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CREDIT OPINION
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Massachusetts (Commonwealth of)

Update to credit analysis

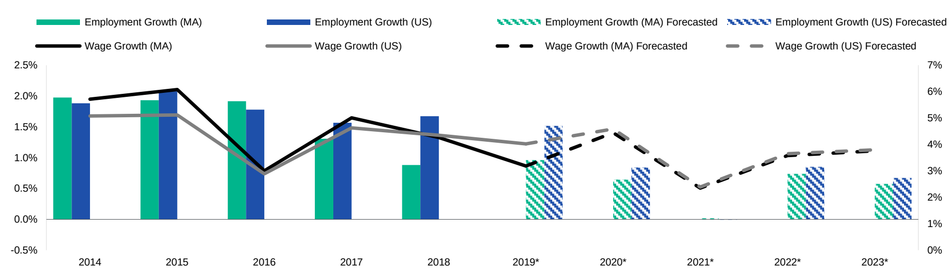
Summary

Massachusetts (Aa1 stable) benefits from a strong economy underpinned by a diversified employment base focused on the health care, education and technology sectors. The commonwealth has taken advantage of ongoing economic expansion, using increasing tax revenues to rebuild reserves drawn down during the prior recession. For the upcoming fiscal year the state is focused on changes to education funding while also maintaining its focus on capital funding for existing assets.

Debt and pension liabilities remain among the highest in the nation, driven upwards by borrowing that in many other states would be done by local governments, as well as debt issued for mass transit paid with statewide taxes. Population growth is slowing and Massachusetts' residents are aging, which will dampen future economic expansion somewhat. Job growth has slowed in recent years, with annual non-farm employment growth falling below the national rate since 2017. This trend is expected to continue as the labor market tightens (see Exhibit 1).

Exhibit 1

Massachusetts' employment growth will continue to lag the US, but wages will keep pace



Source: US Bureau of Labor Statistics; US Bureau of Economic Analysis; Moody's Analytics

Credit strengths

» Growing economy focused on important knowledge sectors such as health care, 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 at a healthy level

Credit challenges

» Combined debt and pension liabilities, relative to GDP, are sixth highest in the nation

» Elevated fixed costs that limit budget flexibility

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

Rating outlook

Massachusetts' stable outlook reflects our expectation that the commonwealth will continue its trend of strong financial management, taking proactive measures to navigate credit challenges that could emerge if the economy faulters over the near term.

Factors that could lead to an upgrade

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

» Established trend of structural budget balance

» Moderated debt and pension burdens, especially relative to peers

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)	2014	2015	2016	2017	2018	50-State Median (2018)
Operating Fund Revenues (000s)	$30,863,081	$32,946,934	$33,414,744	$33,910,836	$36,483,673	$11,520,082
Available Balances as % of Operating Fund Revenues	8.7%	7.7%	7.4%	6.6%	8.7%	7.8%
Nominal GDP (billions)	$473.5	$502.7	$519.7	$540.9	$567.3	$234.5
Nominal GDP Growth	4.2%	6.2%	3.4%	4.1%	4.9%	4.6%
Total Non-Farm Employment Growth	2.0%	1.9%	1.9%	1.3%	0.9%	1.1%
Fixed Costs as % of Own-Source Revenue	21.9%	20.3%	23.1%	22.8%	20.7%	NA
Adjusted Net Pension Liabilities (000s)	$61,059,039	$53,989,121	$65,193,204	$80,449,143	$81,227,853	$12,209,760
Net Tax-Supported Debt (000s)	$37,439,708	$39,008,274	$40,753,424	$41,744,847	$42,193,311	$4,146,966
(Adjusted Net Pension Liability + Net Tax-Supported Debt) / GDP	20.8%	18.5%	20.4%	22.6%	21.8%	7.8%

Source: US Bureau of Economic Analysis; US Bureau of Labor Statistics; Massachusetts FY14-FY18 CAFRs; Moody's Investors Service

Profile

The Commonwealth of Massachusetts is the 15th largest state by population, boasting nearly 6.9 million residents in 2017. Its gross domestic product, reaching $505.8 billion, ranks 11th among the states. Per capita income was 131% of the national average in 2017, the 2nd highest.

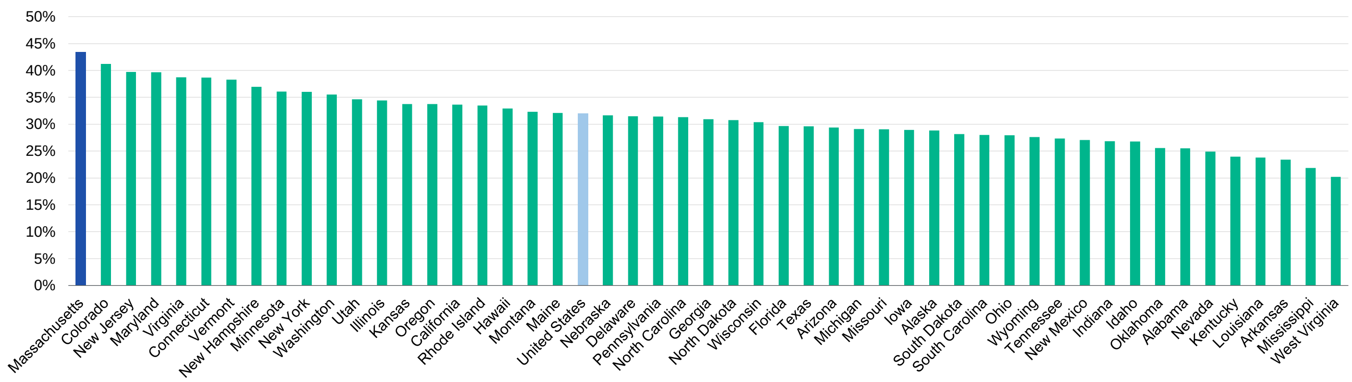
Detailed credit considerations

Economy

The commonwealth's overall economy continues to benefit from strong healthcare, education and technology sectors, with GDP growing by 4.9% in 2018, ranking it 20th for annual growth and slightly below the US growth rate of 5.2%. Average annual earnings in the commonwealth grew, on average, 1.7% annually over the last ten years, outpacing the US rate of 1.2%. Reflecting these gains, per capita income reached 131% of the US average in 2018. The commonwealth's labor pool is well-trained. By 2017 nearly half the commonwealth's people of working age, 25 years and older, had at least a bachelor's degree, significantly exceeding the national rate of 32% (see Exhibit 3). This well trained workforce has been one reason for the commonwealth's employment gains in education and health care sectors.

Exhibit 3

Massachusetts has highest percentage of residents with a college degree
% of residents 25 and older with a bachelors degree or higher (2017)



Source: US Census

But there are signs of weakness on the horizon. Employment growth has tapered off in recent months, growing at 0.9% year-over-year in 2018, compared to the more robust growth rate of 1.7% nationally. Non-farm employment growth is expected to continue to lag the US over the next two years. This is in part due to a nearly fully tapped workforce, with July 2019 unemployment falling to 2.9%, compared to 3.7% nationally.

Population growth will continue its trend of lagging the US, as well, 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 state population grayed over this period, too. The median age in the commonwealth is now 39.4 years or 15th highest in the nation, exceeding the national median age of 38.2 years. When looking at senior residents commonwealth aligns with the national average, with 16.5% of its residents at age 65 or older, in line with the US median of 16%. While the state's percentage of working age residents is 40%, approximating the rate of the US, this portion of the population has been shrinking. The number of prime working age residents, or people 25 to 54 years old, declined by 4.5% since 2000. This is a striking contrast to the US 4.0% growth rate of working age residents over the same period.

Finances and liquidity

Total tax revenue growth was strong in fiscal 2019, with estimates at 6.9% year-over-year. The year started off sluggish, with actual collections falling below budgeted projections beginning in December 2018, largely due to declines in income tax collections. The trend reversed in April 2019, with gains in sales and corporate taxes offsetting the earlier losses. Fiscal 2020 is keeping pace with the earlier gains, with year-to-date collections growing by 7.0% over fiscal 2019 collections, exceeding the commonwealth's expectations by 1.0%.

A perennial late budget adopter, the commonwealth enacted the fiscal 2020 budget plan a month after the fiscal year started. Taking advantage of the aforementioned revenue growth, K-12 public education funding is at an all-time high and the governor is proposing a significant new five-year capital spending plan.

Fixed costs continue to be a significant budget driver for the commonwealth. In 2018 combined debt service, pension and other post employment benefits (OPEB) employer contribution costs were 18.9% of revenue, well above the 7.5% sector median. Compounding the situation, the commonwealth continues to contribute below the treadwater amount for its pension obligations. The commonwealth's contributions were not enough to prevent its net pension liability (NPL) from growing even if investment returns all the actuarial assumptions associated with the plan had come to fruition. The contributions were about 78% of our "tread water" benchmark, which is the payment covering the year's newly accrued service costs and interest on the NPL. Fixed costs as a percent of revenues would have been 20.7% in 2018 had the mark been met (see Exhibit 4).

Exhibit 4

The Commonwealth consistently contributes below the treadwater amount

Massachusetts Fixed Costs (in $ 000)

		2014		2015		2016		2017		2018
Debt Service	$	3,748,306	$	3,667,371	$	3,929,867	$	3,831,754	$	3,870,461
OPEB Contribution	$	608,000	$	637,000	$	614,000	$	546,000	$	520,703
Pension Contribution	$	1,608,896	$	1,751,386	$	1,927,665	$	2,101,362	$	2,360,543
Pension Treadwater	$	2,314,085	$	2,223,624	$	2,768,061	$	3,049,989	$	3,012,349
Fixed Costs - Contribution	$	5,965,202	$	6,055,757	$	6,471,532	$	6,479,116	$	6,751,707
Fixed Costs - Treadwater	$	6,670,391	$	6,527,995	$	7,311,928	$	7,427,743	$	7,403,513
Total Gov Rev Less Fed	$	29,603,839	$	31,369,495	$	37,759,602	$	32,612,846	$	35,708,828
Fixed Costs - Contribution		20.2%		19.3%		17.1%		19.9%		18.9%
Fixed Costs - Treadwater		22.5%		20.8%		19.4%		22.8%		20.7%

Source: Massachusetts CAFRs FY14-FY18; Moody's Investors Service

High fixed costs are partly attributable to the Commonwealth's absorption of certain costs covered by local governments in most other states. Regardless of the reason for the elevated cost, steep fixed costs reduce the commonwealth's budgetary flexibility, exposing the state to more difficult budgetary decisions when revenues decline. Favorably, the commonwealth is moderately prepared to handle a recession, with its diversified revenue structure, as well as moderate expenditure flexibility and reserves, balancing out the aforementioned high costs.

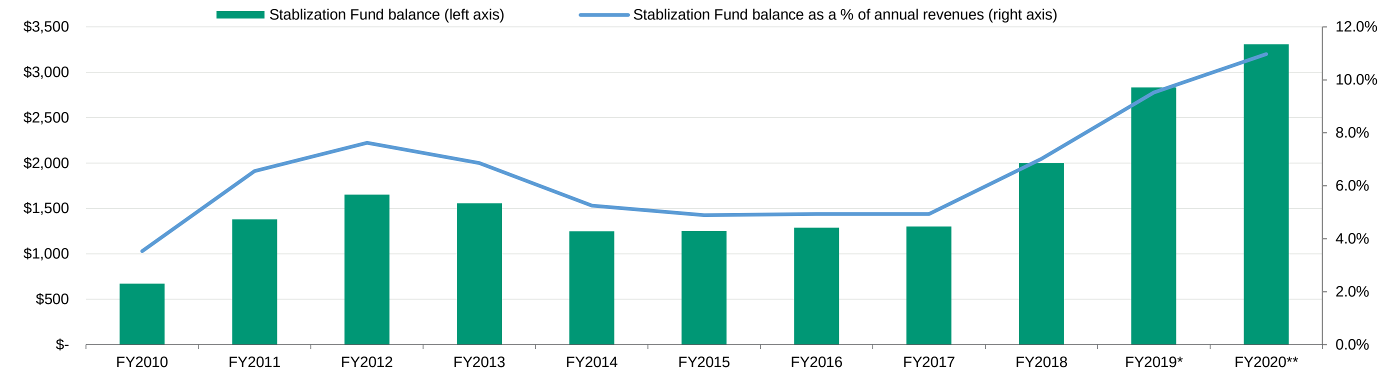
LIQUIDITY

Massachusetts' liquidity has improved significantly since the recession as the state takes advantage of continued revenue growth.

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 deposit of excess capital gains revenues into the Stabilization Fund was suspended in fiscal 2015 and fiscal 2016 to help close operating deficits. There were no transfers in 2017 as collections did not exceed the statutory threshold as adjusted by the fiscal 2018 budget, but $514 million was transferred in 2018 following strong capital gains revenues. The commonwealth ended fiscal 2019 with a balance of nearly $3.0 billion, a 41.5% gain over fiscal 2018 year-end balance. The current year budget projects the balance to grow to $3.3 billion or 11.0% of annual revenues (see Exhibit 5).

Exhibit 5
Reserves rebound on the back of strong revenue growth



*Year-end unaudited estimate **Budgeted
Source: Massachusetts Information Statement August 2019; Massachusetts FY2020 Enacted Budget

Debt and pensions

The commonwealth's high but well-managed 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 is expected to continue to provide a solid foundation for paying the long-term costs. Net tax-supported debt reached $41.3 billion as of Moody's 2019 state debt medians report (see Exhibit 5), comprised primarily of general obligation bonds (55%) but also includes sales tax backed debt for other underlying entities (25%). The state's debt levels ranked second-highest among the 50 states on a per-capita basis, exceeded only by Connecticut (A1 stable). Debt is elevated in part due to the commonwealth's practice of financing projects for local governments, including a robust school district capital bonding program ($6.0 billion) and debt for the Massachusetts Bay Transportation Authority ($4.2 billion)(see Exhibit 6). Per the governor's fiscal 2020 five-year capital investment plan, the state expects to issue up to $2.43 billion of general obligation bonds.

Exhibit 6

Nearly 25% of Massachusetts' debt reflects borrowing for local governments

Security		Fiscal 2018 Debt (in $ 000)	Pledge	Rating
Genearl Obligation and GO related				
GO	$	23,143,374	CW full faith and credit	Aa1/STA
Contract Assistance - MassDOT	$	2,900,000	CW full faith and credit	Aa1/STA
Massachusetts Clean Water	$	306,636	CW full faith and credit	Aaa/STA
Social Innovation Financing Trust Fund	$	38,185	CW full faith and credit	NR
MBTA Prior Obligations	$	179,520	CW full faith and credit	Aa1/STA
Commercial Paper	$	-	CW full faith and credit	P-1
Special Tax				
MSBA (Senior and Sub)	$	6,112,985	Dedicated statewide sales tax	Aa2/Aa3/STA
CTF	$	2,811,660	Gas taxes and registry fees	Aa1/STA
CTF Prior Obligations	$	105,230	Portion of statewide gas tax	Aa1/STA
GANs	$	748,445	Federal highway funds and sub lien on gas taxes and registry fees	Aa2/STA
Convention Center	$	552,110	Hotel Occupancy Tax; Rental Car Surcharge; Sales Tax and Sightseeing Surcharge	A1/STA
MBTA Sales Tax (Senior and Sub)	$	4,235,840	Dedicated statewide sales tax	Aa2/Aa3/STA
MBTA Parking	$	304,858	Parking related revenues	A1/STA
MBTA Commercial Paper	$	-	Dedicated statewide sales tax	P-1
Total Net Tax Supported Debt	**$**	**41,438,843**		

Source: Massachusetts FY18 CAFR; Massachusetts Information Statement; Moody's Investors Service

DEBT STRUCTURE

As of August 2019, Massachusetts has $2.6 billion of general obligation variable rate debt outstanding, or 6.1% of fiscal 2018 net tax supported debt, with nearly $1.5 billion of the variable rate bonds 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.

DEBT-RELATED DERIVATIVES

The commonwealth's closely managed derivatives portfolio is manageable due to liquidity that is sufficient to handle unforeseen circumstances related to its swap agreements. The agreements are floating-to-fixed hedges with a total notional amount of $1.1 billion across general and special obligation debt. The mark-to-market value was -$120.9 million as of June 30, 2019.

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 2018 pension data, Massachusetts' adjusted net pension liability (ANPL) was $81.2 billion, or 228% of revenues. The 50-state median ANPL to revenues is 92%, with the commonwealth ranking sixth highest in the nation. The commonwealth participates in three pension plans, of which the most significant is the State Teachers Contributory Retirement System. Massachusetts is among approximately twelve states that take responsibility for directly funding teacher pensions.

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 78% of our “tread water” benchmark in fiscal 2018. Massachusetts law requires that the schedule of pension contributions be updated every three years. Pursuant to a new triennial schedule adopted in January 2017, pension payments will increase by approximately 8.9% per year until the final amortization payment in fiscal 2036.

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.

Environmental, Social and Governance considerations

The US states sector overall has low exposure to environmental risks due to states' large and diverse economies, revenue-raising ability and federal government support for disaster recovery costs via FEMA. Massachusetts’ environmental considerations, however, are material for all of its debt, as the vast majority of Massachusetts' economic activity is along its coastline, resulting in elevated exposure to climate change. Nearly 83% of the commonwealth's GDP was located in coastal counties in 2016, significantly higher than the 50-state coastal county median of 38.6% and ranking its economy more at risk than Florida (Aaa stable) and California (Aa3 positive). 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, while pending legislation would fund investment in resiliency infrastructure with approximately $100 million in new, annual revenues from a deeds excise tax. The funds would be used for multiple resiliency projects across the commonwealth, such as culvert replacement and strategic land acquisition.

Social issues, such as demographics, labor force, income and education, are key influencers of all state economies, governance stability, and financial and leverage trends. The commonwealth benefits from an educated workforce and high 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. For more information on social factors, please see our Economy section.

Governance is a material consideration for the sector and all of the state’s ratings. Massachusetts’ financial practices are generally very strong, including consensus revenue estimating, multi-year financial plans/five year forecast. In addition the governor has the authority to cut expenses without legislative approval if there is a revenue shortfall. The state is conducting vulnerability preparedness planning with its municipalities and looking for ways to fund multiple resiliency projects across the commonwealth as a mitigant to growing climate change concerns.

GO rating methodology and scorecard factors

Massachusetts' Aa1 rating is one notch higher than its scorecard-indicated outcome, because it incorporates the long-term economic growth that has provided the commonwealth with a strong base for paying its outsized liabilities, as discussed in this credit opinion.

Exhibit 7

States rating methodology scorecard

Commonwealth of Massachusetts

Rating Factors	Measure	Score
Factor 1: Economy (25%)		
a) Per Capita Income Relative to US Average [1]	130.6%	Aaa
b) Nominal Gross Domestic Product ($ billions) [1]	$505.8	Aaa
Factor 2: Finances (30%)		
a) Structural Balance	Aa	Aa
b) Fixed Costs / State Own-Source Revenue [2]	23.1%	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]	20.9%	A
Factors 5 - 10: Notching Factors [4]		
No adjustments	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 pension 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, Massachusetts CAFRs, Moody's Investors Service

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