figure 2).

Before addressing how ESG considerations feature in this asset class, it is important to understand the muni market's distinct characteristics.

- **The market is very broad.** The number of active issuers with bonds outstanding is around 36,000[9] and the number of issues is even larger.
- **Issuer types vary significantly** (see Figure 3).

Figure 2: US fixed income market: outstanding bonds as a percent of total (4Q 2020). Source: SIFMA

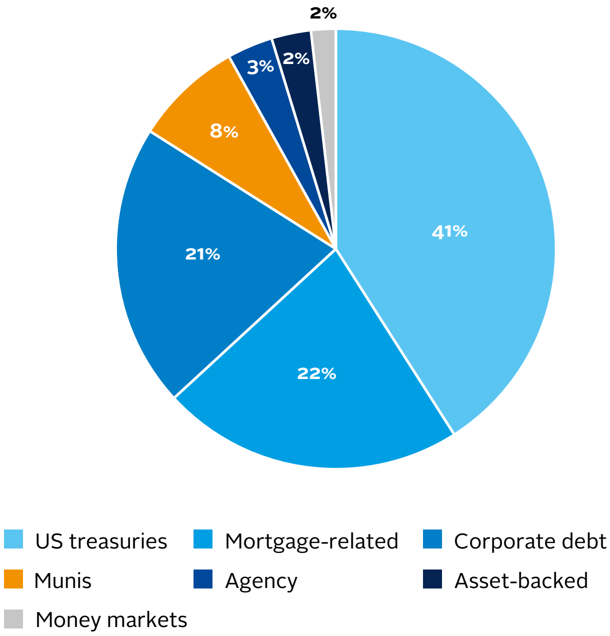
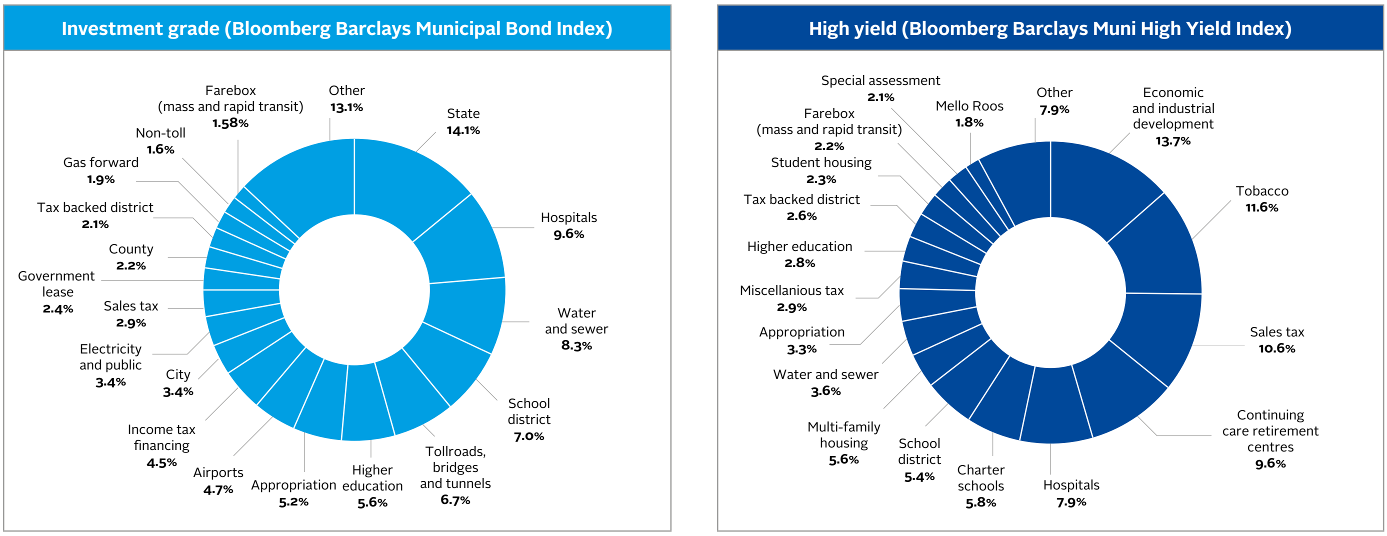


Figure 3: Composition of Bloomberg Barclays tax-exempt municipal indices by issuer type. Source: Bloomberg*



*Sectors that comprise 1.5% or less of the total are included in the "Other" category[10]

8 Source: SIFMA, as of the fourth quarter 2020.

9 Source: Bloomberg (as of May 2021). We note that the number of municipal bond issuers is frequently quoted as 50,000. According to the Municipal Securities Rulemaking Board (MSRB), this is an estimate of the number of total historic issuers of municipal bond debt, some of which has been retired. See MSRB (2019) Municipal Securities: Financing the Nation's Infrastructure.

10 In the investment grade index, the "Other" category includes: miscellaneous tax; ports and marinas; combined utilities; single-family housing; economic and industrial development; bond bank; education lease; multi-family housing; tobacco; primary and secondary education; continuing care retirement centres; guaranteed student housing; tax increment financing; student loans; ad valorem lease; charter schools; resource recovery; special assessment; Mello-Roos; nursing and assisted living; private schools; parking facilities. In the high yield index, the "Other" category includes: tax increment financing; nursing and assisted living; resource recovery; government lease; city; electricity and public power; toll roads, bridges and tunnels; single-family housing; private schools; ad valorem lease; airports; bond bank; education lease; primary and secondary education; income tax financing; guaranteed; parking facilities; ports and marinas; state; combined utilities; student loans; county; gas forward; non-toll.

- **The average maturity of munis at issuance is long.** In January-May 2021, the average tenor was 16.9 years (compared with 15.7 for corporate bonds) reflecting the long-term nature of many projects being financed (see Figure 4, which shows the use of proceeds of muni bonds).[11]
- **Most bonds offer a favourable tax treatment.** Interest on nearly 90% of outstanding muni bonds is tax-exempt at the federal level, and many are also exempt from state taxes when the investor is a resident of the state where the bond was issued. Taxation considerations are important for issuers too; borrowing costs are restrained by investors' willingness to accept a lower yield in exchange for the tax advantage.[12]
- **Retail investors are an important part of the buyer base.** The proportion of muni securities held by households and non-profit organisations stands at about 45%, however that figure declined by nearly 10 percentage points since 2005 (see Figure 5).
- **Debt servicing sources vary.** Revenue bonds fund a specific project that generates a revenue stream to service the debt, such as charges on toll roads. GO bonds instead pledge the full faith and credit of the issuer. They often fund public projects that do not generate revenues and can be serviced through local taxes or other means.
- **State and local governments operate under different jurisdictions.** Regulatory requirements and the level of support from other entities, such as state or federal governments, can vary substantially.

Figure 4: US muni bond issuance by use of proceeds (Jan-May 2021). Sources: Refinitiv, SIFMA Research

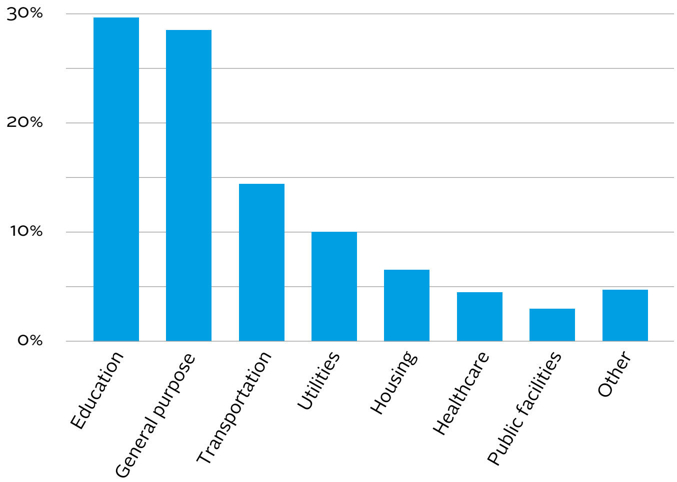
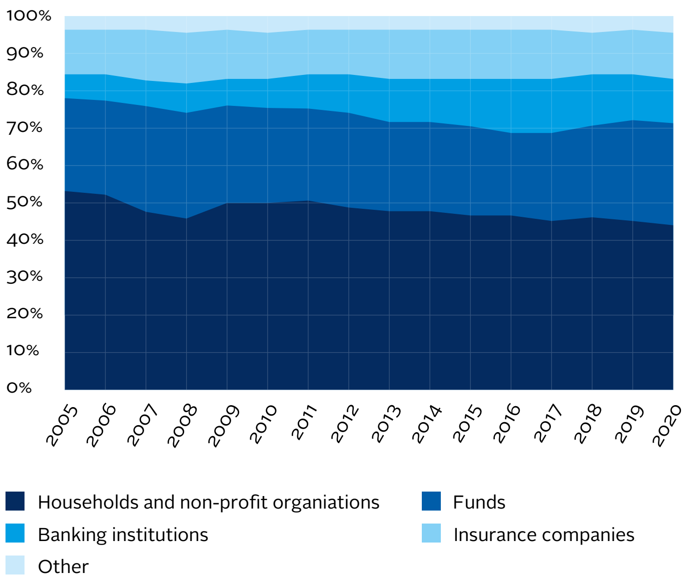


Figure 5: Holders of muni bonds by type (4Q 2020). Sources: SIFMA, Federal Reserve*



* The Federal Reserve classifies "households and non-profit organisations" as including domestic hedge funds, private equity funds and personal trusts. However, at least recently, the proportion of munis held by non-profits and domestic hedge funds appears to be minimal. "Funds" include mutual funds, money market funds, closed-end funds and exchange traded funds. The category 'Other' includes holdings by a variety of institutions including state and local governments and non-US residents.

11 Sources: Refinitiv, SIFMA Research.

12 See Brookings (2020) Why the surge in taxable municipal bonds?; MSRB (2021) 2020 Municipal Bond Market in Review.

CURRENT ESG PRACTICES

KEY MESSAGES

- Investors have been slower to formally incorporate ESG factors into muni bond analysis compared with other fixed income sub-asset classes.
- The complexity of the market and its relatively better credit quality have made the need for a more holistic approach to risk assessment appear less urgent.
- Muni issuers display ESG risk characteristics that in some instances resemble sovereign issuers and in others corporate issuers.

Many ESG factors have traditionally been viewed as inherent in, and integrated into, muni risk assessment, similar to other fixed income instruments. It is only recently that institutional investors have started to frame muni ESG risks in a more formal fashion.

The diversity and complexity of the market highlighted in the "Overview of US muni market" section partly explains why it has taken longer than in other fixed income sub-asset classes for muni bond market participants to frame ESG considerations in investment decisions. Issuers reflect the wide geographical diversity of the US, implying that environmental and social risks also vary significantly.

Furthermore, although riskier than Treasury bonds, muni credit quality is generally better than corporate bonds: the average credit quality of the Bloomberg Barclays US Municipal Bond Index is Aa2/Aa3, while the average credit quality of the Bloomberg Barclays US Corporate Bond Index is A3/Baa1. This perceived safer-asset status and higher yields than Treasuries may have contributed to delays in taking a more holistic approach to risk assessment, amid low interest rates and low inflation.

Finally, municipalities may receive state or federal support beyond that offered to corporates to mitigate environmental and social risks. This support may vary: for example, the response to the coronavirus pandemic[13] was more generous than after the 2009 recession. And, while such support is not guaranteed, it may diminish the credit risk of muni bonds.

As a result, identifying the materiality of ESG factors in the muni market has historically attracted less interest compared with other fixed income asset classes. ESG factors are considered material if they affect the bond's initial pricing, its performance or credit quality (i.e. the issuer's willingness or ability to service and repay debt). However, other factors generally play a greater role in price and yield in the muni market, such as interest rates, inflation and tax status.

The muni bond market can resemble corporates, sovereigns or neither when considering ESG factors, as shown in Figure 6.

13 See BlackRock (February 2021) Municipal Market Update; Financial Times (January 2021) Investors race into munis as Biden announces stimulus plan to cash-strapped states.

Figure 6: ESG considerations: similarities and differences across different types of issuers

	CORPORATE*	US MUNI**	SOVEREIGN
ISSUER STRUCTURAL FEATURES THAT MAY OFFSET OR REDUCE AN ESG RISK			
Taxation authority to service debt	No	Depends on security; general obligation bonds are typically full faith and credit, which can include taxing power	Yes
Monopoly over selected products or services	Occasionally	Often	Often
Debt monetisation* **	No	Deficit financing is rare due to balanced budget requirements	Yes
External support	Potentially from a parent company or government subsidies	Borrowers may have access to other state or federal support, depending on the jurisdiction	No, aside from bilateral or multilateral debt relief
Diversity of economic activity as a risk mitigant	Depends on size, product offering, breadth of revenue streams	Depends on issuer economic characteristics, breadth of revenue and purpose of financing	Depends on issuer economic diversification and taxable base
MANAGING ESG ISSUES			
Availability of ESG data	▪ Disclosed by issuers ▪ Available through CRAs and third parties ▪ Peer comparison difficult	▪ Disclosed by public sources and issuers (often upon request) ▪ Available through CRAs and third parties ▪ Data can be patchy	▪ Disclosed by public sources and issuers (often upon request) ▪ Available through CRAs and third parties ▪ Data can be stale
Investors screening issuers for ESG reasons	Yes	Sometimes	Rarely
Degree of investor engagement with issuer	Less common than for shareholders	Less common than for corporate bondholders and more challenging	Less common than for corporate bondholders and more challenging
Able to move geographic location	Yes	No****	No
Social stakeholders	Employees, customers, supply chain	Local population, taxpayers, employees and the service base	National population, taxpayers
Governing body	Appointed	Depends on sector as to whether elected or appointed	May be elected

*Corporate excludes quasi-governmental organisations, which have the legal characteristics of both governmental and private entities.

**US muni issuers as per the classification of Figure 1.

***Debt monetisation is also known as monetary financing and is colloquially referred to as printing money by a central bank to allow a sovereign to finance its deficit or repay its debt.

****General obligation issuers typically cannot move. In rare cases revenue bond issuers may be able to relocate within their service area.

However, whilst investors have been slow to adopt a formal ESG incorporation approach to date, new factors have come into play that are changing the landscape:

- There is evidence that retail and institutional investors want to be more informed about ESG investing options.[14]
- Asset management firms are working to demonstrate ESG incorporation across all asset classes in a standardised fashion, driven by commercial pressures from clients and beneficiaries.
- CRAs have sharpened their focus on ESG factors.[15]
- Foreign investors have been increasingly interested in the taxable segment of the muni market. European investors – who are relatively more advanced in ESG incorporation practices – are part of this trend.[16]

QUALITATIVE FINDINGS FROM THE PRI REPORTING DATA

From the 2020 annual reporting to the PRI by signatories on their responsible investment practices the following can be observed:

- Many signatories invest in munis that fund purposeful projects, particularly infrastructure with positive environmental and societal outcomes (e.g. related to affordable housing, waste management, pollution control).
- Given the high credit quality of many of the muni issuers in their portfolios (e.g. Federal Home Loan Banks), some signatories admit that they tend to downplay ESG risks.
- Of the three ESG categories, governance is the most scrutinised. Signatories list several aspects that they consider in addition to financial management, including diversity and board independence, disclosure policies, pension plan management and past controversies.
- Data coverage and scoring of muni bonds by third-parties is scarce. As a result, beyond traditional credit quality assessment and fundamental analysis, some signatories are creating proprietary ESG analytics and frameworks to score munis. These scores may have varying weights, depending on the type of issue and sector, and are used to guide portfolio construction and bond selection (for instance, between alternatives with the same credit quality).
- Negative screening is limited – for example it may be applied when there are governance issues or to exclude traditional 'sin sectors' such as tobacco, gambling or ammunitions, although these represent a small share of outstanding bonds. Positive screening is more common, especially among impact investors.
- Some signatories report engaging directly with issuers to get additional information for their due-diligence analysis, to assess the viability of plans and strategies, and to monitor areas of concern.
- There is incipient evidence of efforts to align investment selection and strategies with the UN Sustainable Development Goals.

14 See S&P (May 2020) Move over Millenials: ESG Investing Is a Multigenerational Conversation.

15 This is partly through the PRI's ESG in credit risk and ratings initiative and also due to regulatory changes: see ESMA (2020) Guidelines on disclosure requirements applicable to credit ratings.

16 See Bloomberg (May 2021) BABs Revival Boosts Overseas Participation; Politico (April 2021) Supporters hope for Build America Bonds revival in infrastructure plan.

BREAKING DOWN E, S AND G FACTORS

KEY MESSAGES

- Environmental: The frequency of severe climate events has been increasing, with ramifications for agricultural productivity, land valuations, and public spending.
- Social: Relevant factors can include demographics, community equity and the population cohort served by a funded project.
- Governance: The essential nature of public services means governance is relevant to many types of risk; cybersecurity has emerged as a new investor concern as it could lead to financial and reputational losses.

Discussions with the SSDAC highlighted that muni bond investors remain focused on downside risks, similar to all fixed income investors. To that end, governance has always been closely scrutinised and remains particularly relevant. However, the emphasis on environmental and social risk factors is increasing.

Muni issuers' revenue streams are often concentrated geographically and economically. This can intensify the local effect of any one environmental or social factor, especially in the US, which has a very diverse physical and social morphology. In fact, although the debate around climate change and social issues tends to focus on variations between countries, differences within countries apply too.

For state and local governments, ESG risks may encompass the whole local population, rather than just a narrower group of customers and employees, as in the case of corporate issuers. This local dependency means that ESG factors could affect a muni issuer's capacity to service its debt, for example if the taxable base is affected or public spending increases. That said, state and local governments may have greater leverage to respond to these risks through policy intervention. Therefore, the quality of governance can be even more relevant to the materiality of environmental and social risks, as it can affect how these risks are managed or mitigated.

The remainder of this chapter focuses on risks within each ESG category. It is important to remember that ESG factors can also be drivers of positive change, for example if a community benefits from clean energy, resilient infrastructure or initiatives aimed at conservation, education or healthcare. Furthermore, the same risk could fall under more than one of the three ESG categories (for instance, cybersecurity could be labelled as a social as well as a governance factor).

The sections below contain six real-world examples that highlight how ESG factors can affect specific issuers, including related credit rating agency opinions. The categorisation of each event as E, S or G was done by the PRI and all relevant sources are in footnotes.

ENVIRONMENTAL FACTORS

Market participants and regulators have increasingly focused on climate change risks in recent years, particularly risks linked to physical exposure or related to the transition required to mitigate physical risks. Both of these risk types may also materialise in parallel, compounding the challenge.[17] Municipalities offer and manage a broad range of services – such as sanitary sewage, waste collection, water supply and land use planning – which are inherently linked to biodiversity risks.

PHYSICAL CLIMATE RISK

Physical climate risk can affect state and local governments on multiple fronts (see Figure 7). In turn, the consequences of climate change may affect issuers' ability to generate revenues if, for example, property and land valuations decline and businesses relocate. Issuers may also need to increase expenditures to cover repairs, infrastructure adaptation, compensation, subsidies or higher costs of services.

17 See Climate-Related Market Risk Subcommittee, Market Risk Advisory Committee of the US Commodity Futures Trading Commission (2020) Managing climate risk in the US financial system.

Figure 7: Effects of physical risks and financial implications for muni bond issuers

PHYSICAL RISKS

- Droughts
- Flooding
- Freeze
- Severe storm
- Tropical cyclone
- Wildfire
- Winter storm

EFFECTS

- Living and working conditions
- Natural capital and food systems
- Physical assets

POSSIBLE CONSEQUENCES

- Job losses
- Community displacement
- Public disorder
- Diseases
- Lower production
- Food insecurity
- Damages to buildings
- Higher insurance premia/ insurability
- Power cuts/
- Transport disruption

FINANCIAL IMPLICATIONS FOR MUNI BOND ISSUERS

LOWER REVENUES

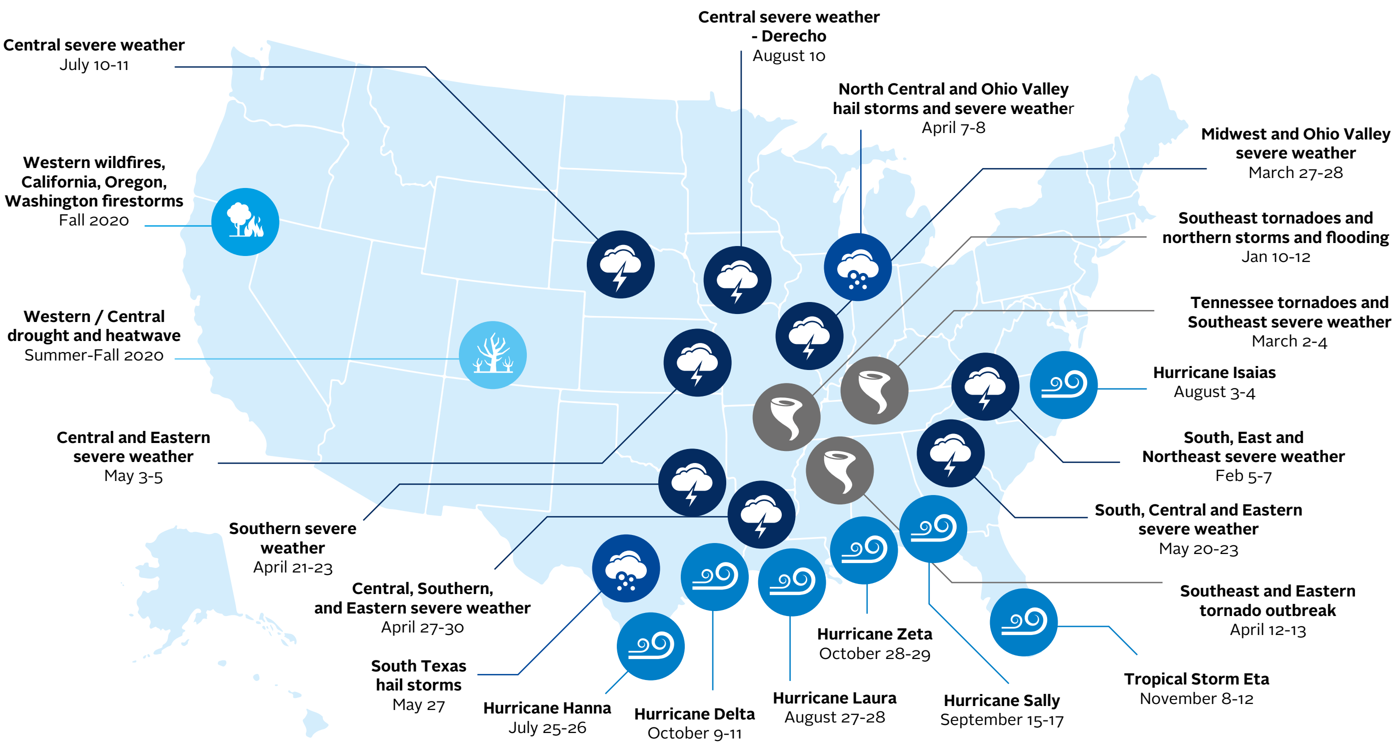
- Reduced taxable base
- Inability of projects to generate cashflow as planned

HIGHER EXPENDITURES

- Repairs
- Compensation
- Subsidies
- Policing costs

Weather-related events are becoming more frequent and expensive: the US has sustained 291 weather and climate disasters since 1980, with total costs exceeding US$1.9trn (inflation-adjusted).[18] And the frequency of these extreme weather events is increasing: a 30-year average of 7.1 events per year soared to 16.2 events per year during 2016-2020, hitting 22 in 2020 alone, a new record (see Figure 8). All 50 states had at least one billion-dollar disaster over the last 30 years, with Texas the most hit by far.

Figure 8: US Billion-dollar weather and climate disasters (2020).* Source NOAA



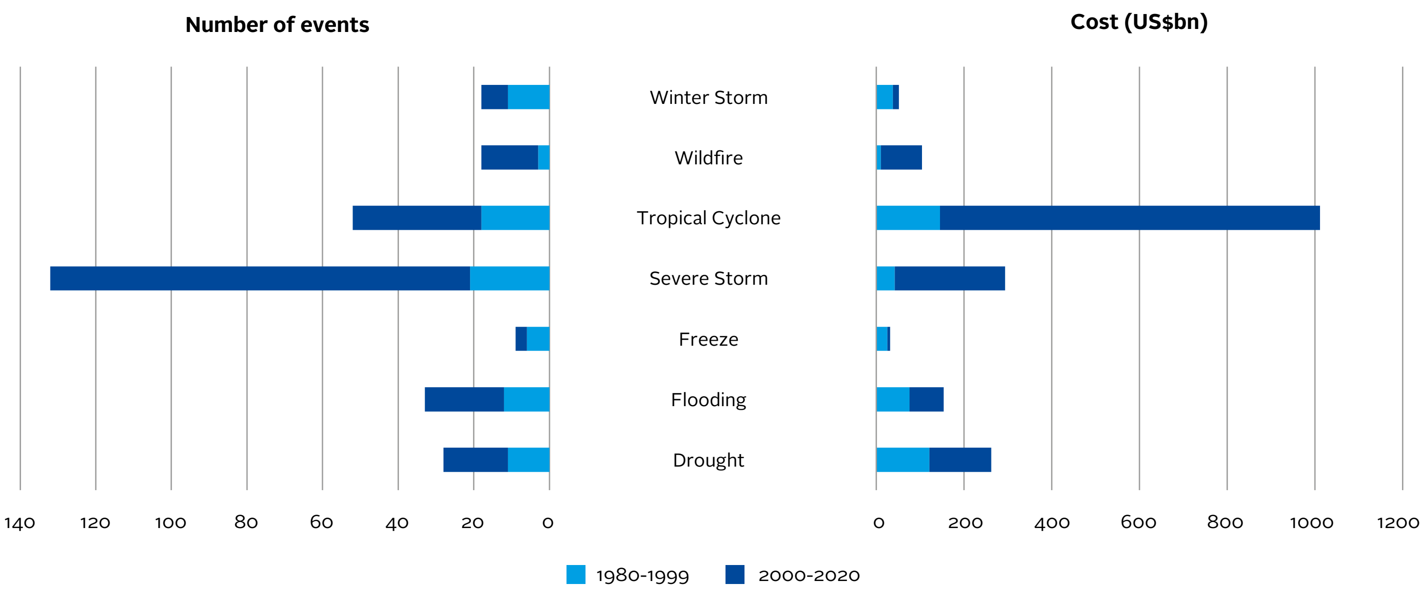
*Note: the chart refers to 2020 alone.

The ramifications of climate change risks are also complex: the direct effects can be local, but they can have knock-on impacts across states, cities and sectors where socioeconomic systems are connected. For example, changes in weather patterns associated with higher temperatures and droughts or extreme precipitation can have a significant impact on livestock or on crop yields for corn, wheat, soybeans, and cotton. While this could directly affect the Midwest, it could also have repercussions for food prices nationwide and in export markets.

18 For an event to be included for the purposes of determining both the number and cost of events, the CPI-adjusted damages or costs (rather than the actual figure) must be at least US$1bn. See US National Oceanic and Atmospheric Administration (NOAA).

Extreme weather events create disruption, increased costs, asset depreciation and can be deadly. For example, flooding during Super Storm Sandy caused prices to fall by 5%-7% for minimally inundated properties and by 8%-13% for properties with average inundation; non-flooded properties included in new floodplain maps experienced an 18% drop in prices.[19] The largest costs stem from tropical cyclones, followed by severe storms and drought (see Figure 9).

Figure 9: US billion-dollar natural disasters by type (CPI-adjusted).* Sources: PRI based on NOAA data



*For an event to be included for the purposes of determining both the number and cost of events, the CPI-adjusted damages or costs (rather than the actual figure) must be at least US$1bn.

Despite the increased severity of these events, they have had a limited effect on issuers' credit ratings, as noted in a recent S&P Global Ratings report. For the period of 2017-2018, the CRA identified ESG factors as drivers for only 34% of 3,315 US public finance rating actions: within that subgroup, governance was the most dominant factor affecting credit ratings (67%), followed by social (26%) with environmental trailing at a mere 5%.[20]

Mitigating factors include:

- the issuer's preparedness to address physical climate risk
- the strength of the issuer's financial position
- the resilience of its infrastructure
- increased production and economic activity associated with rebuilding
- the level of state or federal aid, for example through the Federal Emergency Management Agency (FEMA)[21]
- the degree of insurance policy coverage

19 See Matthew Gibson, Jamie T. Mullins and Alison Hill (2019) Climate risk and beliefs: Evidence from New York floodplains.

20 See S&P Global Ratings (March 2019) When US Public Finance Ratings Change, ESG factors Are Often The Reason.

21 See FEMA Fact Sheet: FEMA's Public Assistance Process; FEMA 2018-2022 Strategic Plan.

For the case studies in this section, PRI assigned a category as follows:

Environmental *Social* *Governance*

ISSUER: PARADISE, CALIFORNIA[22]

Event

The risk of wildfires has grown in California, amid drier and warmer weather in fire season and more people living in or near forested areas.

In late 2018 the Camp Fire struck Butte County, California, killing 85 people and destroying 19,000 buildings. The most damaging and deadly fire on record in the state devastated the town of Paradise and 90% of the 27,000 residents left, at least temporarily.

Credit implication

Paradise was one of three obligors in a pool for a series of bonds issued as part of the California Statewide Communities Development Authority's Pension Obligation Bond Program, which allows local governments to finance unfunded pension liabilities. Moody's downgraded the relevant securities, the 2007 Series A-2 Bonds, from B1 to Caa3 in January 2019.

The credit ratings agency said that the damage to Paradise would prevent it from paying debt service on its share of the bonds in the short term. At the time of the downgrade, its share of the debt service outstanding was 41%.

However, the bonds have since been upgraded to Ba2. Moody's said that a US$270m settlement Paradise received from utility PG&E for the latter's role in the fire boosts its ability to service debt while maintaining operations and investing in capital requirements.

ISSUERS: BRAZOS ELECTRIC POWER COOPERATIVE, COSERV ELECTRIC[23]

Event

A winter storm in February 2021 had disastrous consequences in Texas, in large part because of its effect on the power supply. The state's grid is mostly separate from the rest of the US, leaving it vulnerable when generators fail. Electricity firms were forced to purchase power at the maximum rate allowed under regulations, US$9,000 per megawatt hour versus the average 2020 price of US$22. Natural gas fuel prices jumped too. Almost five million customers went without power and 700 people died, according to a Buzzfeed News analysis of excess deaths.

Credit implication

Companies faced large bills from the Electric Reliability Council of Texas (ERCOT), which operates the grid that encompasses most of the state. One company, Brazos Electric Power Cooperative (BEPC), filed for bankruptcy citing debt owed to ERCOT.

BEPC's troubles had repercussions for CoServ Electric, otherwise known as the Denton County Electric Cooperative. CoServ is the largest member of BEPC's distribution cooperative, taking a third of its electric sales, and it is obliged to buy from BEPC. In March, Fitch downgraded CoServ from AA- to A, based in part on the expectation that the cooperatives will be forced to bear BEPC's costs as determined by the bankruptcy court. However, the utilities may benefit from moves by state legislators, including allowing the issuance of bonds backed by customers' bills.

22 See Aon Weather, Climate and Catastrophe Insight – 2020 Annual Report; California Department of Forestry and Fire Protection; population data from Data Commons; Moody's (January 2019) Moody's downgrades California Statewide Communities Development Authority Taxable POBs 2007 A-2 (CABs) to Caa3 from B1 and assigned a stable outlook; Moody's (March 2021) California Statewide Communities Dev. Auth. Update to credit analysis following upgrade of 2007 A-2 POBs to Ba2 from Caa2; Vox (October 2019) The survivors.

23 See Bloomberg (May 2021) Texas Bill Would Spread Blackout Costs Over Decades; BuzzFeed News (May 2021) The Texas Winter Storm And Power Outages Killed Hundreds More People Than The State Says; Fitch Ratings (March 2021) Fitch Downgrades CoServ Electric, TX's First Mort Notes to 'A' from 'AA-'; Rating Watch Maintained; Reuters (May 2021) Brazos seeks approval of $350 million bankruptcy loan; The Texas Tribune (March 2021) Texas lawmakers want to prevent another power crisis. But the legislation doesn't go far enough to do that, critics say; The Texas Tribune (May 2021) Texas lawmakers propose electricity market bailout after winter storm; The Texas Tribute (June 2021) Texas power generation companies will have to better prepare for extreme weather under bills Gov. Greg Abbott signed into law.

The resilience of muni bonds to natural disaster may not continue, however:

- Climate change risks are expected to increase over time. Science-based models indicate that further global warming will continue to increase the severity and frequency of acute climate events and intensify climate hazards.[24]
- Disaster aid through FEMA could become more limited going forward, either because the frequency and magnitude of events increases or because FEMA reduces support to incentivise local governments to be less complacent and adapt to climate change faster.[25]
- Finally, risk recognition ahead of the manifestation of physical events could bring forward changes in asset valuations, insurance coverage and capital allocation. For example, although evidence is still mixed, some studies point to price drops for coastal properties. This could be due either to exposure to sea level rise or to the perception that this risk may materialise.[26]

TRANSITION RISK

Transition risks arise from measures taken to mitigate the impact of climate change or from policy responses to climate change. A recent study outlining five different technological pathways to achieve the target of net-zero emissions by 2050, in line with the renewed commitment by the US to the Paris Agreement, highlighted profound changes to local landscapes, industries and communities in the next few years.[27]

Many of these changes will require upfront investment, with the same study estimating at least US$2.5trn of additional capital spending towards energy supply, industry, building and vehicles by 2030. As the ultimate guardians of land-use planning and public investment, as well as the first responder to climate-related events, local governments, counties and municipalities are responsible for the planning and implementation of adaptation practices.[28]

Changes to policy and spending priorities will have repercussions for sectoral economic activities and for state and local governments' budgets, especially for those reliant on economic activities that are vulnerable to transition risks, such as in the utility sector.

ISSUER:
GALLIA COUNTY, OHIO [29]

Event

The biggest taxpayers in Gallia County, located in south-east Ohio, are coal-fired power plants, accounting for more than one-third of the county's property tax base in tax year 2019. Gallia's median household income is 71% of the national average and the employment rate is 53%, versus 63% nationwide. Doubts over the future of coal in the US raise questions about how communities reliant on the coal industry will adapt.

Credit implication

The transition to a low carbon economy may ultimately affect Gallia's credit quality. Coal plant closures could have a detrimental impact on the county's finances through loss of tax revenues as well as loss of local employment, and S&P has said that this could lead to lower credit ratings. The ratings agency has pointed out that the county is home to a heavy concentration of the natural resources and mining industries.

24 See McKinsey Global Institute (2020) Climate risk and response: Physical hazards and socioeconomic impacts.

25 See Bloomberg (May 2021) Why Local Governments Don't Pay for Expensive Disaster Insurance.

26 See Markus Baldauf, Lorenzo Garlappi and Constantine Yannelis (2020) Does Climate Change Affect Real Estate Prices? Only If You Believe In It: Houses that are projected to be under water in climate change "believer" neighbourhoods sell for less than those in "denier" neighbourhoods; projected climate changes could change real estate prices decades before the predicted damages are expected to happen, but the analysis is agnostic about whether believers are overreacting or deniers are underreacting. See Asaf Bernstein, Matthew T. Gustafson and Ryan Lewis (2019) Disaster on the horizon: The price effect of sea level rise: Homes exposed to sea level rise sell for about 7% less. See Justin Murfin and Matthew Spiegel (2020) Is the Risk of Sea Level Rise Capitalized in Residential Real Estate?: There are limited effects on prices of coastal home sales based on their inundation thresholds under projections of sea level rise.

27 See Eric Larson, Chris Greig, Jesse Jenkins, Erin Mayfield, Andrew Pascale, Chuan Zhang, Joshua Drossman, Robert Williams, Steve Pacala, Robert Socolow, Ejeong Baik, Rich Birdsey, Rick Duke, Ryan Jones, Ben Haley, Emily Leslie, Keith Paustian and Amy Swan (2020) Net-Zero America: Potential Pathways, Infrastructure, and Impacts, interim report.

28 See Global Center on Adaptation State and Trends in Adaptation Report 2020.

29 See Official Statement Relating to the Original Issuance of COUNTY OF GALLIA, OHIO $7,800,000 County Jail Improvement Bonds, Series 2020A (General Obligation) (Limited Tax) (November 2020); S&P Global Ratings (March 2021) Gallia County, Ohio; General Obligation; The Columbus Dispatch (January 2021) Power plant communities look toward a future beyond coal; US Census Bureau data.

Ultimately, differing regulations across states and local governments, as well as the degree of federal funding for technical support and guidance, will affect the relevance of transition risks for muni investors. The choices public policymakers face could shape, or be influenced by, local production, prices and demand preference and will depend on technology options and costs.

Policymakers' responses will also depend on the challenges for specific locations, industries and communities; population density; public acceptance; and potential co-benefits of remedial action (for example, the positive impact on health as air pollutants are reduced). These factors illustrate the intertwining of environmental factors with social issues and governance.

SOCIAL FACTORS

Muni issuers fund a wide range of essential services with inherent social implications, such as education, healthcare and water supply for local communities. The composition and the characteristics of the local population can impact the level of spending required for these services and the revenues available to repay debt, whether through general taxes or project-specific income.

Many material social factors are similar to the ones that sovereign bondholders consider, such as demographic trends, if they apply to the whole population of a state, city or local government.[30] In contrast, if the issuer is, for example, a hospital or museum, then the social factors apply to a narrower portion of the population. In these instances, social factors are more similar to those considered by corporate bondholders when focusing, for example, on retail customers or company employee metrics.

Below are examples of useful social indicators:

DEMOGRAPHIC CHARACTERISTICS

Population trends, such those relating to wealth, income and age, affect muni issuers' current and future budgets.

With respect to revenues:

- The higher the proportion of the population in employment, the higher the income tax revenue for issuers that collect this tax.
- A wealthier population generates more tax revenues through income tax or indirect taxes, such as sales or property taxes.[31]

With respect to costs:

- A higher proportion of retired public workers is likely to increase pension expenditures. Across state and local governments, defined benefit schemes remain preponderant (in 2018, 94% of state and local employees had access to such a plan); the ratio of active workers to current retirees varies greatly across states and many plans are underfunded.[32]
- Spending on welfare and health is likely to depend on demographics and the population income. The most recent data, from 2017, shows 35% of public welfare expenditure and 89% of health and hospital spending was funded at the state and local government level, rather than the federal level.[33]

From a pure ESG integration perspective, social risks can vary depending on the social and economic features of different communities. However, an outcome-based or thematic approach may seek to address problems, rather than measuring only the risk premium associated with a muni bond investment.

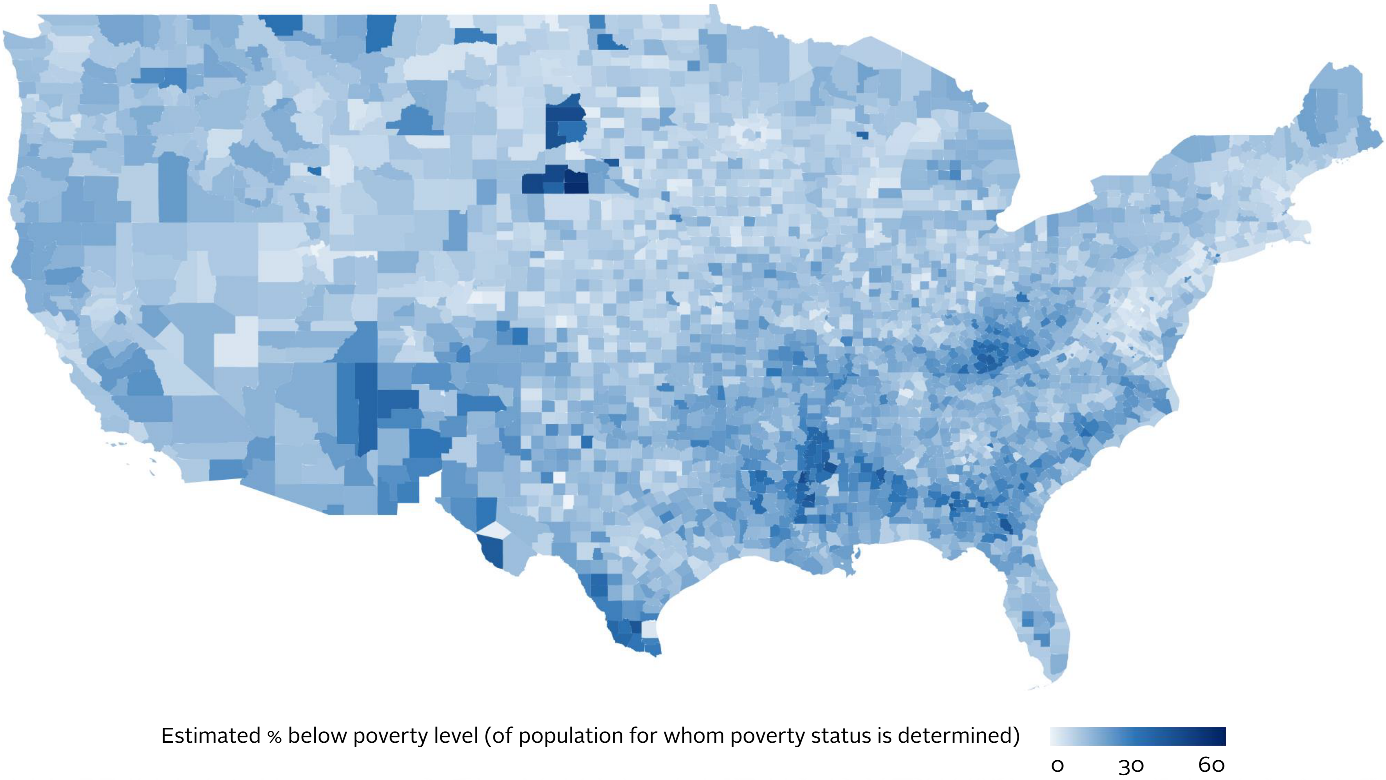
30 See PRI (2019) A practical guide to ESG integration in sovereign debt.

31 Taxes make up a significant proportion of state and local government revenue. See the Urban Institute, State and Local Revenues.

32 See the Urban Institute, State and Local Government Pensions.

33 See the Urban Institute, Health and Hospital Expenditures; the Urban Institute, Public Welfare Expenditures.

Figure 10: Poverty rate by county. Source: US Census Bureau, 2015-2019 American Community Survey 5-Year Estimates



SOCIAL JUSTICE AND EQUALITY

- Declining trust in governing institutions among groups can pose a risk to credit, for example if it contributes to social unrest that can damage an issuer's financial position.[34]
- At the same time, poor oversight by state and local governments of issues affecting minority and disadvantaged cohorts can prevent an equitable provision of services and perhaps hinder local economic growth.[35]

EMPLOYEE ISSUES

- A working environment where employees perform well (with low turnover, good training, health benefits and safe working conditions) may benefit an issuer's financial performance and its reputation.
- Public sector bodies tend to have a more unionised workforce, meaning employees have more leverage to negotiate and address grievances with employers. Employees also have a greater ability to disrupt the issuer's activities and financials in the event of a dispute.[37]

ISSUER:
MINNEAPOLIS, MINNESOTA[36]

Event

After George Floyd was killed by a police officer on 25 May 2020 in Minneapolis, Minnesota, the city became the site of unrest, with protests against racial inequality and calls for police reform. More than 1,500 businesses were damaged or destroyed in the wider urban area in the weeks following the death. Debate in the wake of the incident raised questions about police funding.

Credit implication

S&P changed the outlook from stable to negative for the city's general obligation debt in September 2020, attributed in part to the fallout from Floyd's death. The ratings agency pointed to potential costs related to reform of policing, potential liabilities from lawsuits related to his death, and increased worker compensation claims related to the unrest. It also said that it could revisit its assessment of the city's governance risk "if its approach to police reform perpetuates conditions that could lead to greater social unrest".

In March, Minneapolis agreed to pay a US$27m settlement to Floyd's family, some of which came from its general fund. Beyond this immediate cost, questions remain over how cities like Minneapolis reform and fund policing services and deal with discontent. In 2021, the city's police budget fell by US$28m, or 15%, compared with a general budget cut of 7% across city departments. While this appears to be a significant slash to policing services, additional funds are available to the police chief, with city council approval, and resources have also been re-allocated to alternatives to policing.

ISSUER:
UNIVERSITY OF SOUTHERN CALIFORNIA[38]

Event

The University of Southern California, based in Los Angeles and the largest private university in California, has agreed to pay more than US$1bn to women treated by its former gynecologist in relation to sexual harassment and abuse claims. Some US$852m of this was announced in March 2021, in what news organisation NPR called "the biggest sex abuse pay-out in higher education history."

Credit implication

Moody's changed USC's outlook from stable to negative in March 2021 as a result of financial exposure to the legal issues. It also said this could lead to reputational harm, which could perhaps reduce student demand or philanthropic support. However, the ratings agency said in March that this demand and support had remained robust so far.

34 See Moody's (October 2020) Cities shift funds as focus on policing grows; credit impact hinges on costs, social risks.

35 See Moody's (June 2020) Social unrest and underlying inequality pose fiscal and governance credit risks.

36 See AP (March 2021) Floyd family agrees to $27M settlement amidst ex-cop's trial; Bloomberg (December 2020) After Pledges to Disband the Police, Minneapolis Makes Compromise Budget Cuts; Bloomberg (May 2021) Minneapolis One Year Later; Bloomberg (January 2021) Cities Say They Want to Defund the Police. Their Budgets Say Otherwise; CNN Business (May 2021) One year after George Floyd's murder, Minneapolis' businesses are still reeling; S&P Global Ratings (September 2020) Minneapolis GO Debt Outlook Revised To Negative On Elevated Credit Deterioration Risk From Concurrent Challenges.

37 See Bureau of Labor Statistics (2021) Union Members; Bureau of Labor Statistics (2021) Major Work Stoppages in 2020.

38 See Moody's (March 2021) Rating Action: Moody's revises University of Southern California's (CA) outlook to negative; assigns Aa1 to revenue bonds; Moody's (March 2021) Credit Opinion: University of Southern California, CA; NPR (March 2021) USC Agrees To $852 Million Settlement To End Sex Abuse Litigation; NPR (October 2018) USC Reaches $215 Million Settlement Over Gynecologist Abuse Allegations.

GOVERNANCE FACTORS

State and local governments' responsibilities touch on many aspects of risks associated with governance. For instance, managing local resources and service provisions (operations and maintenance, the handling of competitive procurements); finance (raising revenues, including through taxation, managing expenditures and accessing grants, credit and private funding); and planning (prioritising investments, devising strategies through forecasts, monitoring and evaluation processes).

ISSUER:
SAN FRANCISCO COMMUNITY COLLEGE DISTRICT[39]

Event

San Francisco Community College District serves the county from which it takes its name and covers the City College of San Francisco.

In September 2020, the Accrediting Commission for Community and Junior Colleges (ACCJC) said the college was subject to "enhanced monitoring" as a result of weak financial performance. There have been concerns about the district's deficit and its fiscal audit for 2019-20 recorded "material weakness" in financial conditions.

In addition, the district has endured high management turnover, with multiple chancellors or interim chancellors since 2012.

California's Fiscal Crisis and Management Assistance Team (FCMAT) warned in April 2021 that the college "must act quickly if it wants to continue operating independently in the California community college system". The following month, staff accepted pay cuts, although this was not thought to have resolved the entity's financial problems.

Credit implication

In November 2020, Fitch Ratings said that continued dependency on deficit spending or loss of accreditation could bring about negative rating action or a downgrade for the district. It warned that losing accreditation could lead to closure of the district.

The list of governance indicators is long and many feature regularly in traditional muni credit analysis. Some are more backward-looking and track records and good practice. Others are more forward looking and aim at assessing issuer risk awareness and mitigation plans, if any. Importantly, they can be a mix of qualitative and quantitative indicators.

Identifying measures to assess governance risks varies depending on the sector in which a muni issuer operates and on whether the governing body is appointed (as with corporates) or elected (as in democratic countries). However, some of the World Bank worldwide governance indicators provide a good starting point (see Figure 11).

Figure 11: Selected governance aspects assessed by muni bond investors

GOVERNANCE DIMENSION	GOVERNANCE AREA TO ASSESS
Voice and accountability	Accountability of officials and communication[40]
	Reliability of budget and accounts (completeness, timeliness, credibility, audit)
	Sophistication of management and formalisation of management practices
	Level of oversight by other governing bodies
	Controversies surrounding management, including ethical concerns
	Transparency in public procurements
Government effectiveness	Quality of infrastructure (roads, ports, airports, railways)
	Preparedness to deal with emergencies
	Cybersecurity policies
	Exposure to significant political in-fighting or impasse
	Management of pension and retiree healthcare liabilities

Of the items listed above, cybersecurity is perceived by investors as a growing risk to muni issuers, as it could lead to financial and reputational losses in the absence of adequate firewalls and skills to prevent potential attacks.[41]

39 See Letter from ACCJC (September 2020); California Community Colleges; Letter from FCMAT (April 2021); Fitch Ratings (November 2020) Fitch Rates San Francisco Community College District, CA's 2020 GO Bonds 'A+'; Outlook Stable; San Francisco Chronicle (April 2021) State's fiscal crisis team sounds alarm on the ability of CCSF to stay afloat; San Francisco Chronicle (May 2021) City College of San Francisco instructors accept pay cuts to save classes, jobs; San Francisco Community College District Financial Statements.

40 See Breckinridge Capital Advisors The COVID-19 crisis and its impact on social issues for corporations and U.S. cities, which argues that "a crisis requires coordinated and steady communications from officials to inform community residents about the best ways to respond."

41 The cybersecurity threat has been noted by market participants. See Aberdeen Standard Investments (2020) More than a buzzword: ESG in municipal bonds; Lord Abbett (2019) ESG and Municipal Bonds: Taking the Local View.

DATA CONSIDERATIONS

KEY MESSAGES

- Market participants face many challenges when trying to use data to assess ESG factors, particularly for environmental issues, where disclosure and dissemination of information is inadequate.
- Investors would like issuers to disclose ESG data and strategy more appropriately, be open to engagement and disseminate information more effectively.
- Associations of muni issuers should encourage their members to disclose more relevant information for ESG analysis.

When assessing ESG factors, portfolio managers and research analysts use a variety of sources, including:

- issuer financial statements
- offering documents
- credit rating agency reports
- the Electronic Municipal Market Access website (EMMA), including issuer disclosure related to financial audits
- data on the local economy[42]

EXAMPLE OF GOOD DISCLOSURE PRACTICE

The official statement for a City and County of San Francisco bond issue included in the risk factors section a detailed discussion of climate risks, for example risk of sea level rise and flooding damage, showing how some issuers are making progress on disclosure.

Additional information sources that can be particularly useful for ESG information include the US Census Bureau and the College Navigator website. An issuer's website may include useful information on ESG policies and practices. More resources are listed in the Appendix. These can be complemented by media reports.

Challenges to data collection remain, however, and some are more acute than others depending on the ESG category (see Figure 12 and Figure 13).

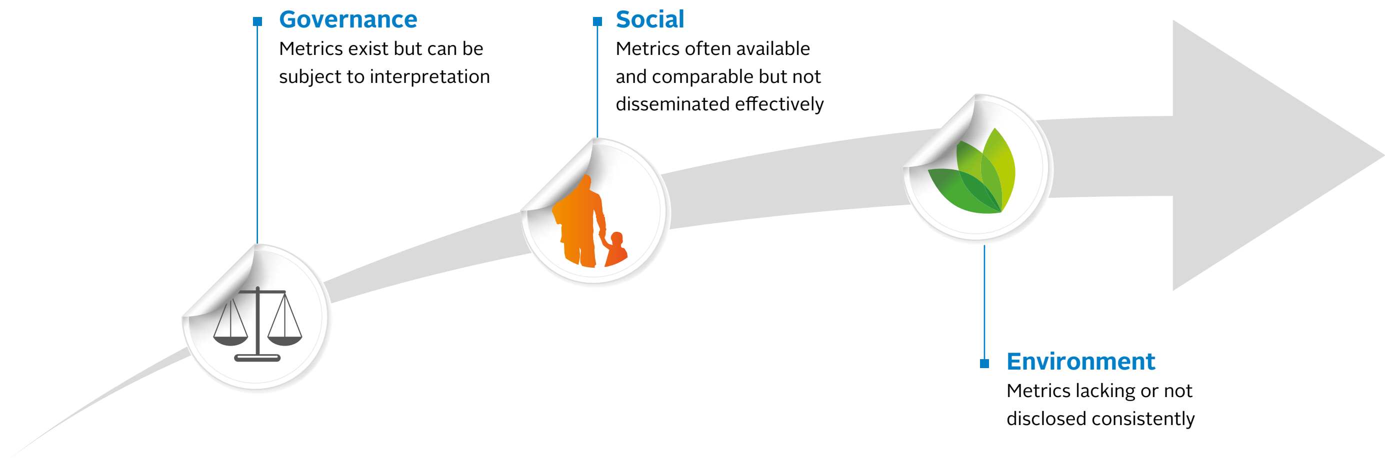
Figure 12: ESG data challenges when assessing muni bonds

CONSISTENCY	Despite progress by some, issuers do not disclose data consistently. At times, the information is either too granular or not sufficiently so. Few voluntarily provide ESG information beyond what is mandated.
DISSEMINATION	ESG information coming from both issuers and other sources is not disseminated effectively. For example, in the case of EMMA, the data is displayed issuer by issuer, making comparisons time consuming.
VARIETY	The different sectors in the muni market make it more difficult to focus on universal ESG metrics that are relevant for all muni issuers.
GEOGRAPHICAL BOUNDARIES	Datasets may not be presented in geographical boundaries that coincide with those of issuers.
RESOURCES	Smaller muni issuers may find it harder to devote resources towards adequate disclosure.[43]
THIRD-PARTY INFORMATION PROVIDERS	The coverage and the offering of new products by ESG data and service providers is broadening to the muni market but can be expensive at present.

42 See MSRB SEC Rule 15c2-12: Continuing Disclosure.

43 See the Government Finance Officers Association (GFOA) Best Practices ESG Disclosure.

Figure 13: Magnitude of data challenges by ESG category



Access to better data to enhance ESG incorporation ranks high on investors' priority list. Ideally, market participants could access a centralised comprehensive hub providing free or cheap ESG data for munis, similar to the World Bank ESG data portal for sovereign data. However, at present there is no broad issuer buy-in to sharing ESG data and insufficient disclosure of such data in a user-friendly way. Furthermore, it would be a challenge to find a hosting organisation for such a large endeavour.

In the short term, a good starting point would be increased use of the Carbon Disclosure Project (CDP), which operates a global portal with city data (see box), or the LEED for Cities and Communities[44], which requires disclosure of social, economic and environmental performance indicators for certification purposes. Investors and issuers could also explore new alternative sources of information such as satellite data, which can help show the effect of, for example, wildfires and other natural disasters on local economies.[45]

INVESTORS PUSH FOR MUNI DISCLOSURE

CDP is a global non-profit that manages the world's environmental disclosure system for sub-national governments and companies. Over 10,000 organisations around the world disclosed data through CDP in 2020. This includes more than 100 states and regions and 812 cities, of which 169 cities were in the US, although hundreds more cities were asked to disclose that year.[46]

Cities, counties, states, provinces, public enterprises, and other sub-national issuers disclose to CDP via an annually completed questionnaire. The city questionnaire is different from the corporate questionnaire and includes questions with socio-economic considerations. Questions include specific emissions metrics and targets, risk management strategy, governance practices, and how marginalised communities are impacted in the face of an increasingly volatile climate. Cities also disclose sustainable infrastructure projects that are seeking financing, including the stage of project development and total cost.

This year, CDP is piloting a programme enabling investors to directly request that issuers respond to CDP's sub-national questionnaire. This opportunity for increased investor engagement is critical, given the need for more standardised and centralised data disclosure by muni issuers, particularly cities facing a range of issues, including racial justice, social equity, and affordable housing.

44 LEED stands for Leadership in Energy and Environmental Design and is a widely used green certification in the real estate sector.

45 See S&P Global Rating (January 2020) Space, The Next Frontier: Spatial Finance And Environmental Sustainability.

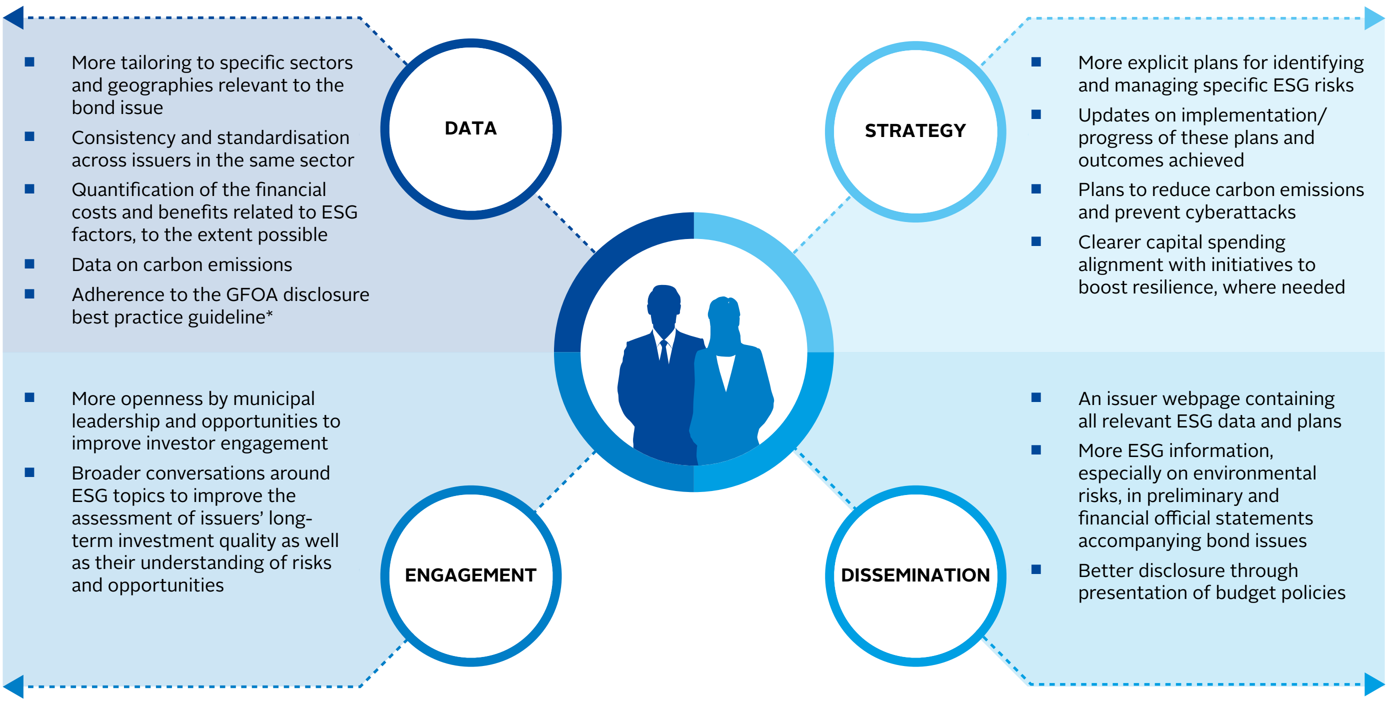
46 CDP's corporate questionnaires are aligned with the Task Force on Climate-related Financial Disclosures. For the 2020 key findings, see Cities on the Route to 2030.

Importantly, state and local government associations, such as the National Association of Counties, the National League of Cities, the Conference of Mayors or the Government Finance Officers Association (GFOA), should encourage their members to disclose more information that is useful for investment decisions.

And, in turn, wider availability of data could prompt more investors to adopt ESG incorporation approaches.

Figure 14 contains a more detailed list of investor asks for issuers, based on discussions with the SSDAC.

Figure 14: What investors would like from issuers



* See GFOA Best Practices ESG Disclosure and (June 2020) ESG Considerations for Governmental Issuers.

It is important to note that, similar to companies, muni issuers have to disclose material information so that investors can make informed assessments.

Under US Securities and Exchange Commission (SEC) rules, materiality is broad and encompasses non-numerical information.[47]

47 See SEC Rule 15c2-12: Continuing Disclosure; SEC Staff Accounting Bulletin: No. 99 - Materiality.

BENEFITS OF IMPROVED DISCOSURE FOR ISSUERS

Issuers may currently view data reporting and the need to discuss it with investors as a burden, but they should recognise the multiple benefits that the process can bring, including:[48]

- Identifying support and financing opportunities to advance issuers' broader sustainability objectives. In particular, disclosure projects may encourage issuers to network and explore best practices.
- Tapping into increasing demand for thematic investments with positive real-world outcomes.
- Appreciating that transparency can provide a more accurate profile of the issuer, thus avoiding investors relying on assumptions, especially when it comes to assessing mitigating factors or future plans that are difficult to understand without the issuer's input.
- Improving their own understanding and management of ESG risks, particularly if new technology and data is employed.
- Broadening ESG consideration to their own assets/ pension investments.[49]

Smaller issuers can find reporting even more challenging because they have limited resources. However, they may not need to duplicate disclosure that is available at the sector level or published by larger administrations.

48 See GFOA Ibid.

49 For example, a group of 16 US State Treasurers managing more than US$1.2trn sent a statement to investment firms, companies, consultants and fellow state treasurers on the urgency of dealing with climate change to improve the assessment of the health of their pension funds. See Responsible Investor (May 2021) US State Treasurers to press investors and consultants on climate risk.

NEXT STEPS

This report is the first that the PRI has published to enhance ESG consideration in the muni market.

The PRI hopes that, together with future work on screening and thematic approaches and investor engagement, the report will encourage investors, underwriters and muni issuers themselves to better incorporate ESG factors in this market segment.

Investors should review the ESG factors and the data sources in this report to evaluate new qualitative or quantitative information to incorporate into their risk assessments. It is also important that they consider how they can contribute to sustainability goals through strategic asset allocation, especially related to key sectors that muni bonds fund, such as education, health, transport and infrastructure.

Issuers should make information accessible and improve disclosure via existing platforms. They should view data dissemination as a way to raise transparency and good governance standards, thus enhancing their risk profile.

If anything, the drivers behind ESG transparency are rapidly increasing:

- Climate change features among the top four priorities of the current US administration, alongside the COVID-19 pandemic, the related economic downturn and racial justice.[50]
- Regulatory bodies are focusing more on ESG factors to enhance disclosure or better assess implications for the financial system.[51]
- Foreign investor purchases of muni bonds may increase further if federal policy encourages greater taxable issuance through a new Build America Bonds programme.[52] This increase may come with requests for more ESG clarifications from investors located in jurisdictions where ESG regulation or responsible investment practices are more advanced.

In the months ahead, the PRI intends to:

- Gather case studies illustrating best practices among muni investors.
- Broaden the investor dialogue with issuers, credit rating agencies and ESG information providers, along the lines of a similar PRI programme in the corporate market.
- Explore the extent to which the findings in this report apply to countries outside the US.

50 See Bloomberg (January 2021) Biden Plans 10 Days of Action on Four 'Overlapping' Crises.

51 See Footnotes 1 and 2 in the Executive Summary again.

52 See Brookings Institute (2020) Why the surge in taxable municipal bonds?.

APPENDIX

USEFUL ESG RESOURCES	
Bureau of Economic Analysis	Economic data at state and local levels
Bureau of Labor Statistics	Employment data
CDP	Corporate and governmental body ESG data
Climate Central	Sea level rise programme provides data on coastal threats in the US and globally, e.g. the vulnerability of affordable housing in the US to sea level rise and coastal flooding
Energy Information Administration	Energy data and analysis
Flood Factor	Property flood risk across the US
National Center for Education Statistics	Educational institutions data
NOAA (National Oceanic and Atmospheric Administration)	Weather and climate data
SeaLevelRise.org	Sea level rise data, by state
US Census Bureau	Population data
US EPA (Environmental Protection Agency) Watershed Index Online (WSIO)	Watershed data
US Forest Service	US forests and grasslands data
WRI (World Resources Institute) Aqueduct	Maps of water-related risks
Zillow Housing Data	House price data

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The Principles for Responsible Investment (PRI)

The PRI works with its international network of signatories to put the six Principles for Responsible Investment into practice. Its goals are to understand the investment implications of environmental, social and governance (ESG) issues and to support signatories in integrating these issues into investment and ownership decisions. The PRI acts in the long-term interests of its signatories, of the financial markets and economies in which they operate and ultimately of the environment and society as a whole.

The six Principles for Responsible Investment are a voluntary and aspirational set of investment principles that offer a menu of possible actions for incorporating ESG issues into investment practice. The Principles were developed by investors, for investors. In implementing them, signatories contribute to developing a more sustainable global financial system.

More information: www.unpri.org

The PRI is an investor initiative in partnership with UNEP Finance Initiative and the UN Global Compact.

United Nations Environment Programme Finance Initiative (UNEP FI)

UNEP FI is a unique partnership between the United Nations Environment Programme (UNEP) and the global financial sector. UNEP FI works closely with over 200 financial institutions that are signatories to the UNEP FI Statement on Sustainable Development, and a range of partner organisations, to develop and promote linkages between sustainability and financial performance. Through peer-to-peer networks, research and training, UNEP FI carries out its mission to identify, promote, and realise the adoption of best environmental and sustainability practice at all levels of financial institution operations.

More information: www.unepfi.org

United Nations Global Compact

The United Nations Global Compact is a call to companies everywhere to align their operations and strategies with ten universally accepted principles in the areas of human rights, labour, environment and anti-corruption, and to take action in support of UN goals and issues embodied in the Sustainable Development Goals. The UN Global Compact is a leadership platform for the development, implementation and disclosure of responsible corporate practices. Launched in 2000, it is the largest corporate sustainability initiative in the world, with more than 8,800 companies and 4,000 non-business signatories based in over 160 countries, and more than 80 Local Networks.

More information: www.unglobalcompact.org