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CREDIT OPINION
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Massachusetts Bay Transportation Authority

Update to credit analysis of assessment bonds

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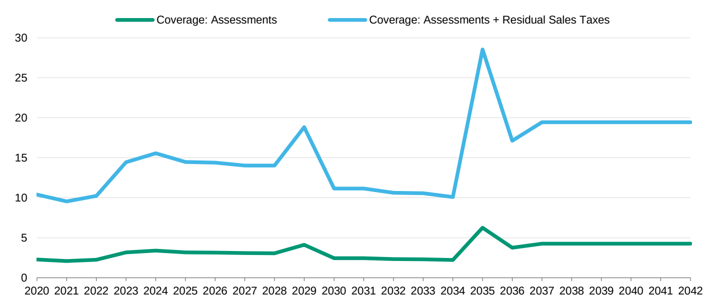
Summary

Massachusetts Bay Transportation Authority's (MBTA) assessment bonds (Aa1 stable) benefit from a pledge of two strong revenue sources: state aid owed by 176 participating cities serviced by the MBTA and a subordinate lien on MBTA's 1% statewide sales tax revenue. Both revenue sources benefit from a statutory floor for allocations, a powerful protection against economic downturns, such as the massive ridership and sales tax revenue declines associated with the coronavirus-related economic shutdown.

The assessment revenue, which is the primary source of debt service payment, is directly remitted to the trustee from the Commonwealth of Massachusetts (Aa1 stable), insulating assessment bond creditors from possible diversion of the aid by the authority. Assessment revenue, together with the subordinate lien on sales tax revenue, provides estimated coverage of at least 10 times debt service through the life of the assessment bonds (see Exhibit 1).

We regard the coronavirus outbreak as a social risk under our ESG framework, given the substantial implications for public health and safety. We do not see any material immediate credit risks for MBTA. However, the situation surrounding the coronavirus is rapidly evolving and the longer term impact will depend on both the severity and duration of the crisis. If our view of the credit quality of the authority changes, we will update our opinion at that time.

Exhibit 1
Pledged assessment and sales tax revenue streams provide ample coverage through the life of the bonds



*Coverage based on fiscal 2019 assessment revenue and fiscal 2019 residual sales tax revenue after payment of debt service on senior and subordinate lien sales tax bonds
Source: MBTA; Moody's Investors Service

Credit strengths

» State aid backed debt service payments, with aid flowing directly from the commonwealth to the trustee that is protected by a statutory allocation floor

» Subordinate lien on sales tax revenue that also benefits from a statutory floor

Credit challenges

» Elevated debt burden across all of MBTA's pledged revenue streams

» Exposure to transit operating risk

Rating outlook

The stable outlook reflects no anticipated changes to the legal structure and our belief that the overall credit quality of the pool is stable. While MBTA will experience operating pressures from the ongoing coronavirus pandemic, assessment-backed bondholders are protected by a claim on the pledged assessment revenue, the commonwealth-guaranteed floor on assessments and a subordinate claim on sales tax revenue after debt service on MBTA's sales tax bonds.

Factors that could lead to an upgrade

» Material improvement in the credit strength of the participants

» Upgrade to the Commonwealth of Massachusetts' general obligation rating

Factors that could lead to a downgrade

» Overall deterioration of credit quality of the participants

» Changes in legal structure that weaken bondholder protection

» Further operating strain resolved by debt restructurings

Key indicators

Exhibit 2

Massachusetts Bay Transportation Authority assessment bonds	
Size of portfolio (# of borrowers)	176
Total assessment bonds outstanding (in $ millions)	$619
Additional bonds test	1.2x
Debt service reserve requirement	50% of the three prong test

Source: MBTA Fiscal 2019 Audit

Profile

The MBTA is the oldest and fifth largest transit system in the country, providing transportation service through subway, trackless trolley, trolley, bus and commuter rail service throughout the eastern portion of Massachusetts and into the northern portion of Rhode Island (Aa2 stable). There are approximately 1.3 million passenger trips on average per business day and MBTA operates over 38 miles of rapid transit rail routes. Service is also provided by streetcars and light rail vehicles on 26 miles of additional rail routes. The commuter rail system serves Boston and 131 outlying stations on a nearly 400 mile track system. Three ferry routes provide year-round service to popular destinations, including Logan International Airport, with two more ferries operated on a seasonal basis.

Detailed credit considerations

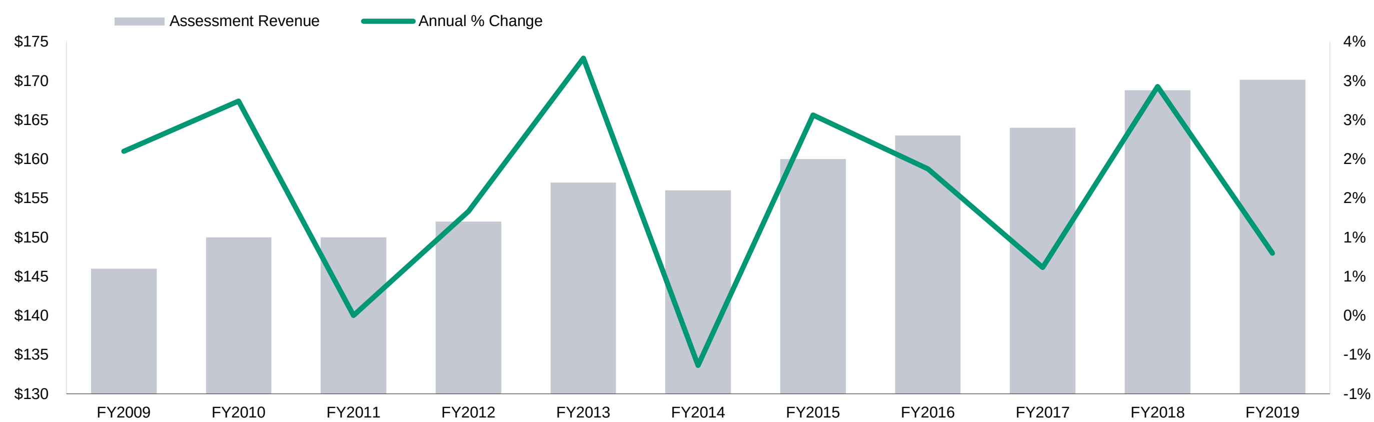
Credit strength, default tolerance and diversity of portfolio

Despite the budgetary challenges that lay ahead for the commonwealth, MBTA and participating local governments, we expect the credit quality of pool participants to remain strong, in part because of continued support from the commonwealth.

MBTA's assessment bonds are secured by assessments imposed by state law on 176 cities and towns located in the authority's service area. The cities and towns have pledged their absolute and unconditional general obligation to repay debt service. The credit quality of the assessed communities, most of which we publicly rate, is very high. The weighted average probability of default of the participants is Aa1. Among the top 65 participants, which account for approximately 98% of the fiscal 2019 assessment revenue, all but three have ratings Aa3 or above. The largest assessment concentration is the City of Boston (Aaa stable), which accounts for approximately 51.5% of the fiscal 2019 assessment amount. Boston's assessment, however, represents about one-fifth of its state aid, a strong factor mitigating the concentration risk to this entity. The number of borrowers that represent less than 1% of the pool is near 20% of total participation.

The debt service is paid from state aid, or assessments, allocated to each participating government by the commonwealth. Assessments securing the bonds are apportioned based on population within the MBTA service area. Authority-related assessments have been collected by the commonwealth since the 1960s and have on two separate occasions been challenged and upheld by the state's highest court. Over the last 10 years, assessment revenue has grown at an average annual rate of 1.3%, reflecting some volatility, including a slight decline in fiscal 2014 (see Exhibit 3). Annual allocations are protected by a statutory floor, preventing pledged revenue from falling below $136 million.

Exhibit 3
Moderately volatile revenue stream protected by statutory allocation floor of $136 million



Source: MBTA fiscal 2009-2019 financial statements

Debt structure

Key bondholder protections, including the direct pay of revenue from the commonwealth to the trustee and a statutory floor for total assessment revenue, will continue to insulate assessment bond creditors from operating and revenue stress.

As of fiscal 2019 the authority had $613.1 million of assessment bonds outstanding across three series, maturing in fiscal 2042. The assessment bonds are fixed rate, except for the 2024 and 2025 maturities for the Series 2006A bonds, which are variable rate based on the muni CPI rate, plus 123 basis points.

MBTA's issuance of assessment bonds is limited by an additional bonds test requiring at least 1.2x coverage of aggregate annual debt service by the minimum aggregate assessment amount of $136 million. The debt service reserve requirement is set at an amount equal to one half of the least of a three part test for each series: 10% of bond proceeds, maximum annual debt service or 125% of average annual debt service.

Coverage from cash flows is expected to remain healthy given the revenue collection floor for both pledged revenue streams. Fiscal 2019 coverage was 2.2 times assessment revenues, increasing to 10.1 times adding in residual sales tax revenues. Maximum annual debt service (MADS), which occurs in fiscal 2021, has 2.1 times coverage using fiscal 2019 assessment revenue. Using the statutory base revenue amount of $136 million, MADS coverage falls to a satisfactory 1.7 times. While annual pledged revenues may fluctuate from year-to-year, the statutory floor and leverage constraint insulate creditors from future revenue mismatches.

The assessments constitute unconditional general obligations of each community and are paid by them on a monthly basis via automatic deductions of a portion of each community's quarterly local aid payments by the Commonwealth of Massachusetts. This assessment revenue process is codified in state statute, with the state treasurer notifying local assessors and treasurers annually by August 20 of the charges and assessment payments that will be due. The state treasurer deducts those amounts, along with assessment payments for other programs, from each participant's state aid distribution. In the event that the assessment payment is greater than the state aid amount or if state aid is eliminated, each community is still responsible for the assessment, which would be paid pursuant to a schedule established by the Secretary of Administration and Finance.

Pursuant to a Memorandum of Understanding, each quarter assessment revenue is first deposited into a special trust fund held by the state treasurer and then transferred to the bond trustee. The assessment revenue stream is not available to the MBTA to be used for other purposes until assessment bond debt service has been paid. The trustee applies required amounts to the debt service fund, followed by any necessary replenishment of the debt service reserve fund. Revenue is next available for transfer to the sales tax bond trustee, if necessary, to cure any deficiency in required amounts held by such trustee. Remaining amounts are then transferred to the authority to fund operations. Likewise, the sales tax revenue is available to pay special assessment debt service deficiencies on a subordinate basis.

The enabling legislation also includes a covenant by Massachusetts for the benefit of bondholders that it will not divert the revenue streams or reduce them below the specified floor amount of $136 million. Bond counsel has opined that those covenants represent valid contractual pledges that are binding on future legislatures. In our view, the non-impairment covenant signifies the commonwealth's intention to insulate bondholders from the operating risks of the transit enterprise and the political risk that could arise from its own competing budgetary needs. However, we note that the commonwealth reduced state aid materially during a multiple-year period of fiscal strain in the early 1990s and delayed some aid payments in fiscal years 1989 and 1990.

ESG considerations

Environmental considerations

The US mass transit sector overall has low exposure to environmental risks because mass transit is an energy-efficient mode of transportation that will see increased ridership as governmental policies and public preference shift from carbon inefficient travel. However, exposure to natural disasters and climate change is somewhat more elevated as mass transit and commuter rail issuers rely on infrastructure that is susceptible to earthquakes and wind and water damage.

The MBTA service area, which is concentrated in Boston and the coastal county of Suffolk along the Atlantic Ocean and its bays, has above-average flood exposure. According to data from Moody's affiliate Four Twenty Seven, exposure of MBTA's primary service area to hurricane risk and water stress are in the second highest category. Four Twenty Seven's data measures relative projected change of five climate factors: heat stress, water stress, floods, hurricanes and sea level rise. When the individual counties' exposures are weighted by ridership, Suffolk County ranks 139 out of 3,190 counties, indicating a high concentration of ridership is more exposed to the economic impact its climate risks such as property damage, emergency response costs and interruption to business that reduces fare revenue or tax receipts.

Risk of flooding during periods of extreme precipitation, wind or storm surge is high, as experienced during Superstorm Sandy in 2012 and is likely to increase over the long term. Boston's mayor has pledged to spend $30 million annually to combat rising waters, while the MBTA has already completed capital projects to prevent certain underground stations from chronic flooding problems when high tides and elevated rainfall occur. The state is also providing assistance. Recognizing that it has above-average climate risks, the commonwealth is leading climate change preparedness, resiliency and mitigation efforts for itself and its local governments. The state is conducting vulnerability preparedness planning with its municipalities and last year the governor introduced legislation to fund investment in resiliency infrastructure with $100 million in new, annual revenue from a deed excise tax. Like most US transit systems, MBTA's exposure to environmental shocks is partially moderated by the availability of private insurance and federal disaster recovery assistance.

Social considerations

The mass transit sector is moderately exposed to social risk given its labor intensive and customer-oriented operations. MBTA in particular is also exposed to affordable housing issues, which could stymie future economic growth in the region, as well as strong collective bargaining units, which can drive spending pressures. Massachusetts, and the Boston region in particular, continue to grow, but at rates that lag the US, with 0.5% total growth projected in 2019, compared to 0.6% for the US. Massachusetts' population increased by nearly 8% between 2000 and 2016 but that was almost half the US rate of 15%.

The rapid and widening spread of the coronavirus outbreak, deteriorating global economic outlook, falling oil prices and asset price declines are creating a severe and extensive credit shock across many sectors, regions and markets. The combined credit effects of these developments are unprecedented. We regard the coronavirus outbreak as a social risk under our ESG framework, given the substantial implications for public health and safety. Future ridership trends are in question for mass transit operations across the country as workplaces may be reconsidering office arrangements and/or previous riders shift to personal car transportation options to guard against infection.

Governance

Governance considerations are a key determinant of credit quality for all issuers. MBTA benefits from strong support from the Commonwealth of Massachusetts, both financial and operational, that has resulted in key credit metric improvements in recent years.

After severe weather led to systemwide failures in the winter of 2015, the governor appointed a special panel to review the management and financial condition of the MBTA, which resulted in the establishment of a Fiscal and Management Control Board (FMCB). The five-member FMCB was initially delegated authority over the system through June 30, 2020.

In addition to delegating most powers and authority to the FMCB, the authorizing legislation also mandated that the rights of MBTA bondholders shall not be altered or impaired by the board. Upon dissolution, oversight of the authority will revert to the eleven member MassDOT board, which includes three members of the FMCB.

Operations have improved in recent years, with the new management team and board reducing Massachusetts annual appropriations to close operating and capital budget deficits from $155.8 million in fiscal 2016 to $127.0 million in fiscal 2020, though the state has historically transferred funds to close the operating deficits. The reductions have largely been attributable to streamlining employment costs and savings resulting in additional revenue being available for capital. Going forward, management is focused on continuing to reduce the annual operating deficit and using the savings to fund its estimated $8.1 billion backlog of good repair reliability projects.

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