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CREDIT OPINION
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Contacts

Dmitriy Plit +1.212.553.7463
AVP-Analyst
dmitriy.plit@moodys.com

Rachael Royal McDonald +1.212.553.4456
VP-Sr Credit Officer
rachael.mcdonald@moodys.com

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Massachusetts Clean Water Trust - Master Trust Agreement

Update to credit analysis

Summary

Our credit view of the Massachusetts Clean Water Trust State Revolving Fund Bonds incorporates high overall projected default tolerance of 46%, as well as strong credit quality of the underlying loan portfolio. The Aaa rating on all outstanding Master Trust Agreement (MTA), Pool Program senior and subordinate lien bonds, and all Massachusetts Water Resources Authority (MWRA) SRF senior and subordinate lien bonds incorporates availability of additional security from the deficiency fund and equity fund, as well as strong management of the program.

Credit strengths

» The loan pool for all of the Trust's indentures could experience a significant, but highly unlikely, default of approximately 46% of the loan payments securing the bonds through final maturity of the bonds outstanding and all debt service payments would still be met.

» The Master Trust Agreement, Pool Program, and the MWRA bonds are cross-collateralized via the deficiency fund and the equity fund. These reserve accounts may be used to cure shortfalls in any series and any program across the trust indentures.

» Large and diverse pool of underlying borrowers with sound credit characteristics, and no defaults on leveraged loans. Approximately 35% of the loans outstanding are to borrowers with loans that compose less than 1% of the pool.

Credit challenges

» The Trust has a large exposure to Massachusetts Water Resources Authority (MWRA), as MWRA holds 25% of all outstanding loans. This is mitigated by the credit strength of MWRA and the diversity of entities that provide revenue to MWRA.

» The Trust is exposed to counterparty risk, as some of its reserve investments are held in guaranteed investment contracts (GICs).

Rating outlook

The stable outlook on the bonds reflects Moody's expectation that the strong credit quality and diversity of the loan pool, cash flow projections and counterparty profile will remain relatively stable.

Factors that could lead to an upgrade

» Not applicable

Factors that could lead to a downgrade

» A decrease in the available reserves and default tolerance levels or a material change in the credit quality of the pool or the investment providers could put downward pressure on the rating

Key indicators

Exhibit 1

Program is able to sustain a substantial, but highly unlikely loan default rate of 46%

(As of August 1, 2018)	2018
Total of bonds outstanding ($B)	2.4
Default tolerance	46%
Number of borrowers	286
Percentage of pool top 5	39%
Percentage of pool below 1%	35%
Total loans outstanding ($B)	3.5

Bonds outstanding and loans outstanding reflect all cross-collateralized indentures.
Source: Massachusetts Clean Water Trust

Profile

Master Trust Agreement was originally created in 2015. The purpose of MTA is to provide financial assistance to local governments and other eligible borrowers in the Commonwealth under its State Revolving Fund program.

Detailed credit considerations

Portfolio size & diversity: continued strong credit quality of the loan portfolio supports the rating on the bonds

Moody's considers the credit quality of the loan pool in assessing the probability of default associated with individual borrowers, and therefore an important credit factor. As of August 1, 2018, the pool of loans pledged to the bonds consisted of 286 borrowers with approximately $3.5 billion in total loans outstanding. Approximately 35% of the borrowers each comprise less than 1% of the pool. However, the program does have a large exposure to the Massachusetts Water Resources Authority (senior obligations rated Aa1 stable; subordinate obligations rated Aa2 stable), which accounts for approximately 25% of loan obligations outstanding. The top five borrowers in the pool comprise approximately 39% of the aggregate loans outstanding.

Underlying credit quality & default tolerance: cash flows and default tolerance are robus and provide additional bondholder security

The strong credit profile of individual borrowers in the pool is a key driver of the Aaa rating. The majority of loans carry a general obligation repayment pledge with the remaining districts and commissions making water and wastewater revenue pledges. There has never been a loan default or delinquent payment on a pledged loan in the history of the program. However, in the event that a borrower defaults on a loan payment, the Trust has the right to intercept local aid payments due from the Commonwealth to a city or town to make up the deficiency to the Trustee for bond payment.

Loan repayments along with reserves, equity funds, and funds released under the MTA, Pool Program and single obligor programs provide sufficient cash flow to withstand a sizable but unlikely default of approximately 46% of the loan repayments through the life of the outstanding bonds and still make timely debt service payments. This default tolerance includes loans, bonds and reserves held under the MTA, Pool Program trust indenture, and the MWRA trust indenture.

Liquidity

The default tolerance and cash flow analysis discussed above demonstrate that the program has sufficient liquidity to withstand highly stressful levels of loan defaults and investment losses.

Legal framework, covenants, and debt structure: cross investment lends strength

Bonds under the Master Trust Agreement are secured by loan repayments and agreements, and contract assistance payments made by the Commonwealth of Massachusetts to the Trust on behalf of the borrowers. The program also benefits from the availability of an Equity Fund, and a Deficiency Fund to cure potential defaults within the MTA.

The obligation of the Commonwealth under the contract assistance payments constitutes a general obligation of the Commonwealth (G.O. rated Aa1 with a stable outlook), to which its full faith and credit is pledged. Upon receipt by the Trust, contract assistance monies are pledged to the repayment on the bonds.

The bonds in the Pool Program and single obligor indentures are payable by a combination of loan repayments to be made by borrowers, earnings on reserve funds pledged to the bonds funded from federal and state grants, and Commonwealth contract assistance payments. The earnings on reserve funds for certain series and the Commonwealth contract assistance subsidize the borrowers' loan repayments. All of the bonds issued under the Pool Program and single obligor programs are also secured by a parity lien on de-allocated reserves (as loans are repaid, a proportional amount of reserves are released) and excess loan repayments from pledged direct loans as they flow through the flow of funds into the Deficiency Fund under the Program Resolution.

The sizable reserves under the Pool and Single Obligor programs are generally invested in GIC agreements. As of August 1, 2018, the Trust's reserves were held with the following investment providers: Citigroup (11%), FSA Capital Management Services (17%), Natixis Funding Corp (13%), and Trinity Funding Company, LLC (18%). The remaining 41% of investments are in US Treasuries and Agencies.

Debt Structure

All bonds under the indenture are fixed rate, fully amortizing bonds, with the exception of the Series 2006 refunding pool program bonds which carry an interest rate indexed to CPI.

Debt-related derivatives

In November 2006, the Trust entered into two CPI swaps with JP Morgan Chase Bank, NA associated with the Series 2006 refunding pool program bonds. The Series 2006-1 swap has a notional value of $46.605 million and terminates on August 1, 2023. Under the agreement, the counterparty will pay the Trust CPI plus 0.99% and the Trust will pay 3.9%. The Series 2006-2 swap has a notional value of $30.65 million and matures on August 1, 2022. Under the agreement, the counterparty will pay the Trust CPI plus 0.99% and the Trust will pay 3.88%. Termination events include a downgrade of the Trust's parity bonds to below A3 or a downgrade of the counterparty's credit support provider to below Baa3.

Pensions and OPEB

Pensions and OPEB are not a major factor in the methodology.

Management & governance: strong program management ensures timely loan repayments

The Trust has a long history of strong management of the programs, as evidenced by the strong credit quality of the borrowers included in the pool, the solid legal structure of the programs, and the strong performance of the program.

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