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CREDIT OPINION
28 April 2021

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Contacts

Denise Rappmund +1.212.553.3912
VP-Senior Analyst
denise.rappmund@moodys.com

Nicholas Samuels +1.212.553.7121
Senior Vice President
nicholas.samuels@moodys.com

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Massachusetts (Commonwealth of)

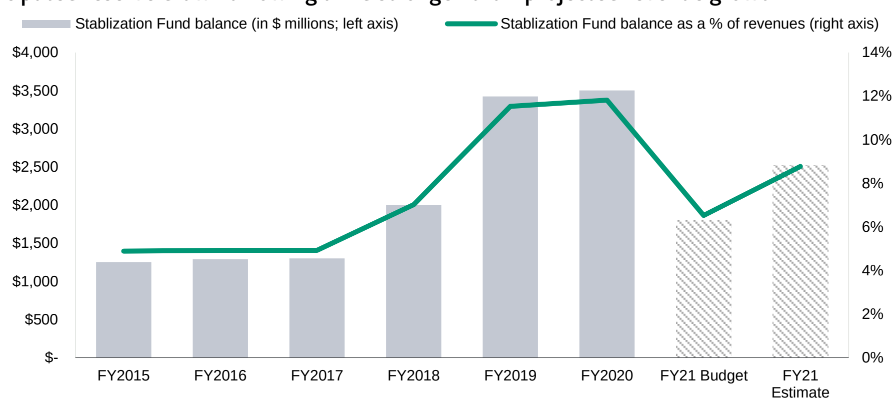
Update to credit analysis

Summary

Massachusetts' (Aa1 stable) economic recovery, while underway, lags the nation, with the commonwealth generally slower to reopen its economy in an effort to control continued spread of COVID-19. Federal aid and expanded unemployment benefits have been key credit stabilizing factors through fiscal 2021. As revenue have continued to exceed projections, the expected reserve draw has narrowed (see Exhibit 1).

Looking ahead to the new fiscal year, Massachusetts is negotiating a fiscal 2022 budget. Reserve draws are again proposed, though may be moderated considering new federal aid under the American Rescue Plan Act (ARPA), and if revenue continues to come in above expectations. Long-term liabilities and associated fixed costs remain some of the highest in among states. The commonwealth's continued adherence to strong governance practices, including adequate funding of these liabilities, remains a central credit consideration.

Exhibit 1
Anticipated reserve draw narrowing amid stronger-than-projected revenue growth



Source: Massachusetts Information Statement April 2021

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

» Aging demographic profile with overall population growth that lags the nation

» 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. Significant reserve drawdown authorization is not likely to be needed because revenue collections have outperformed projections year to date, and considering the substantial federal aid coming to the commonwealth.

Factors that could lead to an upgrade

» Moderated debt and pension burdens, especially relative to peers

» Continued 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)	2015	2016	2017	2018	2019	50-State Median (2019)
Operating Fund Revenues (000s)	$32,946,934	$33,414,744	$33,910,836	$36,483,673	$39,090,431	$12,439,906
Available Balances as % of Operating Fund Revenues	7.7%	7.4%	6.6%	8.7%	13.9%	9.1%
Nominal GDP (billions)	$503.2	$519.1	$540.0	$570.5	$596.6	$250.6
Nominal GDP Growth	6.4%	3.2%	4.0%	5.6%	4.6%	3.6%
Total Non-Farm Employment Growth	1.9%	1.9%	1.3%	1.1%	1.4%	0.9%
Fixed Costs as % of Own-Source Revenue	20.3%	23.1%	22.8%	20.7%	20.5%	7.8%
Adjusted Net Pension Liabilities (000s)	$53,989,121	$65,193,204	$80,449,143	$81,227,853	$77,151,349	$11,258,253
Net Tax-Supported Debt (000s)	$39,008,274	$40,753,424	$41,744,847	$42,193,311	$43,136,088	$3,864,531
(Adjusted Net Pension Liability + Net Tax-Supported Debt) / GDP	18.5%	20.4%	22.6%	21.6%	20.2%	6.9%

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

Profile

The Commonwealth of Massachusetts is the 15th largest state by population, with nearly 6.9 million residents in 2019. Its 2019 gross domestic product, reaching $595.6 billion, ranks 11th among the states. Per capita income was 131.7% of the national average in 2018, second highest in the US.

Detailed credit considerations

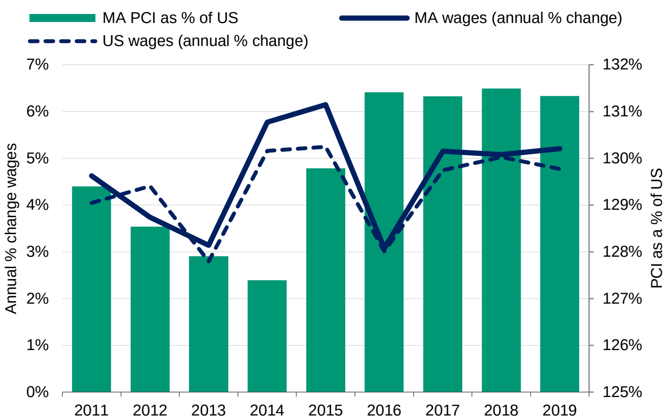
Economy

Massachusetts continues to experience elevated unemployment relative to the rest of the US, as the state balances public health concerns with reopening shuttered portions of the economy. The commonwealth's strong economic fundamentals have positioned it well to continue the path to recovery.

In the years leading up to the pandemic Massachusetts economy benefited from its well-trained labor pool, experiencing strong wage growth, increasing an average 1.7% annually over the last 10 years, outpacing the US rate of 1.2% (see Exhibits 3 and 4). These wages supported the commonwealth's consistently high per capita income, which most recently reached 131.7% of the US average, the second-highest rate among states. Gross domestic product growth outpaced the US in 2019, but just like the nation as a whole, job growth continued at a more tempered pace because of a nearly fully tapped workforce.

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%

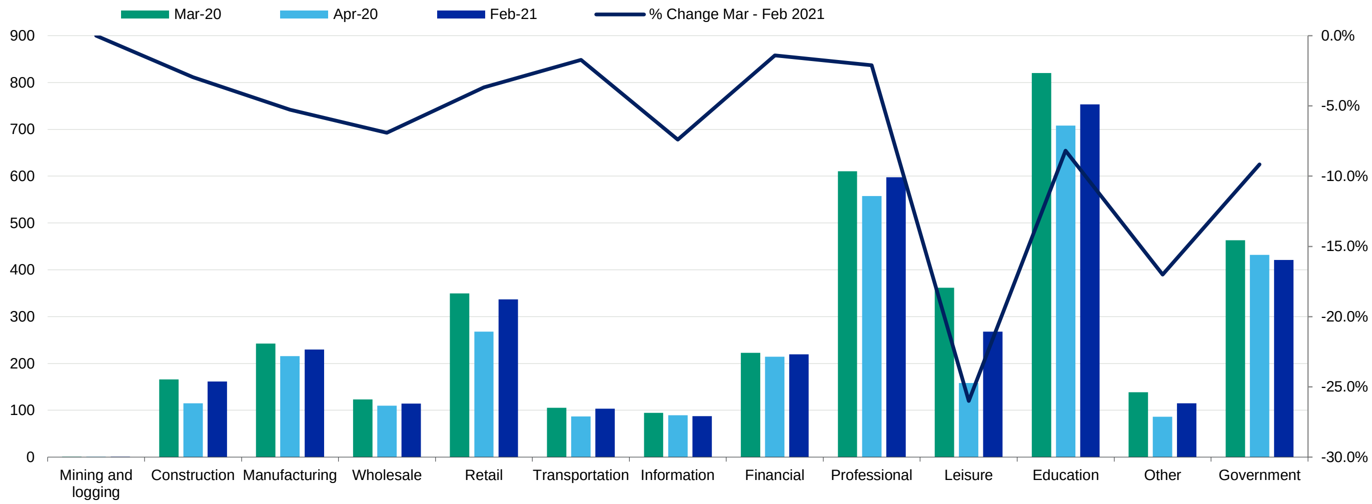
Source: US Census

Peaking at 17.7% in June, Massachusetts unemployment rate has since declined to 7.1% in February 2021 but that remains nearly 1% higher than the US, reflecting the broader shutdown of the state's economy and slower reopening pace, aimed at controlling the spread of coronavirus. Total employment as of February was still down nearly 8% relative to pre-pandemic levels, with major employment sectors still trailing (see Exhibit 5). Favorably, labor force participation in the commonwealth is largely recovered at 66%, and is well above the US rate of 62% as of February.

Exhibit 5

Employment across sectors showing strong recovery through February 2021

Massachusetts employment by sector, March 2020 - February 2021



Source: Bureau of Labor Statistics

According to the US Bureau of Economic Analysis, year over year GDP in Massachusetts was down 2.3%, approximating the US as a whole at -2.4%. The commonwealth's year over year GDP declines had been more severe than the US through the third quarter, amid the commonwealth's lockdown measures to limit the spread of the coronavirus. While still down, the relative improvement in economic activity in Massachusetts was likely fueled by slow economic reopening as well as ongoing federal aid, especially supplemental unemployment benefits and assistance for small businesses. In an attempt to maximize access to federal aid the commonwealth enacted new legislation in October to increase state unemployment assistance. The goal was to increase the number of state residents that are eligible for federal lost wages assistance.

Finances and liquidity

Massachusetts' prudent build up of reserves, federal aid and new sources of alternate liquidity, will aid the state as it navigates declines and delays in its key tax revenue.

The commonwealth is in the midst of negotiating a fiscal 2022 budget. While the governor's proposed budget would authorize a large spend down of reserves, following a large authorized spend down in fiscal 2021, strong revenue growth combined with substantial federal aid suggests significant reserve declines are unlikely (see Exhibit 1).

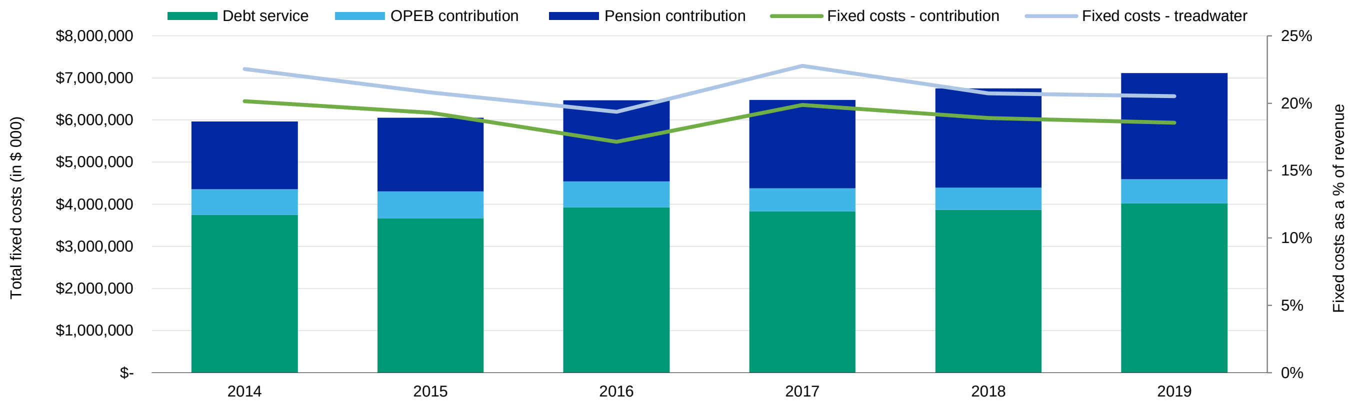
Massachusetts is heavily reliant on income and sales taxes to fund its operations, which is projected to account for over 80% of total tax revenue in 2021, though these key revenue sources are recovering well. These revenue fund the commonwealth's key expenditures: education and Medicaid, which combined account for about half of the budget.

Fiscal year 2021 revenue growth has exceeded projections year to date. Through March 2021, income taxes are up 9.3%, compared to an expected growth of 5.5% through the period. Sales taxes are up 7.2% through March, compared to an expected 6.9%. This growth continues a favorable trend, with fiscal 2020 tax revenue essentially flat from fiscal 2019 collections when including deferred income and sales tax payments. The revenue trend, along with federal funding, covered budgeted and supplemental spending in fiscal 2020 without draws on reserves, despite the fact that revenue was still -2.3% below budgeted expectations.

The commonwealth received about $2.5 billion in CARES funding, which it has expended on coronavirus related expenses and recovery. Massachusetts is slated to received $8.2 billion from the American Rescue Plan, of which $4.5 billion would go to the commonwealth and the rest to local governments within it.

Fixed costs continue to be a significant budget driver for the commonwealth. In 2019 combined debt service, pension and other post employment benefits (OPEB) employer contribution costs were 18.6% of revenue, well above the 7.9% sector median. 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 77% of our tread water benchmark. Fixed costs as a percent of revenue would have been 20.5% in 2019 had the mark been met (see Exhibit 6).

Exhibit 6
Fixed costs comprise over 20% of own source revenue at a tread water pension contribution



Source: Massachusetts FY14-19 CAFRs; Moody's Investors Service

Liquidity
The commonwealth has taken advantage of the ongoing economic expansion lasting through early 2020, using increasing tax revenue to rebuild reserves. The record high reserves in the fiscal year ending 2020 provided a strong buffer leading into the pandemic.

The commonwealth ended fiscal 2020 with a stabilization fund balance of $3.5 billion, which represented a more than doubling of the balance over the past five years. The increases in 2019 and 2020 were primarily driven by deposits of surplus capital gains tax revenue and end of year operating surplus. Massachusetts may draw on its reserves in the current and upcoming fiscal years, but stronger than projected revenue growth is likely to narrow the need to use reserves and the balance will remain healthy (see Exhibit 1).

Outside of the stabilization fund the commonwealth has multiple sources of alternate liquidity, providing even more budgetary buffer should the need arise. The commonwealth issued $1.5 billion in Revenue Anticipation Notes this fiscal year, an annual practice since fiscal 2009. The commonwealth also has a $200 million commercial paper program with TD Bank [RATING], $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.

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 $43.7 billion for fiscal 2019 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 2021 five-year capital investment plan, the state expects to issue up to $2.5 billion of general obligation bonds annually over the next five years. The state's most recent CIP does not incorporate the $16 billion transportation bill that was signed in January 2021 as the capital plan is going through its usual annual update.

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

Massachusetts had about $2 billion of general and special obligation variable rate debt outstanding or 4.4% of fiscal 2020 net tax supported debt, with $1.2 billion of the variable rate unhedged. Liquidity facilities contain a mix of three- and five-year term-out provisions that, considering the strength of Massachusetts' market access, should provide ample time to refinance, if necessary. Inclusive of the full amount of the commonwealth's commercial paper program, line of credit, note purchase agreement and the variable and short-term debt is 9.8% of total net tax supported debt as of fiscal 2020.

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. The remaining three swap agreements are floating-to-fixed hedges with a total notional amount of $631.2 million across general and special obligation debt. The mark-to-market value was -$95.9 million as of February 28, 2021. One of the three 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 2019 pension data, Massachusetts' adjusted net pension liability (ANPL) was $77.2 billion or 201% of revenue. The 50-state median ANPL to revenue is 80%, with the commonwealth ranking fifth highest in the nation. While the commonwealth contributes more than the full amount of its actuarially determined contribution annually, the state's contributions are consistently below an amount necessary to prevent the unfunded liability from growing each year, reaching only 77% of our "tread water" benchmark in fiscal 2019. Massachusetts reported other post employment benefit (OPEB) liabilities were $14.2 billion as of fiscal 2019, with a slightly lower adjusted net OPEB liability (ANOL) of $13.7 billion. At 2.3% of GDP, the commonwealth's ANOL liability is above the state median of 1.0% of GDP.

In 2008 the state created a trust fund to account for its other post-employment benefit (OPEB) plan. The commonwealth's reported OPEB liability as of fiscal 2018 was $16.7 billion, slightly above Moody's adjusted net OPEB liability of $15.9 billion. The state contributions are set by statute, though the trust fund also receives annual distributions, primarily from tobacco settlement proceeds.

ESG considerations

Environmental

The US states sector overall has low exposure to environmental risks because of states' large and diverse economies, revenue-raising ability and federal government support for disaster recovery costs. Massachusetts' environmental risk exposure is above average, however, because the vast majority of its economic activity is concentrated along its coastline, with notable exposure to storms, flooding and future sea level rise.

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% and ranking Massachusetts' economy more at risk by this measure than Florida (Aaa stable) or California (Aa2 stable).

Massachusetts' risk of storm damage, flooding and rising sea levels on a relative basis because of climate change also ranks highly compared to other states. According to data from Moody's affiliate Four Twenty Seven, Massachusetts counties' average projected rate of change in six climate risk factors, when weighted by county GDP, is third highest in the nation, behind Florida and Rhode Island (Aa2 stable). While none of the state's counties (or cities) fall into the highest exposure category of the Four Twenty Seven data, its heavy GDP concentration in the moderate-risk Boston area results in a higher overall climate change exposure ranking versus most other states.

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. The funds would be used for strategic land acquisition and other resiliency projects across the state.

Social

Social issues, such as demographics, labor force, income and education, are key influencers of all state economies, financial and leverage trends and governance stability. The commonwealth benefits from a highly educated workforce and elevated income levels. This contributes to the state's attractiveness to businesses looking to relocate or expand, especially in the greater Boston region, which helps boost the state's economy.

Population growth is likely to continue its trend of lagging the US, with essentially 0% total growth projected in 2020, compared to 0.4% for the US. Massachusetts' population increased by nearly 8% between 2000 and 2016 but that was almost half the US rate of 15%. The state population grayed over this period, too. The median age in the commonwealth is now 39.6 years or 16th highest in the nation, exceeding the national median age of 38.2 years. The state's percentage of working age residents is 41%, 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 3.9% between 2000 and 2018. This is a striking contrast to the US 4.6% growth rate of working age residents over the same period.

Governance

Governance is a material consideration for the sector and all of the state's ratings. Massachusetts' governance practices are generally very strong, including consensus revenue estimating, multiyear financial plans/five year forecast. We expect strong governance practices will continue and will be central to navigating the economic downturn.

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.

Reserves have been growing significantly in recent years, as the commonwealth is required to deposit the entire year-end surplus and any tax revenue from excess capital gains into the Stabilization Fund, with 5% of the excess capital gains taxes deposited then transferred to the State Retiree Benefits Trust Fund and 5% transferred to the commonwealth's Pension Liability Fund. The commonwealth is also required to deposit certain one-time settlements and judgments into the Stabilization Fund.

The governor has the authority to cut expenses for executive agencies without legislative approval if there is a revenue shortfall. To address the aforementioned climate change concerns, the state is conducting vulnerability preparedness planning with its municipalities and looking for ways to fund multiple resiliency projects across the commonwealth to mitigate the risks.

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 8

Rating Factors	Measure	Score
Factor 1: Economy (25%)		
a) Per Capita Income Relative to US Average [1]	131.3%	Aaa
b) Nominal Gross Domestic Product ($ billions) [1]	$584.0	Aaa
Factor 2: Finances (30%)		
a) Structural Balance	Aa	Aa
b) Fixed Costs / State Own-Source Revenue [2]	20.5%	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]	20.2%	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 Noody'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

REPORT NUMBER 1279176

Contacts

Denise Rappmund +1.212.553.3912
VP-Senior Analyst
denise.rappmund@moodys.com

Nicholas Samuels +1.212.553.7121
Senior Vice President
nicholas.samuels@moodys.com

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
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