

Massachusetts; Appropriations; CP; General Obligation; General Obligation Equivalent Security

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Credit Profile

US\$400.0 mil GO bnds ser 2021B due 04/01/2051

Long Term Rating

AA/Stable

New

US\$200.0 mil GO bnds ser 2021A due 03/01/2042

Long Term Rating

AA/Stable

New

Rating Action

S&P Global Ratings assigned its 'AA' long-term rating to the Commonwealth of Massachusetts' \$200 million general obligation (GO) bonds consolidated loan of 2021, series A, and \$400 million GO bonds consolidated loan of 2021, series B.

At the same time, S&P Global Ratings affirmed its 'AA' rating on the commonwealth's outstanding GO debt; and its 'A' long-term rating on the Boston Housing Authority's series 2003 housing project bonds (West Broadway Homes IV project), supported by a commonwealth annually appropriated state-operating subsidy, subject to the terms of a trust agreement. In addition, S&P Global Ratings affirmed its 'A-1+' short-term rating on Massachusetts' GO-secured commercial paper.

The outlook on all long-term ratings is stable.

Massachusetts' full faith and credit are pledged to the GO bonds and commercial paper.

The series 2021A and 2021B bonds will fund various capital projects as part of the commonwealth's ongoing long-term capital plan.

Credit overview

Massachusetts has come through the recent pandemic-related recession in good financial shape with the aid of a strong budget stabilization fund (BSF) balance at the beginning of the downturn, and adopted budgets with conservative revenue forecasts. Although, tax revenue fell slightly in fiscal years 2019 and 2020, the state had budgeted for a bigger decline, and the addition of above-budget extra federal aid and nontax revenue actually produced a slight growth in total operating revenue in those years (see table). The state ended fiscal 2020 with a BSF equal to 7.6% of expenditures and other uses, about the same as the 7.7% it ended with in fiscal 2019.

However, the state is budgeting for a decline in its BSF in fiscal 2021 to 5.3% of expenditures and other uses, and the governor has proposed a fiscal 2022 budget with a further decline to 2.4% (see "Massachusetts' Proposed Fiscal 2022 Executive Budget Projects Surprisingly Stable Revenues," published Feb. 22, 2021, on RatingsDirect).

The state didn't adopt its final 2021 budget until December 2020, well past its June 30, fiscal year-end (using successive interim budgets in the meanwhile), and it is possible that the final 2022 budget could also be enacted after

the state's fiscal year-end and contain significant variation from the governor's proposal. Already, state tax revenue is running well ahead of the January 2021 forecast used in the governor's fiscal 2022 budget proposal. Through the end of March 2021, tax collections were 6.9% ahead of the state's forecast fiscal year to date, and up 7.2% compared with collections for the same period the previous year. While the state is budgeting to draw down its rainy-day fund, the conservative budget assumptions may mitigate actual draws. In addition, since the 2022 proposal was released, the federal government passed the American Rescue Plan Act, which could provide the commonwealth with \$4.5 billion in direct aid, equal to about 10% of the state's operating budget.

Some risks remain--a pending U.S. Supreme Court case in a dispute with New Hampshire over allocation of telecommuters' income tax could cost significant amounts of revenue (see "Massachusetts And New York State Could Lose Billions Of Income Tax Dollars If Lawsuit Challenging Remote Work Succeeds," published Jan. 22, 2021), and we believe the state has an above-average dependence on capital gains tax, which is currently high, but it could recede in future years. Also, the state has been chronically underfunding its annual pension contribution. It assumes full funding by 2036, but only if it increases annual contributions by 9.63% per year, a steep increase that we believe delays current pension pressure to future years. We calculate the pension underfunding amounts to a structural deficit of about 2% per year--higher if excluding restricted federal revenue from the budget denominator.

We believe that Massachusetts' economy, with a substantial tech sector presence in the Boston area, has been a bright spot, with a substantial proportion of well-educated workers that were able to work at home during the pandemic and contribute to the state's income tax. Massachusetts has the second-highest per capita income in the nation at 133% of the nation. State economic growth appears to be on track for growth similar to the nation, despite extensive restrictions on activity during the recession. IHS Markit forecasts that real gross state product (GSP) will increase 6.7% in calendar 2021 and 4.2% in 2022, compared to the nation's GDP of 6.2% and 4.3%, respectively.

While Massachusetts has high income levels and a good rainy-day fund, this is partially offset by high debt, moderately high other postemployment benefits (OPEB), and persistent underfunding of its annual actuarial pension contribution. The commonwealth has contributed less than its actuarial annual required contribution (ARC) since 2011 and appears to be falling further behind due to recent retirement fund investment returns below actuarial assumptions, despite steep 9.6% per year scheduled increases in pension contributions in future years.

The stable outlook reflects our view that Massachusetts' has had a history of rebuilding its BSF after economic drawdowns and generally conservative budget forecasting through the recent recession, and that the commonwealth's economy will rebound in the next two years.

Factors supporting the 'AA' GO rating include what we view as Massachusetts':

- Deep and diverse economy, which has outperformed the nation on several economic indicators in recent years;
- High income levels, with per capita income at 133% of the nation in 2020, the second-highest among the states;
- History of timely monitoring of revenues and expenditures and swift action when needed to make adjustments;
- Strong financial, debt, and budget management policies, including annualized formal debt affordability statements, and multiyear capital investment planning; and
- Good BSF balance, equal to an estimated 7.6% of expenditures and other uses on a budgetary basis at fiscal

year-end 2020, although the state has budgeted for a modest drawdown.

Offsetting factors include high debt, pension, and OPEB liabilities.

In particular, the commonwealth's pension funded ratio on a Governmental Accounting Standards Board (GASB) basis has had a long-term declining trend and stood at only 56.2% on a combined basis as of a June 30, 2019, measurement date for fiscal 2020. Massachusetts has contributed less than its ARC to its pension funds in every fiscal year since 2011. However, Massachusetts has put in place a plan to increase annual pension contributions a steep 9.63% per year to fully amortize unfunded pension liabilities by 2036, although with recent stock market declines, achievement of full funding could be pushed back, or the state might need to increase pension contributions even more steeply. However, the \$1.01 billion shortfall against the ARC budgeted in fiscal 2021, which we view as a structural deficit, was only about 2.2% of estimated fiscal 2021 budgeted operating expenditures. The commonwealth is paying 76% of the ARC in fiscal 2021, about the same level as the year before, and we calculate that pension contributions in fiscal 2020 to Massachusetts' employee retirement system were only 81% of static funding requirements, and 80% of static funding for the teachers' pension system. Massachusetts projects state pension contributions will increase by \$2.1 billion above the fiscal 2020 level by 2026, the year when the commonwealth projects annual payments will equal the ARC, assuming it continues to increase payments 9.63% per year and pension returns meet actuarial assumptions (in 2020 the actual return was 2.38% compared to the 7.25% assumed return, and the actual three year annualized return was 6.11%).

Based on the analytic factors we evaluate for states, on a scale of '1.0' (strongest) to '4.0' (weakest), we have assigned a composite score of '1.9' to Massachusetts, which is consistent with a 'AA' indicative rating.

Environmental, social, and governance (ESG) factors

We consider Massachusetts' environmental risks as elevated due to coastal exposure, while social and governance risks are generally in line with the state sector, and the commonwealth has historically maintained a stable management and policy framework to respond to developing risks.

Stable Outlook

Upside scenario

An upgrade would require the state take measures to strengthen its pension funding discipline based on a prudent actuarial footing, and the resumption of a BSF build-up as a matter of budgetary policy during periods of strong economic activity.

Downside scenario

We could lower the rating if we believe Massachusetts will fail to make budget adjustments to maintain near-structural balance and rebuild its BSF during periods of economic growth. Factors that could pressure the rating include a slow rebound in tax revenue or overly optimistic revenue projections, significant unexpected growth in Medicaid costs, even with increased federal reimbursement under the Families First Coronavirus Response Act, significant increases in debt or other fixed costs, or drawdowns of its BSF even when underlying economic activity is strong. In particular, weak liquidity, significant deficit borrowing, or a significant fall in pension funded levels due to the commonwealth

falling significantly behind static pension funding contribution levels, could trigger a negative outlook or downgrade.

Credit Opinion

Governmental Framework

State finance law requires that the governor submit a balanced budget and the House and Senate each produce a balanced budget. The final general appropriation act must also be balanced. If there is a revenue shortfall, the governor is required by section 9C of Chapter 29 to reduce agency appropriations or recommend a transfer from the BSF.

Massachusetts has autonomy to raise taxes and has adjusted its tax structure. Medicaid was budgeted for about 37% of total fiscal 2020 spending, while direct local aid accounted for about 14% in 2020. Funding levels for major program areas have been adjusted as needed. Massachusetts voters have approved revenue growth limitations, but these have not weakened operations or limited flexibility, in our view. More significant measures to reduce or eliminate major tax sources have been on the ballot but not approved. A citizens' initiative to place a 4% income tax surcharge on incomes of more than \$1 million gathered enough signatures to be on the November 2018 ballot, but the Massachusetts Supreme Court did not allow it to go to a vote as it impermissibly tied increased tax revenue to specific spending categories. Since then, another referendum passed the state legislature, which if it passes again this year would be on the November 2022 ballot, similarly raising the top income tax rate for those making more than \$1 million per year. As a legislatively placed initiative, it would be more likely to pass a court challenge. If passed by the voters, it would apply to tax year 2023.

The commonwealth is authorized to issue GO debt, special obligation debt, and federal grant anticipation notes. There is a statutory limit on debt outstanding and a limitation as stipulated by Massachusetts' debt affordability policy published annually with the commonwealth's capital improvement plan (CIP), which is designed to limit debt service on Massachusetts' direct debt to no more than 8% of budgeted revenues. These limitations have not impaired flexibility to manage capital and infrastructure requirements. There is no statutory priority for funding debt, but debt service payments are not subject to the warrant requirement applicable to other state spending, and we understand that the comptroller and other state officials have developed procedures to prioritize payments and that debt service is given the highest priority among various payment obligations.

On a scale from '1.0' (strongest) to '4.0' (weakest), S&P Global Ratings assigned a score of '1.5' to the commonwealth's governmental framework.

Financial Management

Financial management assessment: Strong

S&P Global Ratings maintains a strong Financial Management Assessment (FMA) score for Massachusetts. In its framework, an FMA of strong indicates that practices are strong, well embedded, and likely sustainable. Many of the commonwealth's management practices related to debt and financial management are embedded in statute.

Highlights include the following:

- Massachusetts uses internal resources and outside economic forecasting firms to develop consensus revenue forecast. It has regularly performed monthly revenue estimates and quarterly budget reviews. Legislation approved in 2008 requires that revenue reports be submitted semi-monthly to the legislature.
- A five-year CIP (administrative intent, not binding) coordinates all types of debt issuance. The CIP includes a detailed debt affordability analysis that officials update each year.
- The commonwealth has detailed and frequently reviewed investment policies managed through the office of the treasurer. Quarterly cash-flow projections are prepared and submitted to the legislature.
- Massachusetts has a statutorily established BSF that prescribes a mechanism for funding, as well as funding levels; however, the mechanism has been weakened in some previous years by the legislature's decision to adjust deposit thresholds and suspend required transfers into the fund in certain years.

Statute requires the deposit of 100% of consolidated net surplus in any given year into the BSF. The statute also provides that the BSF's maximum amount cannot exceed 15% of the current year's revenues. The commonwealth must use any excess for tax reduction. In 2010, the state passed a statutory law that directed excess capital gains tax revenues of more than \$1 billion to the BSF, although Massachusetts subsequently suspended or lowered this threshold in fiscal years 2015 and 2016. Legislation in 2012 indexed the \$1 billion capital gains excess threshold to the growth in U.S. GDP for each fiscal year beginning with fiscal 2014. The statute also directs 5% of the excess capital gains tax to the state retiree benefits trust fund and another 5% to pension liabilities. We believe the capture of above trend capital gains tax enhances the BSF, while decreasing some of the cyclicity of state revenue. However, in fiscal years 2015 and 2016, the commonwealth diverted to the general fund excess capital gains tax that would otherwise have gone to the BSF. An indexed threshold and lower collections in fiscal 2017 eliminated the potential for a transfer in that fiscal year. In 2020, the governor filed a supplemental budget request to retain excess capital gains tax above the threshold in the general fund. Some judgments and settlements must also be deposited into the fund, although this requirement was modified in fiscal 2015 so that only settlements and judgments exceeding the average of the total for the preceding five fiscal years would be transferred to the BSF.

There are statutory limits on debt issuance. For direct debt, there is a limit allowing the issue of up to 105% of the previous year's limit. In addition to the aforementioned statutory requirement, the governor's office adheres to an administrative bond cap (debt service capped at 8% of budgeted revenues), which sets the annual limit on debt issuance. The treasurer's office maintains debt management and swap policies that we view as comprehensive.

The commonwealth has detailed and frequently reviewed investment policies managed through the office of the treasurer. Quarterly cash flow projections are prepared and submitted to the legislature.

Budget Management Framework

Once the budget is approved, the Secretary of Administration and Finance (A&F) monitors expenditures, at least quarterly, and receives regular monthly updates on revenue receipts. The A&F secretary is required to formally update revenue projections and submit them to the legislature in October. If officials expect projected revenues to be

insufficient to meet appropriations, A&F certifies this and, pursuant to statute (section 9C of Chapter 29), the governor is required to reduce allotments, or submit proposals to raise additional revenues or to make appropriations from the BSF to restore balance. Budget adjustments have historically been implemented regularly and on time, and deficits are not carried forward.

Massachusetts is a voter-initiative state. Although there have been initiatives that limit the overall growth in state tax revenue and a limit on the amount of bonds outstanding and debt service appropriations, these have not substantially altered Massachusetts' ability to manage its budget or fund debt service, in our opinion. While more recent ballot initiatives to reduce or eliminate the commonwealth's major tax sources that made the ballot were not approved, the legislature can amend an initiative. A voter initiative to add an extra 4% income tax to annual income of more than \$1 million a year, that would have been dedicated to education, gathered enough signatures to be on the November 2018 ballot, but did not survive a court challenge. As a result, it was stripped off the ballot, due to its provisions that would restrict use of revenue proceeds, which is impermissible for voter initiatives under the commonwealth's constitution. However, the legislature subsequently approved a similarly worded constitutional amendment in 2019, which if approved by the legislature again in 2021 could go on the November 2022 ballot. As a referendum authorized by the legislature, instead of voter petition, it is considered to have a better chance of withstanding a court challenge.

The commonwealth provides a relatively high level of service, in our opinion. Adjustments have been made to programs but reductions to areas such as education have been limited.

On a scale from '1.0' (strongest) to '4.0' (weakest), S&P Global Ratings assigned a score of '1.0' to Massachusetts' financial management framework.

Economy

We believe the Massachusetts economy, anchored by a Boston metropolitan area that includes many higher education institutions and associated technology companies, represents an important credit strength.

Massachusetts' recent economic experience has mirrored national trends, although per capita income has grown slightly faster than that of the nation, spurred by growth in the high-paying professional, scientific, and technical services sector that suffered less in the recent recession than lower-paying service sector jobs. The average annual unemployment rate hit a low of 3.0% in 2019, compared to 3.7% for the U.S., before jumping up to 8.9% in the 2020 recession year, compared to a federal unemployment rate of 8.1%.

The U.S. Census Bureau population estimate for Massachusetts in 2020 is 6.9 million, a 0.02% decline over 2019, and the five- and 10-year compound growth rate of 0.3% and 0.5%, respectively, trailed the nation's 0.5% and 0.6%, respectively. The commonwealth's age dependency ratio of nonworking age population to working age population, at 57.8% in 2019, was better than that of the nation (63.1%).

The commonwealth has always had high income levels. Per capita personal income of \$79,721 nudged up to 133% of the U.S. in 2020, from 132% in 2019, and 127% in 2014, in spite of economic restrictions imposed by the pandemic. State per capita income ranks second highest among all the states. We expect that income will remain well ahead of

that of other states based on the highly educated workforce that have jobs more conducive to telecommuting. IHS Markit estimates that real GSP has mirrored national trends recently, despite initially a very high unemployment rate due to restrictions imposed on economic activity as the pandemic began. IHS Markit forecasts real GSP to rise 6.7% in 2021, 4.2% in 2022, and 2.2% in 2023, slightly under its respective U.S. forecast of 6.2%, 4.3%, and 2.2% for the same years. In 2020, GSP per capita of \$84,722 was strong at 133% of that of the nation's GDP.

We view the economy as slightly more concentrated in education and health services than the nation as a whole. Education and health services accounted for 22.5% of total state nonfarm employment in 2020 according to the Bureau of Labor Statistics, compared with 16.4% for the nation. This is followed by professional business services (17.2% versus 14.4%), and trade and transport (15.7% versus 18.8% nationally). The manufacturing and construction sectors, known for their cyclicity, represented only 6.8% and 4.5% of employment, respectively.

The increasing role of services in the economy reflects growth in research laboratories, computer software, management consulting, other business services, and health care. Higher education anchors, a high level of federal research funding, and venture capital give the commonwealth a leading edge in emerging industries, such as biotechnology, software, communications equipment, and surgical instruments. IHS Markit has estimated about 10% of state employment is in high-technology-related industries. In addition, Massachusetts' has defense-related industries that have ranked high in the value of federal defense and research contract awards.

On a scale from '1.0' (strongest) to '4.0' (weakest), S&P Global Ratings assigned a score of '1.4' to Massachusetts' economy.

Budgetary Performance

Massachusetts has established a formal BSF under statutory law that receives excess capital gains taxes over a threshold amount, indexed for inflation. However, state budgets in fiscal years 2013 and 2014 drew down the BSF, and the commonwealth overrode the BSF formula in certain years by either retaining all excess capital gains tax or by resetting the hurdle for excess capital gains at a higher level than in statute. As a result, we viewed the BSF as essentially level funded during fiscal years 2014-2017.

The threshold for excess capital gains tax to be diverted to the BSF was set at \$1 billion for fiscal years 2011, 2012, and 2013. The statute was subsequently revised to include an annual adjustment factor to reflect the average annual rate of growth in U.S. GDP over the preceding five years. Under statutory law, tax revenues collected from capital gains income during a fiscal year that exceed the threshold are required to be transferred to the BSF, with 5% of the amount so deposited then transferred to the State Retiree Benefits Trust Fund (for OPEB) and an additional 5% transferred to the commonwealth's pension liability fund. However, in fiscal years 2015 and 2016, state budgets diverted capital gains taxes that would have otherwise flowed to the BSF to instead pay for general fund budget expenditures. In 2017, capital gains taxes came in below the level that would have triggered a transfer of excess capital gains to the BSF.

The adopted fiscal 2018 budget would have added only \$66 million to the BSF if revenues had come in at levels forecast in the budget; however, strong capital gains tax in fiscal 2018 came in well above the trigger. The fiscal 2019 adopted budget projected a \$368 million transfer to the BSF. Due to stronger-than-budgeted revenue, the BSF actually

increased by \$1.4 billion in fiscal 2019, bringing it up to \$3.4 billion, or what we view as a good 7.7% of budgetary expenditures and other uses (see table).

The state has budgeted to lower the BSF to \$2.5 billion in fiscal 2021, or a still-good 5.3% of expenditures and other uses, although recent monthly revenues that have come ahead of re-benchmarked revenue forecasts used in the governor's January 2021 executive budget proposal for fiscal 2022 indicate that the BSF could end up higher than budgeted. The governor has proposed a drawdown of the BSF to \$1.1 billion in fiscal 2022, or an adequate 2.4%. The legislature is now considering its version of the budget. In recent years, the legislature has enacted a final budget after the beginning of the fiscal year, using successive interim short-term budgets until the final budget was enacted. This has allowed the legislature the benefit of updated economic forecasts.

The 2022 executive budget forecast currently anticipates that Massachusetts' adopted fiscal 2021 budget will have a decline of 1.8% in operating funds tax revenue (using actual budgetary results in 2020, not adopted 2020 budget numbers), and an operating deficit of 3.9% of expenditures and other uses, resulting in the \$1.0 billion BSF drawdown, after use of other balances. However, as tax collections through March 2021 have been running well ahead of budget, and the recent federal America Rescue Plan Act will provide Massachusetts \$4.5 billion of extra direct aid not included in the executive budget proposal, actual revenues available for budgeting may be higher than anticipated in the executive budget proposal.

Before the Great Recession, the BSF reached a previous peak of \$2.335 billion at fiscal year-end 2007, before being drawn down to \$670 million at fiscal year-end 2010. The commonwealth subsequently began using judgments and settlement and other surpluses to build up the fund again to \$1.65 billion at fiscal year-end 2012, before drawing it down to \$1.25 billion in 2014. The increase in fiscal 2020 to \$3.5 billion represented the largest amount in dollar terms that the BSF has ever reached.

We view Massachusetts' liquidity as strong, with the help of annual cash-flow note borrowing. The commonwealth does not engage in interfund borrowing, so the general fund cannot borrow from the BSF without an act of the legislature. In fiscal 2020, the commonwealth issued \$1.4 billion in revenue anticipation notes, maturing in April, May, and June 2020. In addition, the commonwealth obtained a line of credit for \$1.75 billion from a syndicate of banks to ensure adequate liquidity due to a pandemic-related extension of the time for taxpayers to file their income tax in fiscal 2020. As of February 2021, the line of credit was reduced to \$500 million, and no amount was outstanding under the line, which is scheduled to expire March 30, 2024, under a renegotiated agreement. In December 2020, the commonwealth issued \$1.5 billion in fiscal 2021 revenue anticipation notes maturing in April, May and June 2021. Cash flow notes must be repaid by the end of the fiscal year.

Fiscal 2020 ended with a nonsegregated general fund cash position of \$3.4 billion, and according to the February 2021 cash flow statement, the state projects it will end with a general fund cash position of \$3.9 billion at fiscal year-end 2021. This balance does not reflect any of the projected \$4.5 billion expected to be received from the recent federal American Rescue Plan Act.

We view Massachusetts' revenue sources as diverse. Income tax was 59% of budgeted operating funds tax revenue in fiscal 2020, and sales tax was 23%.

We believe the commonwealth's revenue forecasting is good. Massachusetts prepares quarterly revenue updates and uses a consensus revenue forecast for budgeting purposes. The governor is required to recommend midyear budget adjustments if necessary. We believe that state budgeting has historically been done with an eye toward long-term structural balance, apart from the below-ARC pension contributions. However, we believe that Massachusetts is a high service state, with expenditures that could be difficult to reduce at times. In particular, Medicaid accounted for 34.4% of budgeted fiscal 2020 total operating expenditures and other uses, while health and human services accounted for 13.0%. Operating funds' debt service accounted for 5.2%, OPEB costs were budgeted at 1.0% of expenditures, and pension transfers 5.9%.

On a scale from '1.0' (strongest) to '4.0' (weakest), S&P Global Ratings assigned a score of '1.8' to Massachusetts' budgetary performance.

Debt And Liabilities

Debt

We calculate total GO bonds outstanding at fiscal year-end 2020, the most recent audited year, at \$23.9 billion, and total tax-supported debt at \$39.3 billion, including debt issued by Massachusetts' authorities and supported by the statewide sales tax, gas taxes, and debt of state agencies supported by annual state contract assistance payments. As of Feb. 28, 2021, the commonwealth reports it has \$24.2 billion of GO debt outstanding.

By most measures, Massachusetts' debt burden remains high compared with that of other states. The variable-rate portfolio is 6% of total GO debt, and the commonwealth actively manages this under formal debt policies. About \$750 million, or 3% of state GO debt, consists of unhedged variable-rate bonds, with the remainder of the variable-rate debt's interest rates synthetically fixed through interest rate swaps. There are no major plans to significantly expand its unhedged portfolio in the near term. The commonwealth also has \$300 million of direct-placement debt outstanding in two bond issues, whose structure we do not believe creates an unusual risk to Massachusetts. Tax-backed debt per capita is high, in our view, although stable, at what we calculate as \$5,697 at fiscal year-end 2020 and 7.1% of personal income. We also calculate combined total tax-backed debt service to operating expenditures as high at 6.9% on a generally accepted accounting principles basis.

The current five-year CIP projects debt service remaining below the commonwealth's calculation of 8% of budgeted revenues. A state debt and capital affordability committee conducts an annual debt affordability study. The committee includes seven voting members and eight nonvoting members from the legislature and is charged with formally reviewing the CIP and providing an estimate of debt authorization for the year. The current five-year CIP for fiscal years 2021 through 2025 calls for new bonding of \$2.5 billion, slightly higher than previous years, as part of a total five-year capital budget of \$4.8 billion. Our debt calculation includes special tax bonds supported by statewide tax sources in the ratios we use to assess total tax-supported debt. We view amortization of tax-backed debt as average at 42% over 10 years.

Pensions

We consider the commonwealth's pension funding discipline in recent years as poor, with Massachusetts funding substantially underfunding the ARC since 2011. ARC is calculated using previous Governmental Accounting Standards

Board (GASB) Statement 27 methodology because the more recent GASB Statements 67/68's actuarially determined contribution (ADC) is arrived at using commonwealth statutory law that is not based on the current year's full actuarial requirement. In fiscal years 2019 and 2020, Massachusetts is budgeted to pay 75% of ARC, and 76% in 2021. Every year the ARC is not funded, it will increase in future years until full ARC funding is reached. Currently, the commonwealth projects it will reach full ARC funding in fiscal 2026, based on increasing ARC contributions 9.63% per year, which will increase annual state contributions from \$2.8 billion in fiscal 2020 to \$4.9 billion in 2026, a substantial increase. We also calculate Massachusetts' pension contribution for state employees at 81% of the level needed to maintain static funding, and 66% of the level to meet minimum funding progress, which we view as weak.

Massachusetts has gradually lowered its retirement funds' investment return assumption in recent years, which we view as positive, but which has restrained improvement in its combined pension funded ratio and increased funding needs. The commonwealth lowered its assumed actuarial rate of return to 8.00% from 8.25% in 2013; from there it was lowered to 7.75% in 2015, 7.50% in 2016, 7.35% in 2018, and 7.25% in 2019. As part of its Jan. 1, 2021, actuarial valuation, the commonwealth will be using a 7.0% investment return assumption. However, the currently assumed return level is still above our pension criteria guidance guideline of 6.50%. The commonwealth reported a five-year pension fund rate of return of 6.11% as of fiscal 2020, and a one-year return in 2020 of 2.38%.

The combined pension funded ratio of the various state retirement systems' net pension liability fell slightly to a low 56.2% as of Jan. 1, 2020, on a GASB basis, from 59.3% in 2019, and 60.7% in 2018, in part because of the more conservative rate of return assumptions. The three-year average was 59%.

The net pension liability was \$47.4 billion as of a June 30, 2019, measurement date rolled forward by one year to June 30, 2020, or a high \$6,871 per capita and 8.6% of state personal income. We will believe pension ratios will remain weak until the commonwealth reaches annual ARC funding, which would be in 2026 under its current funding schedule, assuming Massachusetts meets its actuarial return and other assumptions.

Using the commonwealth's actuarial methodology and actuarial asset smoothing methods (not GASB), the funded ratio for the combined state employees', teachers', and Boston teachers' pension funds fell to 56.3% as of Jan. 1, 2019, down from its most recent high point of 71.1% in 2011. If Massachusetts continues to increase pension contributions by 9.63% per year, the commonwealth calculates under its actuarial assumptions that it would have a combined funded ratio of 64.4% in 2025. Based on Massachusetts' actuarial methodology, the commonwealth's primary government-combined unfunded pension liability was \$46.4 billion in fiscal 2020.

Massachusetts' current plan assumes 9.63% per year growth in commonwealth annual pension contributions to reach full amortization of the commonwealth's unfunded liability by fiscal 2036, four years ahead of Massachusetts' statutory requirement, assuming actuarial assumptions are met. However, from a funding standpoint, Massachusetts has continued to calculate its contribution by setting funding targets based on percentage increases to contributions rather than adjusting for increases necessary to keep level amortization of the liability. This translates into a back-loaded amortization of the liability.

Furthermore, the commonwealth continues to establish its contribution levels on a three-year lagged budgetary basis, although actuarial valuations are conducted each year. This policy of only adjusting the pension contribution schedule

every three years can cause Massachusetts to fall below full ADC funding when actuarial assumptions miss actual experience, such as missed investment returns, or actuarial assumptions themselves have been changed, such as the recent lowering of assumed rates of return. While a three-year lag in resetting pension contributions could provide Massachusetts with a more predictable funding schedule, we believe it also exposes the commonwealth to the risk of never catching up to full ADC funding if its actuarial assumptions prove too aggressive. The commonwealth has not contributed its full annual ADC since 2011, and we do not expect that it will do so in 2021.

In its most recent three-year funding schedule reset, Massachusetts updated its planned pension contributions to the aforementioned 9.63% per year, up from previously scheduled 8.9% annual increases, and 7.0% annual increases in the three-year plan before that. With the scheduled increases, the commonwealth projects the funded ratio on an actuarial basis will rise through 2025. In fiscal 2020, the commonwealth projects it will contribute \$3.1 billion, or 76% of the \$4.1 billion ARC, to its two main employees' retirement system. As part of our criteria, we look to the ratio of active-to-inactive members to determine how mature the system is and how it compares with the national average. For Massachusetts State Retirement Board and Massachusetts Teachers' Retirement System, the ratio of active-to-retirees is 1.40 and 1.36, respectively, and nearly in line with the national average. Experience studies are only conducted every six years as per statute, which we view as a weakness. Although the commonwealth updates portions of the studies more frequently, it has done this as needed rather than on a set schedule.

Other postemployment benefits

The state has a sizable OPEB but has made good funding progress in reducing its OPEB liabilities by putting money aside in an OPEB trust fund.

As of June 30, 2020, Massachusetts' retirement trust had a \$20.7 billion net unfunded OPEB liability, which we consider sizable, at \$3,002 per capita, although OPEB was cut significantly a few years ago due to various reform measures that were being phased in and deposits to an OPEB trust fund. However, the OPEB trust funded ratio has remained stable at a relatively low 6% of OPEB liabilities due to the recent pandemic-related recession.

Deposits to the trust fund enable a somewhat higher assumed actuarial discount rate under a blended interest rate assumption that assumes lower rates after trust fund assets are depleted, and which lowers actuarial unfunded liabilities. Massachusetts has dedicated a portion of tobacco settlement revenues toward its OPEB trust fund to provide a permanent funding source, which we consider a credit positive, although exact deposits have deviated from formula depending on the year of the enacted budget. The portion of tobacco settlement money dedicated to the OPEB trust fund was scheduled to increase in 10% increments each year, until it reaches 100%, although the incremental increase in contributions has been revised since 2016. The actual percentage of tobacco settlement revenue deposited in the OPEB trust fund in 2016, 2017, 2018, 2019, and 2020 was 30%, 30%, 10%, 30%, and 10%, respectively, and budgeted for 10% in 2021. In fiscal years 2018 and 2019, it was \$26.0 million and \$42.4 million, respectively, of excess capital gains tax was also transferred into the OPEB trust fund. In fiscal 2020, legislation suspended the transfer of capital gains tax into the OPEB trust. As of fiscal 2020, the OPEB trust fund was 6.4% funded on a GASB basis, with assets of \$1.4 billion.

On a scale from '1.0' (strongest) to '4.0' (weakest), S&P Global Ratings assigned a score of '3.5' to Massachusetts' debt and liability profile.

Massachusetts -- Combined Operating Funds

(Mil. \$)

	Fiscal 2018	Fiscal 2019	Fiscal 2020	Executive budget 2021 projection	Proposed 2022 budget
Income tax (late filings in 2020 accrued to fiscal 2020)	16,240	17,109	17,361	16,680	17,418
Sales tax	6,454	6,798	6,810	7,174	7,389
Total tax revenue	27,776	29,693	29,609	29,090	30,241
Transfers of dedicated taxes out	4,275	4,580	4,862	5,081	5,793
Federal reimbursements and grants	11,377	11,772	12,795	13,971	12,564
Total nontax revenue	19,130	20,607	20,717	21,723	20,694
Total revenues and other sources	42,642	45,767	45,488	45,533	45,308
Executive Office of Education appropriations	7,454	7,934	8,330	8,392	8,370
Safety net appropriations	22,038	23,136	24,135	25,609	25,091
Total expenditures and other uses	42,074	44,716	45,929	47,382	46,928
Operating surplus	568	1,051	(441)	(1,849)	(1,600)
Operating surplus as % of expenditures and other uses	1.4	2.4	(1.0)	(3.9)	(3.5)
Budget stabilization fund (BSF) balance	2,001	3,424	3,501	2,522	1,105
BSF as % of expenditures and other uses	4.8	7.7	7.6	5.3	2.4

Sources: Fiscal 2022 executive budget documents; Massachusetts Comptroller reports.

Related Research

Through The ESG Lens 2.0: A Deeper Dive Into U.S. Public Finance Credit Factors, April 28, 2020

Ratings Detail (As Of April 27, 2021)

Massachusetts GO		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Massachusetts go bnds cons loan ser 2019F due 05/01/2029		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Massachusetts CP A		
<i>Short Term Rating</i>	A-1+	Affirmed
Massachusetts CP B		
<i>Short Term Rating</i>	A-1+	Affirmed
Massachusetts GO		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Massachusetts GO		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Massachusetts GO		
<i>Long Term Rating</i>	AA/Stable	Affirmed

Ratings Detail (As Of April 27, 2021) (cont.)

Massachusetts GO		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Massachusetts GO bnds, consolidated loan of 2019 (Federally Taxable) ser 2019H due 09/01/2049		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Massachusetts GO cons loan of 2020 ser D due 03/01/2050		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Massachusetts GO rfdg bnds ser 2019 C due 05/01/2031		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Massachusetts GO rfdg bnds ser 2020A due 03/01/2042		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Massachusetts GO VRDB		
<i>Long Term Rating</i>	AA/A-1/Stable	Affirmed
Massachusetts GO VRDB		
<i>Long Term Rating</i>	AA/A-1+/Stable	Affirmed
Massachusetts GO (wrap of insured) (FGIC & BHAC) (SEC MKT)		
<i>Unenhanced Rating</i>	AA(SPUR)/Stable	Affirmed
Massachusetts GO (AGM)		
<i>Unenhanced Rating</i>	AA(SPUR)/Stable	Affirmed
Massachusetts GO (AGM) (SEC MKT)		
<i>Unenhanced Rating</i>	AA(SPUR)/Stable	Affirmed
Massachusetts GO (AMBAC)		
<i>Unenhanced Rating</i>	AA(SPUR)/Stable	Affirmed
Massachusetts GO (BAM) (SECMKT)		
<i>Unenhanced Rating</i>	AA(SPUR)/Stable	Affirmed
Massachusetts GO (BAM) (SECMKT)		
<i>Unenhanced Rating</i>	AA(SPUR)/Stable	Affirmed
Massachusetts GO (BAM) (SECMKT)		
<i>Unenhanced Rating</i>	AA(SPUR)/Stable	Affirmed
Massachusetts GO (BAM) (SECMKT)		
<i>Unenhanced Rating</i>	AA(SPUR)/Stable	Affirmed
Massachusetts GO (BAM) (SEC MKT)		
<i>Unenhanced Rating</i>	AA(SPUR)/Stable	Affirmed
Massachusetts GO (CIFG)		
<i>Unenhanced Rating</i>	AA(SPUR)/Stable	Affirmed
Massachusetts GO (FGIC)		
<i>Unenhanced Rating</i>	AA(SPUR)/Stable	Affirmed
Massachusetts GO (FGIC) (National)		
<i>Unenhanced Rating</i>	AA(SPUR)/Stable	Affirmed
Massachusetts GO (MBIA) (National)		
<i>Unenhanced Rating</i>	AA(SPUR)/Stable	Affirmed

Ratings Detail (As Of April 27, 2021) (cont.)

Massachusetts GO (SYNCORA GTY)		
<i>Unenhanced Rating</i>	AA(SPUR)/Stable	Affirmed
Massachusetts GO		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Massachusetts GO		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Massachusetts GO		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Massachusetts GO		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Massachusetts GO		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Boston Hsg Auth, Massachusetts		
Massachusetts		
Boston Hsg Auth (Massachusetts) APPROP		
<i>Long Term Rating</i>	A/Stable	Affirmed
Massachusetts Bay Transp Auth, Massachusetts		
Massachusetts		
Massachusetts Bay Transp Auth (Massachusetts) GOEQUIV		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Massachusetts Bay Transp Auth (Massachusetts) GOEQUIV RMKTD		
<i>Long Term Rating</i>	AA/A-1/Stable	Affirmed
Massachusetts Bay Transp Auth (Massachusetts) GOEQUIV (FGIC) (National)		
<i>Unenhanced Rating</i>	AA(SPUR)/Stable	Affirmed
Massachusetts Development Finance Agency, Massachusetts		
Massachusetts		
Massachusetts Dev Fin Agy (Massachusetts) GO		
<i>Long Term Rating</i>	AA/Stable	Affirmed
Univ of Massachusetts Bldg Auth, Massachusetts		
Massachusetts		
University of Massachusetts Bldg Auth (Massachusetts) GOEQUIV		
<i>Long Term Rating</i>	AA/A-1/Stable	Affirmed
Univ of Massachusetts Bldg Auth (Massachusetts) GOEQUIV		
<i>Long Term Rating</i>	AA/A-1+/Stable	Affirmed

Many issues are enhanced by bond insurance.

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