S&P Global Ratings

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

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Credit Profile		
US$400.0 mil GO bnds cons loan of 2019 ser E due 05/01/2049		
Long Term Rating	AA/Stable	New
US$200.0 mil GO bnds cons loan of 2019 ser D due 05/01/2039		
Long Term Rating	AA/Stable	New
US$100.0 mil GO bnds cons loan of 2019 ser C due 05/01/2029		
Long Term Rating	AA/Stable	New
Massachusetts GO		
Long Term Rating	AA/Stable	Affirmed

Rationale

S&P Global Ratings has assigned its 'AA' rating to the Commonwealth of Massachusetts' $100 million general obligation (GO) bonds consolidated loan of 2019 series C, $200 million GO bonds consolidated loan of 2019 series D, and $400 million GO bonds consolidated loan of 2019 series E. The outlook is stable.

In addition, S&P Global Ratings has affirmed its 'AA' rating on approximately $23 billion of parity GO bonds outstanding, and its 'A' rating on Boston Housing Authority housing project bonds (West Broadway Homes IV project), series 2003, supported by a commonwealth annually appropriated state-operating subsidy, subject to the terms of a trust agreement. Finally, S&P Global Ratings has affirmed its 'A-1+' short-term rating on the state's GO-secured commercial paper (CP). The outlook on all long-term ratings is stable.

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

- Deep and diverse economy, which continues to outperform the nation on several economic indicators;
- High income levels, with per capita income at 131% of the nation in 2017, the second-highest among the states;
- 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 budget stabilization fund (BSF) balance, equal to an estimated 4.5% of expenditures and other uses at fiscal year-end 2018, and projected at 5.4% at fiscal year-end 2019.

Offsetting factors include high debt, pension, and other postemployment benefit (OPEB) liabilities. Combined debt, unfunded pension, and OPEBs to gross state product (GSP) ranked sixth highest among all the states in fiscal 2017, according to our pension commentary "U.S. State Pensions Struggle For Gains Amid Market Shifts And Demographic

Headwinds" (published Oct. 30, 2018, on RatingsDirect).

In particular, the commonwealth has a low 60.7% combined pension funded ratio on a Governmental Accounting Standards Board (GASB) basis and has contributed less to its pension funds than the actuarial annual required contribution (ARC) in every fiscal year since 2011; however, Massachusetts has put in place a plan to increase annual pension contributions 8.9% per year to fully amortize unfunded pension liabilities by 2036; furthermore, the $892 million shortfall against ARC in fiscal 2019, which we view as a structural deficit, is only about 1.9% of estimated budgetary operating expenditures. The commonwealth has budgeted to pay 75% of the ARC in fiscal 2019, about the same level as the 73% paid in fiscal 2018.

We understand new-money bond proceeds will be used to fund various capital projects included in the commonwealth's five-year capital improvement plan (CIP).

Massachusetts' economy remains strong, even after steady growth in recent years that has outpaced national and regional trends by most measures. IHS Markit reports private-sector employment growth over the past three months (through July 2018) averaged a strong 4%. The professional, scientific, and technical services sector accounted for 20% of overall payroll growth, important in that these tend to be higher paying jobs, although perhaps contributing to rising home prices. Massachusetts has an above-average high-technology employment sector, which IHS estimates at about 10% of state employment, compared with 6.5% for the country as a whole. State personal income rose 3.3% in 2017, rising to 131% of that of the nation (second only to Connecticut) from 130% the year before. The commonwealth's average annual unemployment rate in 2018 was low at 3.3%, compared with 3.9% for the nation. Despite strong recent growth, IHS forecasts slightly lower state employment growth than the nation in the next few years at 1.0%, 0.8%, and 0.4% in calendar years 2019, 2020, and 2021, respectively, compared with 1.5%, 1.0%, and 0.5% for the nation for those respective years. In our view, Massachusetts' economic fundamentals and key anchors, which center on higher education, technology, finance, and health care, should contribute to continued expansion.

The commonwealth's operating revenues have come in better than budgeted over the past two years. Fiscal 2018 tax collections increased 8.3% over the previous year, much better than the 4.2% originally budgeted, excluding one-time tax settlements and judgments.

Massachusetts' originally adopted fiscal 2019 budget projected 2.2% growth in operating funds tax revenue and 2.1% overall growth in total budgeted operating funds revenue and other sources, including federal revenue and transfers in, and 4.0% growth in total budgeted operating expenditures and other uses, including transfers out. Actual year-to-date state tax collections for the first nine months of fiscal 2019 through March 2019 have come in 4.1% higher than the previous year. The state currently projects full-year fiscal 2019 growth in total budgeted revenues and other sources of 3.7% (including 3.1% growth in tax revenues), while projecting growth in expenditure and other uses of 5.2%, including additional midyear supplemental appropriations. The net result is that the state is projecting a small fiscal 2019 operating surplus of $285 million, or 0.6% of expenditures and other uses, instead of an originally budgeted slight operating deficit. However, this does not include an additional $494 million deposited to its BSF from excess capital gains tax and a consolidated operating surplus that was carried over from fiscal 2018, for a BSF deposit that is $126 million more than in the original budget forecast due to unexpectedly high capital gains tax and surplus carried over from fiscal 2018. If the 2019 current state forecast is realized, the BSF would rise to $2.5 billion at fiscal year-end 2019, or a good 5.4% of budgeted operating funds expenditures and other uses, up from 4.5% at fiscal year-end 2018.

We view the accumulation of budget reserves during good economic times as especially important from a credit perspective in that the state has historically shown some cyclicality in its finances and we view its fixed costs as moderately high. The state drew down its BSF in fiscal years 2013 and 2014, even while revenues were increasing, and then essentially level-funded the BSF with small deposits until fiscal 2018, when revenues began to come in substantially above budget. A key credit consideration in our view is whether the commonwealth will retain the build-up of the BSF above budgeted levels in fiscal years 2018 and 2019, or if it draw it down again when tax growth slackens. In this respect, the upcoming fiscal 2020 budget might provide guidance.

The governor's proposed fiscal 2020 budget would add $225 million to the BSF from excess capital gains tax, and $297 million overall. However, the legislature has overridden the governor's BSF proposals in recent years. The latest version of the Massachusetts house budget would retain recent gains in the BSF and add a similar $221 million to the BSF from excess capital gains tax. The state projects tax revenue growth of 2.7% in fiscal 2020 over the revised fiscal 2019 revenue forecast, including a statutory reduction in the personal income tax rate to 5.00% from 5.05%. The governor's budget proposal would increase operating spending by 1.5% over projected 2019 spending.

Although revenue growth has been strong in recent years, one contributor to the state's decision to level fund or draw down the BSF during fiscal years 2013-2017 has been various spending pressures, particularly from health care costs that were rising faster than revenue before fiscal 2017. As a consequence, the state had to make midyear budget adjustments in each of the three fiscal years 2015-2017. At fiscal year-end 2017, the BSF was 3.1% of budgetary expenditure and other uses. Healthcare spending has since been mitigated in part by greater scrutiny of Medicaid eligibility, which helped caused Medicaid enrollment member months to decline 1.9% in fiscal 2018 and 1.8% in 2019, particularly as adults are moved to the commonwealth's Health Insurance Connector Authority.

Additional potential long-term stresses include a state pension payment schedule that increases annual pension contributions by 8.9% compounded annually through 2036, a pace we believe likely to exceed revenue growth. Although we recognize that Massachusetts has made budgeting its fixed costs a priority, we also view the growth in these areas as placing increased pressure on the commonwealth's ability to maintain structural balance. We calculate that combined fiscal 2018 operating funds debt service, state pension contributions, and OPEB were about $5.3 billion on a budgetary basis, or about 12% of operating expenditures and other uses. Medicaid was an estimated additional $15.7 billion in fiscal 2018 (36%), while transfers to the commonwealth's Medical Assistance Trust Fund are projected to be $586.6 million.

On a generally accepted accounting principles (GAAP) basis, Massachusetts ended fiscal 2018 (the most recent audited year) with an available assigned and unassigned general fund balance of $1.51 billion, plus a BSF balance of $2.0 billion. This led to a combined available balance plus BSF of $3.52 billion, which we view as strong at 8.6% of general fund expenditures and transfers out, up from 5.9% at fiscal year-end 2017.

By most measures, we believe Massachusetts' debt burden remains high compared with that of other states. At fiscal year-end 2018, we calculate GO debt of $23.1 billion and total tax-supported debt of $38.8 billion, producing total tax-backed debt per capita of $5,622, and 8.4% of 2017 personal income. As of Feb. 28, 2019, the commonwealth had

$22.9 billion of GO debt outstanding. Planned debt issuance remains within the parameters of Massachusetts' debt affordability policy and bond cap. A capital and debt affordability committee includes seven voting and eight nonvoting members from the legislature and is charged with formally reviewing the CIP and providing an estimate of debt authorization for each year to stay within certain debt parameters. Massachusetts anticipates selling about $2.3 billion of new money capital debt in fiscal 2019 (including the current sale), similar to issuance levels in each of the past two years. We calculate fiscal 2018 total tax-backed debt service at 7.1% of general governmental spending on a GAAP audited basis, a level we view as moderately high.

Other long-term liabilities are also large, in our opinion. We believe Massachusetts' share of the net pension liability for combined state pensions systems is high at $37.7 billion as of the Jan. 1, 2018, valuation date on a GASB 67/68 basis, or $5,460 per capita, and 8.1% of 2017 personal income. The aggregate funded ratio improved slightly to 60.7% in 2018 from 59.5% the year before on a GASB basis, but the three-year average remained at 59%. Some of the reason net pension liabilities have not shown much improvement is that Massachusetts decided to lower its assumed actuarial return to a less aggressive 7.35% as of Jan. 1, 2018, which increased the total actuarial accrued liability by $1.52 billion. The rate was previously reduced earlier from 7.50% in 2016, and from 7.75% in 2015. The assumed rate of return will further decline to 7.25% as of Jan. 1, 2019, which the state estimates will increase actuarial accrued liability by $1.0 billion. Massachusetts sets its annual pension contribution based on its own methodology under state statute; it has not fully funded its ARC since fiscal 2011, but expects to reach full ARC funding by 2024 under its plan to increase pension contributions 8.9% per year to fully amortize the unfunded liability by 2036.

In our opinion, Massachusetts' unfunded OPEB is also moderately high, although it has decreased significantly following recent deposits into an OPEB trust fund. The state's net OPEB liability on a GASB 74 basis decreased to $14.9 billion as of a June 30, 2018, valuation date, or $2,160 per capita, using a 3.95% discount rate. This represents a large decrease from a net OPEB position of $19.8 billion in 2017, when the OPEB trust fund was smaller. The state's fiduciary OPEB net position was $1.2 billion in 2018, up from $996 million the year before. In 2018, the commonwealth originally budgeted to transfer 10% of tobacco settlement revenue into its OPEB trust fund, but subsequent legislation after the close of the fiscal year increased the percentage to 30%. The enacted fiscal 2019 budget reverts this back to 10% of tobacco settlement revenue, or approximately $25.1 million. In fiscal 2018, $16.1 million of excess capital gains tax was also transferred into the OPEB trust fund.

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.

Outlook

The stable outlook reflects our view that Massachusetts' strong economic growth and proactive management will allow the commonwealth to continue to manage potential budgetary pressures, even if midyear budget shortfalls develop in future fiscal years. We believe the current increase in projected fiscal year-end 2019 reserves is the result of small planned additions to reserves plus extra funds from unexpectedly strong revenues above budget. Our stable outlook anticipates that the commonwealth will budget for break-even operations during our two-year outlook horizon, and make midyear budget corrections should revenues turn downward, as well as bank a portion of unexpected revenue windfalls in its BSF. At this point in the economic cycle and at the current rating level, we expect Massachusetts to modestly improve its BSF and maintain good balances to prepare for the next recession.

Upside scenario

Should the commonwealth both make progress on its pension funding and set aside material budget reserves during periods of economic growth as a matter of budgeted policy, with the aim of sustainably achieving what we view as strong reserve levels, we could raise the rating or revise the outlook. If the final adopted budget for fiscal 2020 retained the recent unbudgeted increases in its BSF and further built reserves to what we consider strong levels on a budgeted basis (generally 8% of expenditures or more), we could also potentially raise the rating or revise the outlook.

Downside scenario

The rating could see downward pressure if Massachusetts fails to maintain near-structural balance during periods of economic expansion. Among the factors that could further pressure the rating are Medicaid costs outpacing revenue growth, reduced revenues in recessions due to income tax cyclicality because of the above-average presence of high-technology sector employment, the economic impact of federal tax reform state and local tax deduction caps on high tax states, and growing state fixed costs in excess of revenue growth that might lead to significant structural imbalance and greatly diminished reserves. Structural balance could specifically be pressured to the extent that Massachusetts fails to adhere to its current plan to increase annual pension contributions by 8.9% per year to amortize unfunded pension liabilities or if this proves insufficient to keep GASB pension funded ratios from materially declining.

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 accounted for about 36% of total fiscal 2018 spending (35% budgeted in 2019) while direct local aid accounted for about 13% in 2018 (13% budgeted in 2019). 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.

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 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 every facet 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 the past few years by the decision to adjust deposit thresholds and suspend required transfers into the fund. 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. A change in 2010 directed capital gains tax revenues of more than $1 billion to the fund, although Massachusetts has suspended or lowered this threshold in recent years. Legislation in 2012 indexed the $1 billion capital gains excess threshold to the growth in U.S. GDP. The statute also directs 5% of the excess to the state retiree benefits trust fund and another 5% to pension liabilities. We believe this measure has the benefit of enhancing the BSF, while decreasing budget reliance on cyclical capital gains taxes. However, for a number of years state budgets have overridden this formula. 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. A revised threshold and lower collections in fiscal 2017 eliminated the potential for a transfer in that fiscal year. The threshold was again modified in the fiscal year 2018 and 2019 budgets; nevertheless, capital gains came in above the modified higher thresholds, allowing BSF deposits beyond initially budgeted levels. Some judgments and settlements must also be deposited in to 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. Officials also introduced an asset-liability management policy in fiscal 2014.

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. An initiative to add an extra 4% income tax to annual income of more than $1 million a year gathered enough signatures to be on the November 2018 ballot, but did not survive a court challenge regarding its ability to restrict use of revenue proceeds under the commonwealth's constitution and was not voted on.

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' labor market fared well in 2018, spurred by above-average growth in the high-paying professional, scientific, and technical services sector. The average annual unemployment rate declined to a very low 3.3% in 2018, following an already low 3.7% in 2017, and compared to a 2018 federal unemployment rate of 3.9%. The U.S. Census Bureau population estimate for Massachusetts in 2018 is 6.9 million, a 0.57% increase over 2017, following a 0.50% increase in 2016. Over the past 10 years, state population increased 6.7%, compared to 7.6% for the nation. Although below that of the nation, state population growth has outpaced the region since 2007 and we expect this trend to continue. The commonwealth's age dependency ratio of nonworking age population to working age population, at 56.3% in 2017, was better than that of the nation (61.8%).

The commonwealth has always had high income levels. Per capita personal income increased to $67,630 in 2017, or 131% of the national level, level with the year before and up from 127% in 2014. 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 nature of the jobs being created and the pace of expansion. IHS Markit forecasts real GSP to rise 2.1% in 2019, 2.1% in 2020, and 1.8% in 2021, slightly under its respective U.S. forecast of 2.3%, 2.1%, and 1.8% for the same years. In 2017, GSP per capita was strong at 132% of the nation.

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 22.0% of total state nonfarm employment in 2017 according to the Bureau of Labor Statistics, compared to 15.8% for the nation. This is followed by trade and transport (16.0% versus 18.8% nationally) and professional business services (15.7% versus 13.9%). The manufacturing and construction sectors, known for their cyclicality, represented only 6.8% and 4.2% 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 estimates about 10% of state employment is in high-technology-related industries. In addition, Massachusetts' defense-related industries continue to perform well, and the commonwealth ranks high in the value of federal defense and research contract awards. However, it is unclear how recent federal tax reform, with its limitation on state and local tax deductions, might affect high-tax states such as Massachusetts.

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

The state 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 state overrode the BSF formula during fiscal years 2015-2019 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, while the build-up in the BSF in fiscal years 2018 and 2019 was slower than what would have occurred if the statute had not been overridden.

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 came in above the reset higher trigger, producing a $463 million transfer to the BSF that, along with a small $13 million deposit required to be transferred from unclaimed property tax net revenue, brought the BSF up to 4.5% of expenditures and other uses. The fiscal 2019 adopted budget again raised the excess trigger amount above statute, but projected a larger $368 million transfer to the BSF. Due to stronger-than-budgeted revenue, the state now projects the BSF will increase by $494 million in fiscal 2019, bringing it up to $2.5 billion, or what we view as a good 5.4% of budgetary expenditures and other uses.

Massachusetts' originally adopted fiscal 2019 budget projected 2.2% growth in operating funds tax revenue and 2.1% overall growth in total budgeted operating funds revenue and other sources, including federal revenue and transfers in, and 4.0% growth in total budgeted operating expenditures and other uses, including transfers out. Actual year-to-date state tax collections for the first nine months of fiscal 2019 through March 2019 have come in 4.3% higher than the previous year. The state currently projects full-year fiscal 2019 growth in total budgeted revenues and other sources of 3.7% (including 3.1% growth in tax revenues), while projecting growth in expenditure and other uses of 5.2%, including additional midyear supplemental appropriations. The net result is that Massachusetts is projecting a small fiscal 2019 operating surplus of $285 million, or 0.6% of expenditures and other uses, instead of an originally budgeted slight operating deficit. However, this does not include an additional $494 million deposited to its BSF from excess capital gains tax and a consolidated operating surplus that was carried over from fiscal 2018. The $494 million deposit was $126 million more than the original budget forecast due to unexpectedly high capital gains tax and surplus carried over from fiscal 2018. If the 2019 current state forecast is realized, the BSF would rise to $2.5 billion at fiscal year-end 2019, or a good 5.4% of budgeted operating funds expenditures and other uses, up from 4.5% at fiscal year-end 2018.

The BSF reached a peak of $2.335 billion at fiscal year-end 2007, before being drawn down to $670 million at fiscal year-end 2010 during the Great Recession. 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.

We view Massachusetts' liquidity as strong, with the help of annual cash-flow note borrowing. The commonwealth does not engage in interfund borrowing. It currently projects to end fiscal 2019 with a general fund cash balance of $3.0 billion, or 6.5% of projected expenditures and other uses, and estimates its month-end cash low point in fiscal 2019 will have been July 2018, with a $2.3 billion nonsegregated operating funds cash balance. Earlier in fiscal 2019, the commonwealth issued $1.5 billion in revenue anticipation notes, maturing in April, May, and June 2019. Cash-flow notes must be repaid by the end of the fiscal year. Fiscal 2018 ended with a nonsegregated operating funds cash position of $3.6 billion.

We view Massachusetts' revenue sources as diverse. Income tax was 58% of operating funds tax revenue in fiscal 2018 on a budgetary basis, 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. We believe that state budgeting has historically been done with an eye toward long-term structural balance, apart from 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 plus health and human services spending accounts for 49% of fiscal 2018 total operating expenditures and other uses, while operating funds' debt service accounted for 5.3%. Pension funding costs from operating funds in fiscal 2018 increased 8.9% to $2.4 billion, or another 5.4%, while OPEB costs for current retirees are about another 1.2%, not including a $25 million transfer to the state's OPEB trust fund to pre-fund future liabilities.

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 2018, the most recent audited year, at $23.1 billion, and total tax-supported debt at $38.8 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. The commonwealth reports it had $22.9 billion of GO debt outstanding as of Feb. 28, 2019. By most measures, Massachusetts' debt burden remains high compared with that of other states. The variable-rate portfolio is 12% of total GO debt, and the commonwealth actively manages this under formal debt policies. About $1.5 billion, or 8% 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 about $664 million of direct-placement debt outstanding in five bond issues, whose structure we do not believe creates an unusual risk to Massachusetts. Tax-backed debt per capita is high, in our view, at what we calculate as $5,622 at fiscal year-end 2018 and 8.4% of 2017 personal income. We also calculate combined total tax-backed debt service to operating expenditures as high at 7.1% on a GAAP basis.

The current five-year CIP projects debt service remaining below the commonwealth's calculation of 8% of budgeted revenues through fiscal 2023. 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 2018 through 2022 calls for new bonding of $2.3 billion, about level with that of recent years, as part of a total five-year capital budget of $4.4 billion. Our debt calculation includes special tax bonds supported by statewide tax sources in the ratios we use to assess total tax-supported debt.

Pensions

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, to 7.75% in 2015, to 7.50% in 2016, and to 7.35% in 2018. It is further schedule to decrease to 7.25% in 2019.

The combined pension-funded ratio of the various state retirement systems' net pension liability was 60.7% in fiscal 2018 on a GASB basis as of Jan. 1, 2018, up marginally from 59.5% in 2017, and 57.3% in 2016, in part because of the more conservative rate of return assumptions. The net pension liability was $37.7 billion in fiscal 2018, or a high $5,460 per capita and 8.1% of 2017 state personal income.

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 improved very slightly to 57.0% as of Jan. 1, 2018, but down from its most recent high point of 71.1% in 2011. If Massachusetts continues to increase pension contributions by 8.9% per year, the commonwealth calculates under its actuarial assumptions that it would have a combined funded ratio of 55.1% in 2023. Based on Massachusetts' actuarial methodology, the commonwealth's primary government combined unfunded pension liability was $41.1 billion, as of Jan. 1, 2018.

Massachusetts' current plan assumes 8.9% 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. 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 slightly more 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 actuarially determined contribution (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 2019.

In its most recent three-year funding schedule reset, Massachusetts updated its planned pension contributions to annual increases to the aforementioned 8.9% per year, up from previously scheduled 7.0% annual increases. Despite these increased contributions, the funded ratio on an actuarial basis is projected to decline through 2023, although Massachusetts currently projects it will reach full ADC funding by 2024 and start to improve thereafter. In fiscal 2019, the commonwealth projects it will contribute $2.6 billion, or 75% of the $3.5 billion ARC, to its two main employees' retirement system, up from 73% in 2018, and 72% in 2017, but down from an 81% contribution in fiscal 2014. 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 1.41 and 1.39, 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

As of June 30, 2018, Massachusetts had a $14.9 billion net unfunded OPEB liability, which we consider sizable, at $2,160 per capita, but down significantly from $17.4 billion as of June 30, 2017, due to various reform measures that have been phased in and deposits to an OPEB trust fund. Deposits to the trust fund also enable a 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 suspended since 2016. In 2018, the commonwealth originally budgeted to transfer 10% of tobacco settlement revenue into its OPEB trust fund, but subsequent legislation after the close of the fiscal year increased the percentage to 30%. The enacted fiscal 2019 budget reverts this back to 10% of tobacco settlement revenue, or approximately $25.1 million. In fiscal 2018, $16.1 million of excess capital gains tax was also transferred into the OPEB trust fund.

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.

Commonwealth of Massachusetts Financial Summary

	--Fiscal year ended June 30--					
(Mil. $)	**2019e**	**2018**	**2017**	**2016**	**2015**	**2014**
Budgetary basis operating funds						
Total budgeted revenues and other sources	46,685	45,036	41,785	40,838	38,972	37,219
Total expenditures and other uses	46,399	44,097	41,819	40,927	38,852	37,643
Net operating surplus	285	939	(34)	(89)	120	(424)
As % of expenditures and other uses	0.6	2.1	(0.1)	(0.2)	0.3	(1.1)
Rainy-day fund	2,495	2,001	1,300	1,292	1,252	1,248
As % of expenditures and other uses	5.4	4.5	3.1	3.2	3.2	3.3
Total operating funds balances	2,672	2,387	1,448	1,482	1,571	1,451
As % of expenditures	5.8	5.4	3.5	3.6	4.0	3.9
Audited GAAP basis- general fund (GF)						
Revenues	N/A	40,469	37,396	36,690	35,030	32,592
Expenditures	N/A	37,798	36,507	35,531	34,084	31,300
Net other financing sources and uses	N/A	(1,493)	(1,125)	(1,329)	(1,037)	(1,689)
Net result	N/A	1,178	(236)	(169)	(92)	(398)
Total ending GF balance	N/A	3,516	2,338	2,574	2,743	2,835
as a % of expenditures and transfers out	N/A	8.7	6.0	6.7	7.5	8.2
Available GF balance (assigned+unassigned balances)	N/A	1,514	1,037	1,283	1,491	1,587
Budget stabilization fund (BSF) balance	N/A	2,001	1,300	1,292	1,252	1,248
Combined available GF and BSF balance as % of expenditures and transfers out	N/A	8.7	6.0	6.7	7.5	8.2

Commonwealth of Massachusetts Financial Summary (cont.)

(Mil. $)	--Fiscal year ended June 30--					
	2019e	2018	2017	2016	2015	2014
Debt						
GO debt	N/A	23,143	22,717	21,668	20,802	19,597
Total tax-supported debt	N/A	38,803	37,119	35,867	34,549	33,993
Tax-supported debt per capita	N/A	5,622	5,408	5,254	5,084	5,026
Tax-supported debt % of total personal income	N/A	8.4	8.3	8.3	8.5	8.8

GAAP--Generally accepted accounting principles. GO--General obligation. e--Estimated. N/A--Not applicable.

Ratings Detail (As Of April 18, 2019)

Massachusetts Bay Transp Auth subord sales tax		
Long Term Rating	AA/Stable	Affirmed
Massachusetts Bay Transp Auth subord sales tax		
Long Term Rating	AA/Stable	Affirmed
Massachusetts Bay Transp Auth subord sales tax		
Long Term Rating	AA/Stable	Affirmed
Massachusetts Bay Transp Auth subord sales tax		
Long Term Rating	AA/Stable	Affirmed
Massachusetts Bay Transp Auth subord sales tax		
Long Term Rating	AA/Stable	Affirmed
Massachusetts CP		
Short Term Rating	A-1+	Affirmed
Massachusetts CP A		
Short Term Rating	A-1+	Affirmed
Massachusetts CP B		
Short Term Rating	A-1+	Affirmed
Massachusetts GO		
Long Term Rating	AA/Stable	Affirmed
Massachusetts GO		
Long Term Rating	AA/Stable	Affirmed
Massachusetts GO		
Long Term Rating	AA/Stable	Affirmed
Massachusetts GO VRDB		
Long Term Rating	AA/A-1/Stable	Affirmed
Massachusetts GO VRDB		
Long Term Rating	AA/A-1+/Stable	Affirmed
Massachusetts GO VRDB		
Long Term Rating	AA/A-1/Stable	Affirmed
Massachusetts GO (wrap of insured) (ASSURED GTY & AMBAC) (SEC MKT)		
Unenhanced Rating	AA(SPUR)/Stable	Affirmed

Ratings Detail (As Of April 18, 2019) (cont.)		
Massachusetts GO (wrap of insured) (FGIC & BHAC) (SEC MKT)		
Unenhanced Rating	AA(SPUR)/Stable	Affirmed
Massachusetts GO (AGM) (SEC MKT)		
Unenhanced Rating	AA(SPUR)/Stable	Affirmed
Massachusetts GO (BAM) (SECMKT)		
Unenhanced Rating	AA(SPUR)/Stable	Affirmed
Massachusetts GO (BAM) (SECMKT)		
Unenhanced Rating	AA(SPUR)/Stable	Affirmed
Massachusetts GO (BAM) (SECMKT)		
Unenhanced Rating	AA(SPUR)/Stable	Affirmed
Massachusetts GO (BAM) (SECMKT)		
Unenhanced Rating	AA(SPUR)/Stable	Affirmed
Massachusetts GO (BAM) (SEC MKT)		
Unenhanced Rating	AA(SPUR)/Stable	Affirmed
Massachusetts GO (FGIC)		
Unenhanced Rating	AA(SPUR)/Stable	Affirmed
Massachusetts GO (MBIA) (Assured Gty)		
Unenhanced Rating	AA(SPUR)/Stable	Affirmed
Massachusetts GO		
Long Term Rating	AA/Stable	Affirmed
Massachusetts GO		
Long Term Rating	AA/Stable	Affirmed
Massachusetts GO		
Long Term Rating	AA/Stable	Affirmed
Massachusetts GO		
Long Term Rating	AA/Stable	Affirmed
Massachusetts GO		
Long Term Rating	AA/Stable	Affirmed
Massachusetts GO		
Long Term Rating	AA/Stable	Affirmed
Massachusetts GO		
Long Term Rating	AA/Stable	Affirmed
Massachusetts GO		
Unenhanced Rating	AA(SPUR)/Stable	Affirmed
The Commonwealth Of Massachusetts General Obligation Bonds Consolidated Loan of 2006 Series A		
Long Term Rating	AA/A-1/Stable	Affirmed
Boston Hsg Auth, Massachusetts		
Massachusetts		
Boston Hsg Auth (Massachusetts) APPROP		

Ratings Detail (As Of April 18, 2019) (cont.)		
Long Term Rating	A/Stable	Affirmed
Massachusetts Bay Transp Auth, Massachusetts		
Massachusetts		
Massachusetts Bay Transp Auth (Massachusetts) GOEQUIV		
Long Term Rating	AA/Stable	Affirmed
Massachusetts Bay Transp Auth (Massachusetts) GOEQUIV		
Long Term Rating	AA/A-1/Stable	Affirmed
Massachusetts Bay Transp Auth (Massachusetts) GOEQUIV RMKTD		
Long Term Rating	AA/A-1/Stable	Affirmed
Massachusetts Bay Transp Auth transp sys bnds (Massachusetts)		
Unenhanced Rating	AA(SPUR)/Stable	Affirmed
Massachusetts Bay Transp Auth (Massachusetts)		
Unenhanced Rating	AA(SPUR)/Stable	Affirmed
Massachusetts Development Finance Agency, Massachusetts		
Massachusetts		
Massachusetts Dev Fin Agy (Massachusetts) GO		
Long Term Rating	AA/Stable	Affirmed
Univ of Massachusetts Bldg Auth, Massachusetts		
Massachusetts		
University of Massachusetts Bldg Auth (Massachusetts) GOEQUIV		
Long Term Rating	AA/A-1/Stable	Affirmed
Univ of Massachusetts Bldg Auth (Massachusetts) GOEQUIV		
Long Term Rating	AA/A-1+/Stable	Affirmed

Many issues are enhanced by bond insurance.