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CREDIT OPINION
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Massachusetts (Commonwealth of)

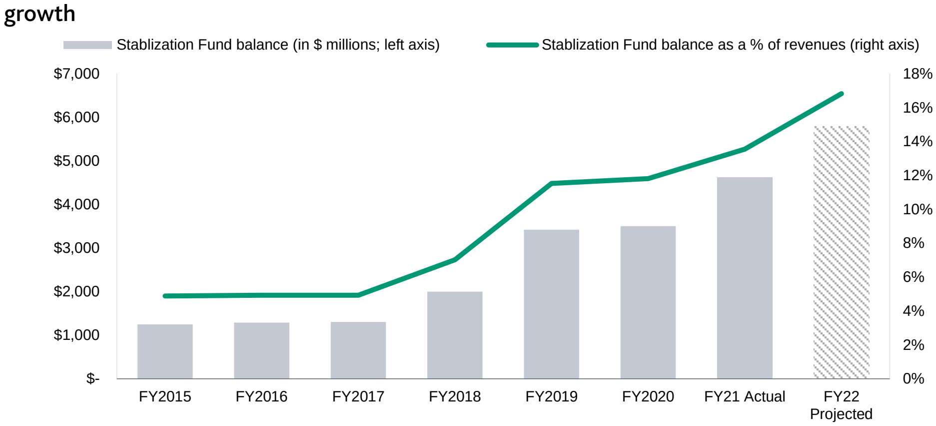
Update to credit analysis

Summary

Massachusetts' (Aa1 stable) economic recovery has continued as the commonwealth has been fully reopened since the second quarter of 2021. Federal aid and expanded unemployment benefits buffered against economic recession in fiscal 2021. Half way through fiscal 2022, continued employment recovery coupled with substantial federal stimulus from the American Rescue Plan Act (ARPA) and other federal support measures is resulting in strong revenue performance for the commonwealth and a strengthening financial position (see Exhibit 1), similar to the state sector as a whole.

Long-term liabilities and associated fixed costs remain some of the highest among states. The commonwealth's continued adherence to strong governance practices, including adequate funding of these liabilities, remains a central credit consideration.

Exhibit 1
Year-end fiscal 2022 reserve balance projected to increase substantially amid strong revenue growth



Source: Massachusetts Information Statement January 2022, state comptroller

Credit strengths

» Large economy focused on important knowledge sectors that pay above average wages such as healthcare, education and technology

» Strong financial management practices, particularly willingness to close budget gaps quickly through spending cuts, revenue increases and use of reserves

» Adequate reserves and commitment to maintain them at levels that provide a healthy buffer for economic downturns

Credit challenges

» Combined debt and pension liabilities that are seventh highest in the nation relative to GDP, resulting in elevated fixed costs that limit budget flexibility, compounded by persistent pension underfunding

» Aging demographic profile

» Above average exposure to climate risks with most of its gross domestic product generated in coastal counties

Rating outlook

Massachusetts' stable outlook reflects our expectation that the commonwealth will continue its trend of strong financial management as it continues to navigate through the economic impacts of the coronavirus pandemic, including the significant revenue recovery coming out of the pandemic, as well as ongoing labor market recovery.

Factors that could lead to an upgrade

» Moderated debt and pension burdens, especially relative to peers

» Sustained growth of reserves and establishment of stronger constraints on their use

» Established trend of structural budget balance

Factors that could lead to a downgrade

» Protracted structural budget imbalance

» Reserves or liquidity that falls below adequate levels

» Growth in leverage relative to state GDP or rising fixed costs relative to state revenue

Key indicators

Exhibit 2

Massachusetts (Commonwealth of)	2016	2017	2018	2019	2020	50-State Median (2020)
Operating Fund Revenues (000s)	$33,414,744	$33,910,836	$36,483,673	$39,090,431	$38,060,275	$12,086,009
Available Balances as % of Operating Fund Revenues	7.4%	6.6%	8.7%	13.9%	13.7%	8.7%
Nominal GDP (billions)	$519.1	$540.0	$570.5	$593.3	$582.5	$239.6
Nominal GDP Growth	3.2%	4.0%	5.6%	4.0%	-1.8%	-1.8%
Total Non-Farm Employment Growth	1.9%	1.3%	1.1%	1.4%	-9.0%	-5.8%
Fixed Costs as % of Own-Source Revenue	23.1%	23.4%	21.3%	20.5%	20.7%	7.4%
Adjusted Net Pension Liabilities (000s)	$65,193,204	$80,449,143	$81,227,853	$77,151,349	$88,288,538	$11,962,367
Net Tax-Supported Debt (000s)	$41,473,439	$42,444,597	$42,861,093	$43,497,921	$43,019,028	$4,203,064
(Adjusted Net Pension Liability + Net Tax-Supported Debt) / GDP	20.5%	22.8%	21.8%	20.3%	22.5%	7.3%

Source: Massachusetts' audits and information statements, Moody's Investors Service

Profile

The Commonwealth of Massachusetts is the 15th largest state by population, with over 7 million residents as of the 2021 census. Its 2020 gross domestic product, reaching $582 billion, ranks 12th among the states. Per capita income was 132% of the national average in 2020, second highest in the US.

Detailed credit considerations

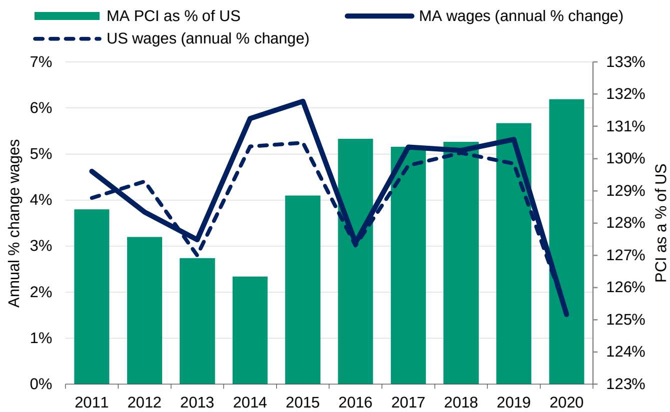
Economy

Massachusetts' employment picture continues to improve, though the economy is not yet fully recovered. The commonwealth's strong economic fundamentals have positioned it well, and the rebound has been strong with the vaccine rollout continuing and the economy reopening.

In the years leading up to the pandemic Massachusetts' economy benefited from its well-trained labor pool, experiencing strong wage growth which consistently outpaces the US (see Exhibits 3 and 4). These wages support the commonwealth's consistently high per capita income, which most recently reached 132% of the US average, the second-highest rate among states.

Exhibit 3

Massachusetts' wages and per capita income consistently outpace the US...



Source: US Bureau of Labor Statistics

Exhibit 4

...in part because of the high level of educational attainment in the commonwealth

Educational Attainment in 2019	MA	US
Percent of population 25 years or over with:		
High School degree	23.9%	26.9%
Associates degree	7.4%	8.6%
Bachelors degree	24.7%	20.3%
Graduate or professional degree	20.3%	12.8%
High school graduate degree or higher	91.3%	88.6%
Bachelors degree or higher	45.0%	33.1%

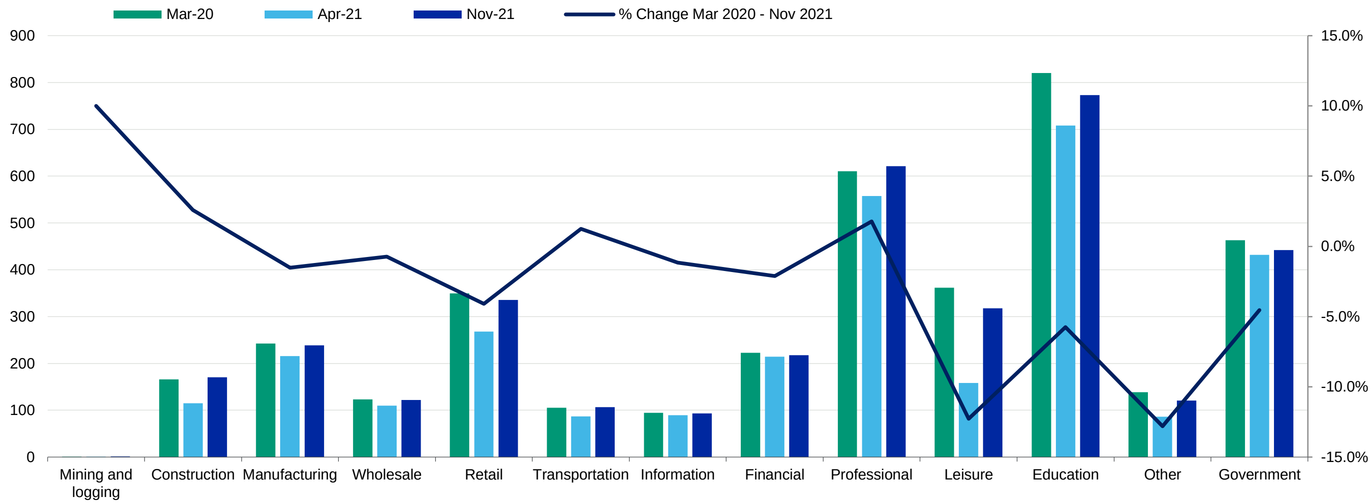
Source: US Census

Peaking at 16.4% in April 2021, Massachusetts' unemployment rate has since declined to 5.4% in November 2021 (the most current available) and is nearing the US rate, which was 4.2% over the same period, though labor force participation is significantly higher. During the height of the pandemic, the commonwealth's reopening phases were slower than many other states as it worked to curb the spread of the coronavirus, although it is now fully reopened and employment recovery has been accelerating. Major employment sectors were still trailing pre-pandemic levels as of April, though that gap will likely continue to close over the coming months (see Exhibit 5). Favorably, labor force participation in the commonwealth is largely recovered at over 66%, and is well above the US rate of nearly 62% as of November 2021.

Exhibit 5

Employment across sectors continues to recover through November 2021

Massachusetts employment by sector, March 2020-November 2021



Source: Bureau of Labor Statistics

According to the US Bureau of Economic Analysis, year over year GDP change in Massachusetts has been up since the third quarter of 2020 as the state slowly reopened. The commonwealth's year over year GDP declines had been more severe than the US through the second quarter, amid the commonwealth's lockdown measures to limit the spread of the coronavirus. As of the first quarter of 2021, Massachusetts' year over year GDP growth was 6.9%, ahead of the US at 6.4% over the same period.

Finances and liquidity

Massachusetts's revenue performance has been strong coming out of the worst of the pandemic, similar to the rest of the state sector, which is enabling the commonwealth to add to its budget stabilization fund. The commonwealth's financial position is further bolstered by federal stimulus money, just over half of which has an approved spending plan. The surge in tax revenue across the state sector are expected to moderate as the pandemic effects evolve.

Year to date fiscal 2022 revenue (through December) are up a significant 24.8% relative to this time in fiscal 2021, and 13.6% higher than budgeted projections. The strong revenue performance is driven both by growth in income taxes and sales taxes, which together make up over 80% of the revenue sources for the commonwealth. As a result of revenue coming in well above benchmark levels, the commonwealth projects an increase in the budget stabilization fund in fiscal 2022, reaching nearly $5.8 billion by fiscal year end or 16.8% of projected fiscal 2022 revenue (see Exhibit 1). State law requires that the full statutorily defined surplus be transferred to the stabilization fund, as well as excess capital gains taxes.

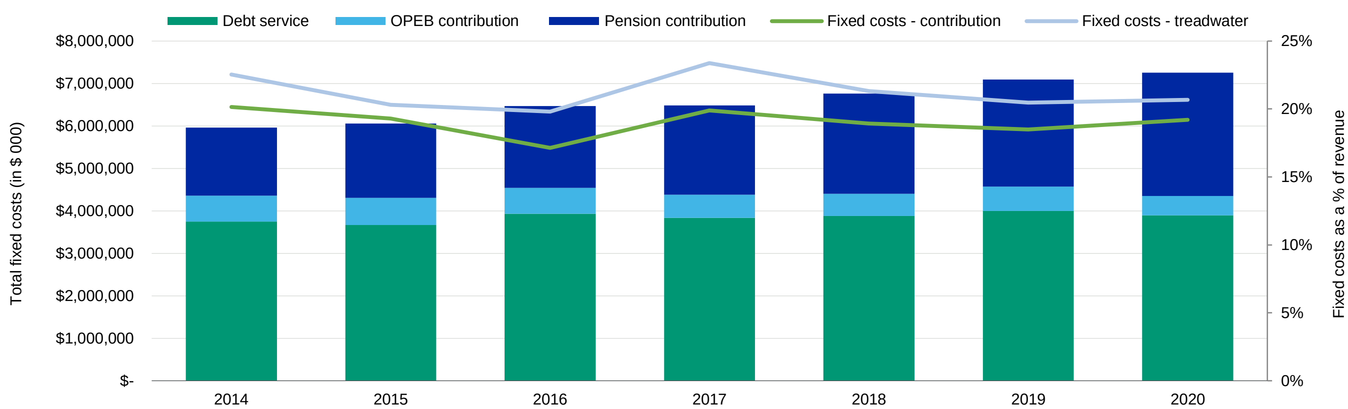
Most of Massachusetts's expenditures are for Medicaid, and other health and human services, as well as education, which together make up over two-thirds of the budget. The fiscal 2022 budget assumed a 6% increase in Medicaid expenses, and an 8.9% increase in enrollment. Medicaid enrollment expectedly increased substantially amid the coronavirus pandemic and widespread job loss. Total enrollment had been hovering around 1.8 million, but is projected to increase to well over 2.1 million in fiscal 2022. Like many other states, Massachusetts' increased Medicaid expenditures were aided by the additional 6.2% Federal medical assistance percentage (FMAP) that ran through the end of 2021.

The commonwealth's financial profile has been significantly bolstered by federal aid over the course of the pandemic. In 2020, Massachusetts received about $2.5 billion in CARES Act funding, which it expended on coronavirus-related expenses and recovery. Massachusetts has been allocated $8.7 billion from ARPA, of which $5.3 billion goes to the commonwealth and the rest to local governments within it. In December 2021, a bill was adopted that directs spending of $2.6 billion of the $5.3 billion allocated directly to the state, as well as $1.4 billion in budget surplus funds. Together, the $4 billion will be spent on various initiatives such as housing, healthcare, workforce and economic development, infrastructure and education. The spending bill also directs $500 million to the unemployment trust fund.

Fixed costs continue to be a significant budget driver for the commonwealth. In 2020 combined debt service, pension and other post employment benefits (OPEB) employer contribution costs were 19.2% of revenue. Compounding the situation, the commonwealth under contributes to its pension plans. Those contributions are not enough to “tread water” or prevent its net pension liability (NPL) from growing even if investment returns meet all the actuarial assumptions associated with the plan. The contributions were about 84% of our tread water benchmark. Fixed costs as a percent of revenue would have been 20.7% in 2020 had the mark been met (see Exhibit 6), compared to the sector median of 7.4%.

Exhibit 6

Fixed costs comprise over 20% of own source revenue at a tread water pension contribution



Source: Massachusetts FY14-20 audits; Moody's Investors Service

Liquidity

The commonwealth is taking advantage of the strong revenue growth in fiscal 2021 and 2022 to build up reserves, similar to what it did pre-pandemic over the extended period of economic expansion. The record high reserves in the fiscal year ending 2020 provided a strong buffer leading into the pandemic. Following strong revenue growth in fiscal 2021, the commonwealth was able to transfer a significant amount to the budget stabilization fund, and is projecting another significant transfer in fiscal 2022 (see Exhibit 1). The increases in over the last few years were primarily driven by deposits of surplus capital gains tax revenue and end of year operating surplus.

Outside of the stabilization fund the commonwealth has multiple sources of alternate liquidity, providing even more budgetary buffer should the need arise. The commonwealth also has a $200 million note purchase agreement with RBC Capital Markets, LLC (A3 stable) and a $500 million line of credit opened at the beginning of the pandemic. The line of credit was reduced from its original $1.75 billion, and is secured with a syndicate of banks lead by Bank of America, N.A. (Aa2(cr)/P-1(cr)). The line of credit expires in March 2024. None of the these facilities have any balances outstanding.

The commonwealth has had a practice of issuing revenue anticipation notes (RANs) annually since 2009, and issued $1.5 billion in Revenue Anticipation Notes in fiscal 2021 that have been repaid. With the strong revenue performance and large influx of federal aid, no RANs are planned to be issued in fiscal 2022.

Debt and pensions

The commonwealth's high debt burden reflects its focus on funding necessary maintenance, modernization and growth capital plans at both the state and local level. Given recent capital plans, we expect the commonwealth to continue issuing debt for key priorities, but the overall economy will continue to provide a solid foundation for paying the long-term costs.

Net tax-supported debt reached $43.6 billion for fiscal 2020 according to Moody's state debt medians report, comprised primarily of general obligation bonds (55%) but also includes sales tax backed debt for other underlying entities (23%). The state's debt levels ranked second-highest among the 50 states on a per capita basis. Debt is elevated in part because of the commonwealth's practice of financing projects for local governments, including a robust school district capital bonding program and debt for the Massachusetts Bay Transportation Authority. The fiscal 2020 net tax supported debt was stable year over year compared to fiscal 2019 (see Exhibit 7).

Exhibit 7

Net tax supported debt remains stable in fiscal 2020

Security		Fiscal 2020 debt (in $ 000)	Pledge	Rating
General obligation/Leases				
GO and GO related:	$	27,240,221	Commonwealth full faith and credit	Aa1/STA
GO	$	23,953,160	CW full faith and credit	Aa1/STA
Contract Assistance	$	2,775,000	CW full faith and credit	Aa1/STA
Massachusetts Clean Water	$	305,641	CW full faith and credit	Aaa/STA
Social Innovation Financing Trust Fund	$	29,835	CW full faith and credit	NR
MBTA Prior Obligations	$	141,585	CW full faith and credit	Aa1/STA
Commercial Paper	$	35,000	CW full faith and credit	P-1
Capital leases	$	1,261,380		N/A
Special Tax				
MSBA (Senior and Sub)	$	6,053,947	Dedicated statewide sales tax	Aa2/Aa3/STA
CTF	$	2,923,915	Gas taxes and registry fees	Aa1/STA
CTF Prior Obligations	$	55,290	Portion of statewide gas tax	Aa1/STA
GANs	$	662,270	Federal highway funds and sub lien on gas taxes and registry	Aa2/STA
Convention Center	$	504,255	Hotel occupancy tax; rental car surcharge; sales tax and	A1/STA
MBTA Sales Tax (Senior and Sub)	$	4,056,240	Dedicated statewide sales tax	Aa2/Aa3/STA
MBTA Assessment	$	619,195	Dedicated statewides assmts; sub lien on statewide sales tax	Aa1/STA
MBTA Parking	$	304,585	Parking related revenues	A1/STA
MBTA Commercial Paper	$	-	Dedicated statewide sales tax	P-1
Total net tax supported debt	**$**	**43,681,298**		

Source: Massachusetts audits and Information Statements, MSBA and MBTA audits, Moody's Investors Service

Per the governor's fiscal 2022 five-year capital investment plan, the state expects to issue up to $2.7 billion of general obligation bonds in fiscal 2022. The commonwealth's overall capital investment plan totals nearly $5 billion in fiscal 2022, funded by bonds, as well as federal funds, cash and other sources.

The capital improvement plan incorporates the $16 billion transportation bond bill that was adopted in 2021, and funds MassDOT, Massachusetts Bay Transportation Authority (MBTA rated Aa2 stable) over several years. Most recently, the governor filed a bond bill that would authorize $5 billion in debt-funded capital investment, which will be considered in the current legislative session.

The commonwealth has yet to repay its $2.3 billion unemployment insurance (UI) loan from the federal government, and interest payments commenced in September 2021. As of December 2021, the balance in the fund was $2.9 billion, well in excess of the loan balance. Maintaining an outstanding loan and an inadequate UI fund balance triggers penalties for businesses, that must increase payroll taxes, if the loan is not repaid by November 2022. As part of the spending plan authorized in December, $500 million will be deposited into the UI trust fund. Additionally, the commonwealth is currently shoring up plans to repay the balance owed before the end of the year. Legislation was recently passed authorizing the issuance of special obligation bonds as a possible avenue to repay the balance. The bonds would be secured by special assessments on employers.

Legal security

Massachusetts pledges its full faith and credit for the payment of principal and interest of general obligation bonds, which includes unrestricted revenue but does not come from a dedicated property tax levy. We note that state law limits annual tax revenue growth and does not exempt debt service payments from this limitation.

Debt structure

Most of Massachusetts' debt is fixed rate. The commonwealth had about $1.4 billion of general and special obligation variable rate debt outstanding or 3.2% of fiscal 2020 net tax supported debt, with $800 million of the variable rate unhedged. As of November 2021, the commonwealth's variable rate debt portfolio was down to about $970 million, with approximately $726 million unhedged. The liquidity facilities mature in early 2024.

Debt-related derivatives

The commonwealth's closely managed derivatives portfolio is manageable because of liquidity that is sufficient to handle unforeseen circumstances related to its swap agreements.

The total notional amount outstanding has decreased in recent years as the commonwealth takes advantage of refunding opportunities to convert variable rate debt to fixed and terminate associated swap agreements. As of November 2021, $268 million of the commonwealth's variable rate debt was hedged with floating-to-fixed rate swap agreements. The mark-to-market value was -$57.7 million as of November 30, 2021. One of the two remaining swaps is based on Libor; as of now there are no formal plans to replace the Libor rate once it expires.

Pensions and OPEB

The commonwealth's unfunded long-term liabilities are some of the highest in the nation and the state's contributions are consistently below the amount necessary to prevent the current liability from growing, posing a credit challenge over the longer term.

Based on the commonwealth's fiscal 2020 pension data, Massachusetts' adjusted net pension liability (ANPL) was $88.3 billion or 233% of own-source revenue. The 50-state median ANPL to revenue is 90%, with the commonwealth ranking fifth highest in the nation. Massachusetts ANPL is among the highest in the state sector in part because it is responsible for K-12 teacher pensions in addition to state employees. When including unrecognized teacher pension liabilities to state ANPL's (shown in our pension medians report), Massachusetts moves more towards the median for the state sector.

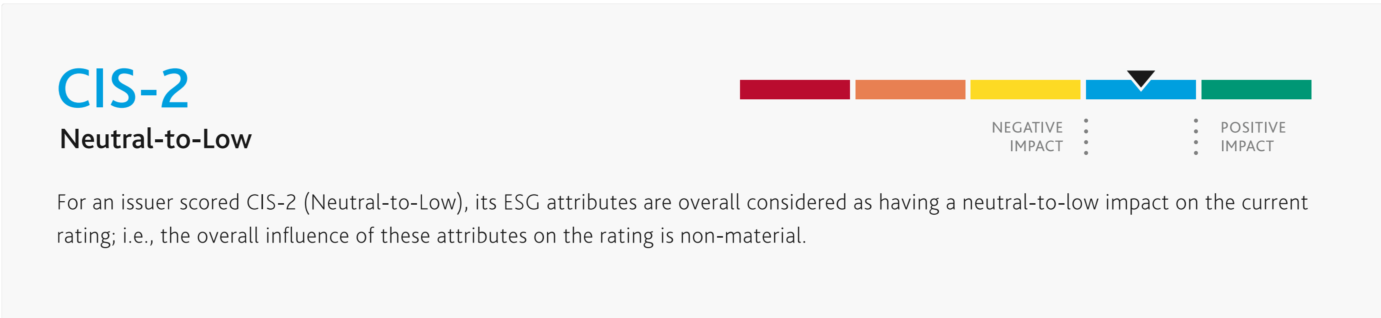
Contributions to the pension plan are set by statute, and based on the current funding plan, fall below actuarially determined amounts, and below a “tread water” level that would prevent the liability from growing. The secretary of Administration and Finance must, by law, file a proposed funding schedule with the legislature every three years that demonstrates the unfunded liability will be amortized by 2040. The commonwealth will next update the pension funding plan in 2024. At the same time, the discount rate for the plans have been declining, most recently moving to 7%, from 7.25%. Reducing the discount rate is conservative, and in line with other large pension plans nationally, but does increase costs. Since the pension funding plan is set statutorily, it cannot increase up to an actuarially determined amount until the next re-evaluation. As of the 2021 valuation report, dated January 2022, the planned contribution of $3.4 billion is only about 80% of the actuarially determined amount, based on the plan's assumptions. The commonwealth's fiscal 2022 budget included a $250 million supplemental deposit to the pension liability fund.

Massachusetts reported other post employment benefit (OPEB) liabilities were about $16 billion as of fiscal 2020, with a slightly higher Moody's adjusted net OPEB liability (ANOL) of $16.3 billion. At 43% of own-source revenue, the commonwealth's ANOL liability is above the state median of 15.6% of GDP. In 2008 the state created a trust fund to account for its other post-employment benefit (OPEB) plan. The state contributions are set by statute, though the trust fund also receives annual distributions, primarily from tobacco settlement proceeds and capital gains taxes.

ESG considerations

MASSACHUSETTS (COMMONWEALTH OF)'s ESG Credit Impact Score is Neutral-to-Low CIS-2

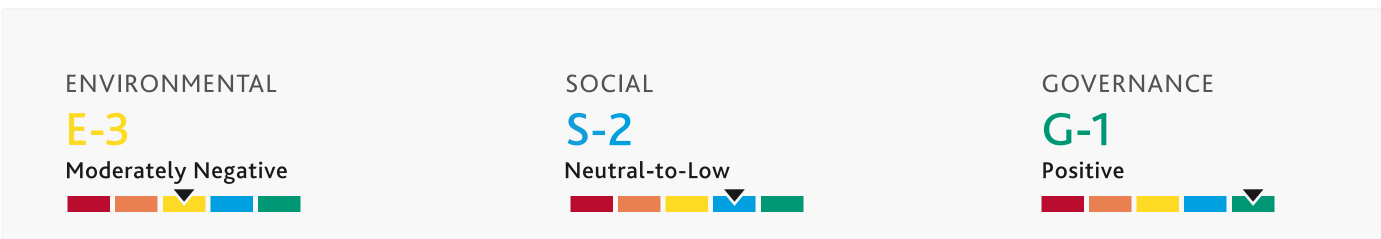
Exhibit 8
ESG Credit Impact Score



Source: Moody's Investors Service

Massachusetts' ESG Credit Impact Score is neutral-to-low (**CIS-2**) reflecting moderately negative exposure to climate risks, neutral-to-low exposure to social risks and a positive governance profile.

Exhibit 9
ESG Issuer Profile Scores



Source: Moody's Investors Service

Environmental

Massachusetts' environmental risk exposure is above average, because the vast majority of its economic activity is concentrated along its coastline, with notable exposure to storms, flooding and future sea level rise, reflected in its E issuer profile score of moderately negative (**E-3**). According to the Bureau of Labor Statistics, close to a quarter of Massachusetts' wages are earned in hurricane storm surge flood zones and nearly 85% of the exposure is located in zones vulnerable to the two lowest categories of storms. This exposure reflects the state's economic engine, Boston (Aaa stable) and its location on the coast. Altogether, more than 80% of the commonwealth's GDP is located in its coastal counties, far exceeding the 50-state median of 38.6%. While none of the state's counties (or cities) fall into the highest exposure category of Moody's ESG Solutions data, its heavy GDP concentration in the moderate-risk Boston area results in a higher overall climate change exposure ranking versus most other states.

Social

While Massachusetts benefits from a highly educated workforce, high income levels, and labor force participation significantly higher than the nation, it is likely to continue its trend of lagging population growth, reflected in its S issuer profile score of neutral-to-low (**S-2**). The state population is aging, too. The median age in the commonwealth is now 39.6 years, exceeding the national median age of 38.2 years. The state's percentage of working age residents is 39%, approximating the rate of the US, but this portion of the population has been shrinking. The number of prime working age residents, or people 25 to 54 years old, declined by 0.8% between 2000 and 2020. This is a contrast to the US 1.1% growth rate of working age residents over the same period.

Governance

Massachusetts' governance practices are generally very strong, reflected in its positive G issuer profile score (**G-1**). These practices include consensus revenue estimating, multiyear financial plans/five year forecast. Late budgets are common in Massachusetts, but the delays typically result from a multilayered approval process that requires three separate budgets to be combined into one final document. Interim budgets are put in place to ensure continuing operations and payment of debt service.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moodys.com. In order to view the latest scores, please click here to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

Rating methodology and scorecard factors

The US States and Territories methodology includes a scorecard, which summaries the 10 rating factors generally most important to the state and territory credit profiles. Because the scorecard is a summary, and may not include every consideration in the credit analysis for a specific issuer, a scorecard-indicated outcome may or may not map closely to the actual rating assigned. Massachusetts' Aa1 rating is one notch higher than its scorecard-indicated outcome, because it incorporates the long-term economicgrowth that has provided the commonwealth with a strong base for paying its outsized liabilities, as discussed in this credit opinion.

Exhibit 10

Rating Factors	Measure	Score
Factor 1: Economy (25%)		
a) Per Capita Income Relative to US Average [1]	131.8%	Aaa
b) Nominal Gross Domestic Product ($ billions) [1]	$582.5	Aaa
Factor 2: Finances (30%)		
a) Structural Balance	Aa	Aa
b) Fixed Costs / State Own-Source Revenue [2]	20.7%	Baa
c) Liquidity and Fund Balance	Aa	Aa
Factor 3: Governance (20%)		
a) Governance / Constitutional Framework	Aa	Aa
Factor 4: Debt and Pensions (25%)		
a) (Moody's ANPL + Net Tax-Supported Debt) / State GDP [2] [3]	22.5%	A
Factors 5 - 10: Notching Factors [4]		
Adjustments Up: None	0	
Adjustments Down: None	0	
Rating:		
a) Scorecard-Indicated Outcome		Aa2
b) Actual Rating Assigned		Aa1

[1] Economy measures are based on data from the most recent year available
[2] Fixed costs and debt and pensions measures are based on data from the most recent debt and pensions medians report published by Moody's.
[3] ANPL stands for adjusted net pension liability
[4] Notching factors 5-10 are specifically defined in the US States and Territories Rating Methodology
Source: US Bureau of Economic Analysis, State CAFRs, Moody's Investors Service

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