

RatingsDirect®

Massachusetts; Appropriations; General Obligation; General Obligation Equivalent Security; Joint Criteria; Sales Tax

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Table Of Contents

Rationale

Outlook

Governmental Framework

Financial Management

Budget Management Framework

Economy

Budgetary Performance

Debt And Liabilities

Massachusetts; Appropriations; General Obligation; General Obligation Equivalent Security; Joint Criteria; Sales Tax

| Credit Profile | | |
|---|-------------------|----------|
| US\$550.0 mil GO bnds consolidated loan of ser 2016G due 09/01/2046 | | |
| <i>Long Term Rating</i> | AA+/Negative | New |
| US\$284.545 mil GO rfdg bnds ser 2016C due 04/01/2026 | | |
| <i>Long Term Rating</i> | AA+/Negative | New |
| Massachusetts GO | | |
| <i>Long Term Rating</i> | AA+/Negative | Affirmed |
| Massachusetts Bay Transp Auth SALESTAX | | |
| <i>Long Term Rating</i> | AA+/A-1/Negative | Affirmed |
| Massachusetts Bay Transp Auth SALESTAX | | |
| <i>Long Term Rating</i> | AA+/A-1+/Negative | Affirmed |

Rationale

S&P Global Ratings has assigned its 'AA+' rating and negative outlook to the Commonwealth of Massachusetts \$550 million general obligation (GO) bonds consolidated loan of 2016 series G and \$284.54 million GO refunding bonds of 2016 series C. At the same time, S&P Global Ratings affirmed its 'AA+' rating on the commonwealth's approximately \$21.8 billion of parity GO bonds outstanding, its 'AA' rating on Massachusetts' appropriation secured debt, and its 'A+' rating on the commonwealth's moral obligation debt. The outlook is negative.

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

- Strong historical budget performance, with timely monitoring of revenues and expenditures and swift action when needed to make adjustments, with a focus on structural solutions to budget balance;
- Strong financial, debt, and budget management policies, including annualized formal debt affordability statements, and multiyear capital investment and financial planning;
- Adequate budget stabilization fund (BSF) balance;
- High wealth and income levels; and
- Deep and diverse economy, which continues its steady recovery.

We understand that the proceeds from the consolidated loan of 2016 series G are expected to be used to fund various capital projects. The proceeds of the series 2016C GO refunding bonds are expected to be used to refund previously issued debt for net present value savings. There is no extension of maturities with savings taken over the life of the bonds.

S&P Global Ratings believes the commonwealth's high debt burden and high unfunded pension and other postemployment benefit (OPEB) liabilities are offsetting considerations to the current rating. Although we view

Massachusetts' total postretirement liabilities as relatively high, we believe the commonwealth has been actively managing these liabilities with a focus on cost control and reform in recent years.

Massachusetts' economy has recovered steadily, outpacing national and regional trends by most measures. Real state GDP rose 2.4% in 2015, compared with 2.0% for the nation. The commonwealth's average annual unemployment rate in 2015 was 5.0% compared with 5.3% for the nation. The state unemployment rate has fallen further to 4.2% as of June 2016, compared with 4.9% for the nation. Employment growth following the financial crisis was strong relative to that of other states and the commonwealth regained its pre-recession employment peak in 2013, according to the Bureau of Labor Statistics. However, IHS Global Insight Inc. forecasts slightly lower state employment growth in 2016, 2017, and 2018 at 1.6%, 1.2%, and 0.8%, respectively, in those years, compared with its forecast of 1.8%, 1.5%, and 1.0% for the U.S. in those years. In our view, Massachusetts' economic fundamentals and key anchors, which center on higher education, technology, and health care, should contribute to continued expansion. Income growth has also been strong relative to that of other states, with 2015 per capita personal income ranked second in the U.S. behind that of Connecticut, at 128% of the U.S. average.

We believe Massachusetts' budget has generally been structurally balanced in recent years with good reserves, although two rounds of midyear budget adjustments were needed in fiscal 2015 and additional adjustments in fiscal 2016 are being considered to end the fiscal year in balance. As of June 2016, state general fund revenues were \$484 million short of the revised 2016 budget forecast year-to-date. Management took action to address revenue shortfalls through spending restrictions, payroll caps, use of unneeded fund balances, acceleration of revenue collections (reimbursements), and other year-end closing measures including supplemental appropriations proposed by the governor on July 14, which require legislative approval. Although management does not expect to draw down the budget stabilization, these measures have not yet been approved and could be subject to change. Previously, Massachusetts calculated one-time budget items in the 2016 budget at \$629 million, or only 1.5% of projected expenditures, indicating in our view near structural balance, despite the projected small draw down in overall reserves. It is unclear at this point to what extent some of these gap-closing measures are one-time in nature. Nevertheless, with expected midyear corrections, we calculate fiscal year-end 2016 will close with operating funds balances, including the BSF, at \$1.4 billion and only 3.5% of budgeted expenditures and other uses based on state projections.

Massachusetts has attributed fiscal 2016 revenue shortfalls to legislative spending overrides of the governor's budget vetoes, a two-day state sales tax holiday, and lower-than-estimated business and individual income tax revenues because of increased tax refunds and lower-than-expected payments with returns and estimated payments. It has also indicated that fiscal 2016 general fund expenditures are also slightly exceeding budgeted appropriations, both in Medicaid and non-Medicaid areas, although the commonwealth believes that higher federal cost reimbursements will fully offset the increased Medicaid-related expenditures.

The governor proposed a fiscal 2017 budget that further reduced the use of one-time revenues and made a modest deposit to Massachusetts' rainy-day fund (for more information, see "Massachusetts Governor's Budget Proposal is Mildly Positive," published Feb. 4, 2016, on RatingsDirect). In our opinion, based on revised revenue projections, we believe Massachusetts is unlikely to make any significant contributions to its BSF based on excess capital gains transfers. Management currently anticipates transferring approximately \$30 million to its BSF, bringing the total to

\$1.29 billion.

In 2015, the state had budgeted originally a drawdown in its BSF, but with the help of two rounds of mid-fiscal 2015 budget adjustments, the commonwealth produced an operating surplus, of which \$124 million was deposited into the BSF. This was slightly more than the originally budgeted BSF drawdown, producing what we view as a nominal \$4 million increase in the BSF. Combined operating fund balances at fiscal year-end 2015, including the BSF, were \$1.57 billion, or 4.0% of expenditures and other uses. State tax revenues have been at or slightly above budgeted levels in recent years; midyear shortfalls have largely been the result of above-budgeted spending or nontax revenues coming in below budget, in our opinion.

The commonwealth drew down its BSF by \$308 million in fiscal 2014 to end with a total operating fund balance of 3.9% of expenditures, on a budgetary basis. The most recent peak of the BSF was in 2012, when it reached \$1.65 billion, or 4.9% of operating expenditures, and when total operating reserves, including the BSF, reached 5.9%.

On a generally accepted accounting principles (GAAP) basis, Massachusetts ended fiscal 2015 (the most recent audited year) with an available assigned and unassigned general fund balance of \$1.49 billion, plus a BSF balance of \$1.25 billion. This led to a combined balance that we view as strong at 7.5% of general fund expenditures and transfers out, down somewhat from 8.3% at fiscal year-end 2015 and 10.1% at fiscal year-end 2014.

By most measures, we believe Massachusetts' debt burden remains high compared with that of other states. At fiscal year-end 2015, we calculate GO debt of \$20.8 billion and total tax-supported debt of \$34.5 billion, producing total tax-backed debt per capita of \$5,084, and 8.3% of personal income. The commonwealth reports it had \$21.7 billion of GO debt and \$3.4 billion in special tax bonds outstanding as of June 30, 2016. Planned debt issuance remains within the parameters of the commonwealth's 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 capital investment plan and providing an estimate of debt authorization for each year to stay within certain debt parameters. Massachusetts' current capital plan calls for \$2.19 billion of capital debt issuance in fiscal 2017, similar to the amount in last year's capital plan for fiscal 2016. We calculate fiscal 2015 total tax-backed debt service at 7.7% of general governmental spending, a level we view as moderately high.

Other long-term liabilities are also large, in our opinion. We believe state's share of the combined net pension liability for state employees' and teachers' retirement systems of \$30.2 billion as of the most recent Jan. 1, 2015, valuation date, or \$4,451 per capita, and 7.3% of personal income, is high. This liability is expected to increase to \$37.9 billion. Massachusetts continues to fully fund its actuarial annual determined contribution (ADC) based on its own methodology, which is on a lagged statutory basis; on a GAAP basis, it has not fully funded its ADC since fiscal 2011. A decline in the commonwealth's actuarial pension funded ratio as of the Jan. 1, 2015, actuarial valuation date was in part due to lower actuarial return assumptions and new experience data, which we believe shows conservative management of pension liabilities. In our opinion, Massachusetts' unfunded OPEB is also moderately high, at \$15.9 billion as of Jan. 1, 2015, net of \$610.0 million of actuarial assets in an OPEB trust fund, or \$2,339 per capita. Massachusetts intends to make payments to the OPEB trust fund with 5% of excess capital gains tax distributed to the BSF (although this requirement was suspended in fiscal 2015), and a portion of tobacco settlement money that increases in 10% increments each year. In fiscal 2016, the incremental tobacco money increase to the OPEB trust was

suspended with the commonwealth contributing 30% of tobacco settlement money, or approximately \$77 million, to the OPEB trust fund, contingent on unexpended debt service appropriations.

The commonwealth estimates that its combined budgetary debt service, pension payments, and OPEB payments will be about 12% of budgeted expenditures in fiscal 2016. For fiscal 2017, combined budgetary debt service, pension payments, and OPEB payments increase to 12.7% of budgeted expenditures and other uses.

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.

Although a score of '1.9' is indicative under our criteria of a rating of 'AA', we have notched up the rating to reflect the commonwealth's strong financial management practices, such as timely proactive midyear budget adjustments, and a recent move to more conservative pension investment return assumptions that, while temporarily lowering pension funded ratios, in our opinion position them to better manage market volatility.

Outlook

The negative outlook reflects a projected decline in financial reserves in fiscal years 2016 and 2017 from what we view was an adequate level at the end of fiscal 2015. Despite a period of economic expansion and generally positive revenue trends, Massachusetts has faced downward revenue revisions and midyear spending adjustments that have resulted in declining reserves. Despite a policy of setting aside above-trend capital gains tax during periods of strong economic growth, the commonwealth has suspended scheduled transfers of excess capital gains tax revenue to the BSF in fiscal years 2015, 2016, and likely into 2017.

Downside scenario

We had viewed the policy of setting aside above-trend capital gains tax during good times as a positive budget management tool that could mitigate potential future budget volatility. Conversely, management's decision to suspend these transfers shortly after adopting them, despite positive economic performance, is viewed negatively from a credit standpoint. In our view, continued structural imbalance and reduction of reserves could contribute to a downgrade over the two-year outlook horizon if we believe that financial flexibility is impaired—especially during a period of positive economic growth—and leaves the state less equipped to deal with the next economic downturn. Although we view the commonwealth's decision to lower its pension system's rate of return assumption down to be more in line with national averages, we recognize that required contributions will also increase. The state's ability to structurally balance its budget and build its reserves is especially important in light of relatively high and rising fixed costs related to debt and retirement funding. Continued pension underfunding together with declines in the state's funded ratios could also lead us to lower the state's rating over the outlook horizon.

Upside scenario

Should the commonwealth reverse the trend of reserve reductions, we could revise the outlook to stable.

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 accounts for about 35% of total spending while direct local aid accounts for about 13% of originally budgeted 2016 spending. Funding levels for major program areas have been adjusted as needed. Massachusetts voters have approved revenue growth limitations, but these have not negatively affected 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.

An initiative to raise tax rates on those earning more than \$1 million by 4% of income has gathered enough signatures for the legislature to consider a referendum. In May 2016, the legislature agreed to the amendment. If at least 25% of the next legislature supports the measure, which we believe is likely, it will appear on the November 2018 statewide ballot.

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 policy limitation as stipulated by the commonwealth's debt affordability policy published annually with its capital investment plan which is designed to limit debt service on the state's 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 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 our 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 a 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.
- It has implemented five-year financial forecasting. We understand that the state will update this annually and integrate it into the budget process.

- A five-year capital improvement plan (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, although the process has sometimes changed from year to year.

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 the most recent fiscal year.

Massachusetts has a statutorily established BSF that prescribes a mechanism for funding, as well as funding levels. Statute requires the deposit of 100% of consolidated net surplus in any given year into 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 the state has suspended this in the past two years. Legislation from 2012 indexes the capital gains amount to growth in U.S. gross domestic product. The statute also directs 5% of the excess to the state retiree benefits trust fund and the pension liability fund. We believe this measure has the benefit of enhancing the fund while decreasing budget reliance on this cyclical revenue source. Nevertheless, the commonwealth diverted to the general fund in fiscal years 2015 and 2016 excess capital gains tax that would otherwise have gone to the BSF. Some judgments and settlements must also be deposited 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.

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 administrative and finance 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 major tax sources of the state were not approved, the legislature can amend an initiative, and a recent initiative rolled back inflation indexing for a gas tax. An initiative to add an extra 4.0% income tax to annual income of more than \$1 million a year received enough signatures for the legislature to consider placing it on the November 2018 ballot. This year's legislature gave the initiative its initial approval in May 2016, and it will be placed on the 2018 ballot assuming 25% of the next legislature also approves it, which we believe is likely.

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

Massachusetts' labor market fared relatively well in 2015. According to IHS Global Insight, private-sector payroll gains averaged 1.6%, compared with 1.9% for the U.S. Unemployment rates have declined at a steady pace due to positive employment trends. The average annual unemployment rate for 2015 was 5.0%, which was below the 5.3% rate for the nation, while the state unemployment rate as of June 2016 had fallen to 4.2%, compared with 4.9% for the nation. The U.S. Census Bureau population estimate for Massachusetts in 2015 is 6.8 million, a 0.7% increase over 2014, and a 6.1% increase over the past 10 years, compared with 8.8% for the nation. Population growth has outpaced the region since 2007 but continues to lag the nation and we expect this trend to continue. The commonwealth's age dependency ratio of nonworking age population to working age population at 55.5% in 2014 was better than that of the nation (60.2%).

Massachusetts has always had high income levels. Per capita personal income increased to \$61,032 in 2015, or 128% of the national level--a ratio the commonwealth has held consistently for the past seven years. 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 Global Insight projects state gross product to rise 1.5 % in 2016, 2.2% in 2017 and 2018, and 1.9% in 2019, at rates slightly under, but comparable with, its forecast for the U.S. In 2015, gross state product per capita was 126% of the nation.

The economy has diversified and education and health services now make up the primary employment sectors, accounting for 21.8% of total non-farm employment in 2015 according to the Bureau of Labor Statistics, compared with 15.5% for the nation. This is followed by trade and transport (16.3% versus 19.0% nationally) and professional business services (15.3% versus 13.8%). Cyclical sectors, such as manufacturing and construction, represent only 7.2% and 4.0% 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. In addition, its defense-related industries continue to perform well. Massachusetts ranks eighth out of the 50 states by value of federal defense and research contract awards. Any federal fiscal consolidation could affect this part of the

economy.

On a scale from '1.0' (strongest) to '4.0' (weakest), S&P Global Ratings assigned a score of '1.8' 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. A threshold of \$1 billion was in effect for fiscal years 2011, 2012, and 2013. Since then, the threshold is subject to annual adjustment 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, capital gains taxes that would have otherwise flowed to the BSF paid general fund budget expenditures. The enacted 2016 budget assumes the fiscal 2016 capital gains collections threshold (suspended in fiscal 2016) to be approximately \$1.09 billion, with the excess diverted to the general fund instead of the BSF to be approximately \$300 million. Although the governor's fiscal 2017 budget proposal included partially resuming a \$206 million deposit of capital gains to the BSF, this was still \$150 million short of the original statutory formula for deposit of excess capital gains tax. Furthermore, based on revisions to the commonwealth's revenue estimates, Massachusetts does not anticipate making a transfer of excess capital gains unless these exceed current revenue estimates. It estimates the BSF will increase by roughly \$8 million to \$1.296 billion at the end of fiscal 2017 based on investment earnings and, assuming no use of the BSF, to close out fiscal 2016; this is down from estimates of \$1.528 billion in the governor's proposed budget.

The fiscal 2017 budget was approved by the governor on July 8, 2016. The enacted budget is based on a revenue estimate that was lowered by \$636 million to \$26.23 billion (from \$26.86 billion) to account for weaker tax collections in fiscal 2016. At \$26.23 billion, revenues in fiscal 2017 are expected to grow by a more modest 3.8% from estimated actual collections in fiscal 2016. Total revenues available, including federal reimbursements, beginning fund balances, and interfund transfers total \$42.01 billion. Total budgeted expenditures and other uses total \$42.23 billion and exceed available revenues by approximately \$223 million. In our view, the budget is nearly balanced with some limited use of one-time revenues. Despite being in the eighth year of economic recovery and experiencing positive revenue trends, in our view, budget worries remain in regard to growth in MassHealth spending and the slow build-up of the BSF during a period of positive revenue growth, and despite policies that were intended to more aggressively build up reserves to help the commonwealth manage through revenue downturns.

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 excess capital gains tax to build up the fund again to \$1.65 billion at fiscal year-end 2012. The BSF stood at \$1.25 billion at fiscal year-end 2015, or 3.2% of operating expenditures, following a \$124 million deposit after the end of the fiscal year from surplus operating revenues into the BSF, offset by budgeted fiscal 2015 BSF draws, for a net increase of \$4 million in the BSF. Total operating reserves at fiscal year-end 2015, including the BSF, were \$1.57 billion, or 4.0% of expenditures and

other uses, which Massachusetts is projecting to fall slightly to \$1.442 billion at fiscal year-end 2016, or 3.4% of expenditures and other uses.

We believe the commonwealth is somewhat exposed to cyclical swings in capital gains tax revenue, which Massachusetts projects will constitute about 5% of fiscal 2017 tax revenues. However, we also believe the commonwealth has a good history of making timely midyear budget adjustments when needed. Before the proposed fiscal 2016 budget adjustments of about \$311 million, Massachusetts calculated one-time budget items in the budget at \$629 million, or only 1.5% of projected expenditures, indicating what we view as near-structural balance, despite the projected small draw down in overall reserves. Overall reserves declined by \$129 million in fiscal 2016 due to expenditures exceeding revenues; however, the BSF reserve increased by \$27.3 million due to transfers related to growth in abandoned property tax revenues.

We view Massachusetts' liquidity as strong, with the help of annual cash flow note borrowing. The commonwealth does not engage in interfund borrowing. Massachusetts currently projects to end fiscal 2016 with a general fund cash balance of \$2.3 billion, and estimates its month-end cash low point in fiscal 2016 will have been February 2017, with a \$1.72 million general fund cash balance. In fiscal 2016, the commonwealth issued \$1.2 billion in revenue anticipation notes, maturing in April, May, and June 2016. Cash flow notes must be repaid by the end of the fiscal year. Fiscal 2016 ended with a non-segregated general fund cash position of \$2.14 billion. For fiscal 2017, the commonwealth is issuing \$1.5 billion in cash flow notes. It currently projects ending fiscal year 2017 with \$2.278 billion in non-segregated cash.

We view Massachusetts' revenue sources as diverse. Income tax was 58% of operating funds tax revenues in fiscal 2015 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. However, we believe that Massachusetts is a high service state, with expenditures that may be difficult at times to reduce. In particular, Medicaid plus health and human services spending accounts for 48% of the fiscal 2016 budget expenditures, while operating funds' debt service accounts for about 6%. Pension funding costs from operating funds in fiscal 2016 are estimated at \$1.97 billion, or 5%, while OPEB costs for current retirees are about another 1%.

On a scale from '1.0' (strongest) to '4.0' (weakest), S&P Global Ratings assigned a score of '1.7' to Massachusetts' budgetary performance.

Debt And Liabilities

We calculate total GO bond proceeds outstanding at fiscal year-end 2015, the most recent audited year, at \$20.8 billion, and total tax-supported debt at \$34.5 billion, including debt issued by state authorities and supported by the statewide sales tax, as well as debt of state agencies supported by annual state contract assistance payments. The commonwealth reports it had \$21.8 billion of GO debt outstanding as of July 31, 2016. By most measures, Massachusetts' debt burden remains high compared with that of other states. The variable-rate portfolio is 18% of total GO debt, and the commonwealth actively manages this under formal debt policies. About \$1.6 billion, or 7% 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. Massachusetts has a multiyear asset liability management program that could increase its exposure to unhedged variable-rate debt. However, there are no major plans in the near future to significantly expand its unhedged portfolio. In the past several years, the overall portfolio of variable-rate debt has diversified, and put risk has fallen significantly, in our opinion. The commonwealth also has about \$960.5 million of direct placement debt, whose structure we do not believe creates an unusual risk to the state. Tax-backed debt per capita is high, in our view, at what we calculate as \$5,084 at fiscal year-end 2015 and 8.3% of personal income. We also calculate combined total tax-backed debt service to operating expenditures as high at 7.7% on a GAAP basis.

The current five-year CIP projects debt service to remain below the commonwealth's calculation of 8% of budgeted revenues through fiscal 2020. 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 CIP for fiscal 2017 calls for \$2.19 billion of bonding, about level compared with that of recent years, as part of a fiscal 2017 total capital budget of \$4.1 billion. Our debt calculation includes special tax bonds supported by statewide tax sources in the ratios we use to assess total tax-supported debt.

Massachusetts continues to gradually lower its investment return assumption for its fiscal 2016, which we view as positive, but which translates into further declines in its combined funded ratio. Although still subject to revision, a draft valuation of the commonwealth's total pension obligation suggests a combined pension funded ratio to 56% funded as of Jan. 1, 2016, from 61% in January 2015 based on market value of assets. The total actuarial funded ratio declined to 57.0% from 59% in 2015. The funded ratio remains far below the actuarial 78.6%-funded ratio in 2008. Governmental Accounting Standards Board 68's breakout of the state-only primary government net pension liability of \$37.9 billion for the combined state employees, teachers, and Boston teachers' pension funds, is up from \$30.2 billion, based on a fiscal 2016 valuation as of Jan. 1, 2015. We calculate this is \$5,572 per capita, and 9.2% of personal income, which we consider high. In fiscal 2016, the Pension Retirement Investment Trust (PRIT) provided a 2.3% return on investments. Based on a three-, five- and 10-year average, the PRIT returns have been 7.68%, 7.05% and 5.69%, respectively. Massachusetts attributes the relatively low funded ratio to recognition of previous-year investment losses and certain adjustments to actuarial assumptions, optional transfer of Optional Retirement Program members into Massachusetts State Employee Retirement System, and the adoption of an employee retirement incentive program, lowering the investment return assumption to 7.50% in 2016 from 7.75%, which we view as more conservative.

However, the funded ratio remains below the average funded ratio for other states. Massachusetts has continued to fully fund its actuarial annual required pension contribution on a lagged budgetary basis, using valuation projections from earlier years, which in recent years has resulted in annual funding less than the commonwealth's actuarial annual required contribution level under GAAP. In fiscal 2016, the commonwealth contributed 76% of ADC to its two main employees' retirement system, in part due to the more conservative rate of return assumptions in the most recent valuation. For fiscal 2017, it has budgeted to fund 72% of the \$3.06 billion ADC.

Massachusetts had a \$15.9 billion unfunded actuarial accrued OPEB liability as of Jan. 1, 2015, which we consider sizable, at \$4,451 per capita, but down from \$16.3 billion recorded in 2012, as various reform measures were phased in

and OPEB trust fund deposits have been made. The commonwealth has dedicated tobacco settlement revenues toward its OPEB trust fund to provide a permanent funding source, which we consider a credit positive, although trust fund deposits were made from other sources recently. The portion of tobacco settlement money dedicated to the OPEB trust fund is scheduled to increase in 10% increments each year, until it reaches 100%, although in fiscal 2016 the incremental increase was suspended. In fiscal 2016, the commonwealth expects to contribute 30% of tobacco settlement money, or approximately \$77 million, to the OPEB trust fund. For fiscal 2017, the enacted budget suspended the 10% increase and instead funded the transfer at 10% of tobacco settlement money or \$25.7 million, a substantial decline from prior-year requirements. The governor has proposed an amendment that would bring the fiscal 2017 contribution back to 30% or \$77 million; however, the legislature has not yet acted on this proposal. The trust had actuarial assets of \$610.0 million as of Jan. 1, 2015. In fiscal 2014, the commonwealth funded 49% of its actuarial annually required OPEB contribution.

On a scale from '1.0' (strongest) to '4.0' (weakest), S&P Global Ratings assigned a score of '3.4' to Massachusetts' debt and liability profile.

| Ratings Detail (As Of August 23, 2016) | | |
|--|--------------------|----------|
| Massachusetts Bay Transp Auth sr sales tax | | |
| <i>Long Term Rating</i> | AA+/Negative | Affirmed |
| Massachusetts Bay Transp Auth sr sales tax (AGM) (MBIA) | | |
| <i>Unenhanced Rating</i> | AA+(SPUR)/Negative | Affirmed |
| Massachusetts GO VRDBs - C | | |
| <i>Long Term Rating</i> | AA+/A-1+/Negative | Affirmed |
| Massachusetts GO VRDBs 2000A | | |
| <i>Long Term Rating</i> | AA+/A-1/Negative | Affirmed |
| Massachusetts GO VRDBs 2000B | | |
| <i>Long Term Rating</i> | AA+/A-1/Negative | Affirmed |
| Massachusetts GO VRDBs 2006A | | |
| <i>Long Term Rating</i> | AA+/A-1+/Negative | Affirmed |
| Massachusetts GO (wrap of insured) (ASSURED GTY & AMBAC) (SEC MKT) | | |
| <i>Unenhanced Rating</i> | AA+(SPUR)/Negative | Affirmed |
| Massachusetts GO (wrap of insured) (FGIC & BHAC) (SEC MKT) | | |
| <i>Unenhanced Rating</i> | AA+(SPUR)/Negative | Affirmed |
| Massachusetts GO (AGM) (SEC MKT) | | |
| <i>Unenhanced Rating</i> | AA+(SPUR)/Negative | Affirmed |
| Massachusetts GO (FGIC) | | |
| <i>Unenhanced Rating</i> | AA+(SPUR)/Negative | Affirmed |
| Massachusetts GO (MBIA) (Assured Gty) | | |
| <i>Unenhanced Rating</i> | AA+(SPUR)/Negative | Affirmed |
| Massachusetts GO | | |
| <i>Long Term Rating</i> | AA+/Negative | Affirmed |

| Ratings Detail (As Of August 23, 2016) (cont.) | | |
|---|--------------------|----------|
| Massachusetts GO | | |
| <i>Long Term Rating</i> | AA+/Negative | Affirmed |
| Massachusetts GO | | |
| <i>Long Term Rating</i> | AA+/Negative | Affirmed |
| Massachusetts GO | | |
| <i>Long Term Rating</i> | AA+/Negative | Affirmed |
| Massachusetts GO | | |
| <i>Long Term Rating</i> | AA+/Negative | Affirmed |
| Massachusetts GO | | |
| <i>Long Term Rating</i> | AA+/Negative | Affirmed |
| Massachusetts GO | | |
| <i>Long Term Rating</i> | AA+/Negative | Affirmed |
| Massachusetts Bay Transp Auth sr sales tax | | |
| <i>Unenhanced Rating</i> | AA+(SPUR)/Negative | Affirmed |
| Massachusetts GO | | |
| <i>Unenhanced Rating</i> | AA+(SPUR)/Negative | Affirmed |
| Boston Hsg Auth, Massachusetts | | |
| Massachusetts | | |
| Boston Hsg Auth (Massachusetts) APPROP | | |
| <i>Long Term Rating</i> | A+/Negative | Affirmed |
| Massachusetts Bay Transp Auth, Massachusetts | | |
| Massachusetts | | |
| Massachusetts Bay Transp Auth (Massachusetts) var rate gen transp sys bnds 2000A-1 & A-2 ser dtd 03/09/2000 RMKTD dtd 09/30/2011 due 03/01/2030 | | |
| <i>Long Term Rating</i> | AA+/A-2/Negative | Affirmed |
| Massachusetts Bay Transp Auth (Massachusetts) GO | | |
| <i>Long Term Rating</i> | AA+/Negative | Affirmed |
| Massachusetts Bay Transp Auth (Massachusetts) GOEQUIV | | |
| <i>Long Term Rating</i> | AA+/A-1/Negative | Affirmed |
| Massachusetts Bay Transp Auth (Massachusetts) GO (AGM) | | |
| <i>Unenhanced Rating</i> | AA+(SPUR)/Negative | Affirmed |
| Massachusetts Bay Transp Auth transp sys bnds (Massachusetts) | | |
| <i>Unenhanced Rating</i> | AA+(SPUR)/Negative | Affirmed |
| Massachusetts Bay Transp Auth (Massachusetts) | | |
| <i>Unenhanced Rating</i> | AA+(SPUR)/Negative | Affirmed |
| Massachusetts Dept of Transp, Massachusetts | | |
| Massachusetts | | |
| Massachusetts Dept of Transp (Massachusetts) GO | | |
| <i>Long Term Rating</i> | AA+/A-1/Negative | Affirmed |
| <i>Unenhanced Rating</i> | NR(SPUR) | |

Ratings Detail (As Of August 23, 2016) (cont.)

| | | |
|--|--------------------|----------|
| Massachusetts Dept of Transp (Massachusetts) GO | | |
| <i>Long Term Rating</i> | AA+/Negative | Affirmed |
| Massachusetts Dept of Transp (Massachusetts) GO VRDO 2010A-1 | | |
| <i>Long Term Rating</i> | AA+/A-1+/Negative | Affirmed |
| Massachusetts Dept of Transp (Massachusetts) GO VRDO 2010A-2 A-7 | | |
| <i>Long Term Rating</i> | AA+/A-1 | Affirmed |
| <i>Unenhanced Rating</i> | AA+(SPUR)/Negative | Affirmed |
| Massachusetts Dept of Transp (Massachusetts) GO VRDO 2010B | | |
| <i>Long Term Rating</i> | AA+/Negative | Affirmed |
| Massachusetts Dept of Transp (Massachusetts) JOINTCRIT | | |
| <i>Long Term Rating</i> | AA+/A-1 | Affirmed |
| <i>Unenhanced Rating</i> | AA+(SPUR)/Negative | Affirmed |
| Massachusetts Dept of Transp (Massachusetts) VRDBs 2010A-7 | | |
| <i>Long Term Rating</i> | AA+/A-1+/Negative | Affirmed |
| Massachusetts Development Finance Agency, Massachusetts | | |
| Massachusetts | | |
| Massachusetts Dev Fin Agy (Massachusetts) GO | | |
| <i>Long Term Rating</i> | AA+/Negative | Affirmed |
| Univ of Massachusetts Bldg Auth, Massachusetts | | |
| Massachusetts | | |
| University of Massachusetts Bldg Auth (Massachusetts) GO | | |
| <i>Long Term Rating</i> | AA+/A-2/Negative | Affirmed |
| Univ of Massachusetts Bldg Auth (Massachusetts) GOEQUIV | | |
| <i>Long Term Rating</i> | AA+/A-1+/Negative | Affirmed |

Many issues are enhanced by bond insurance.

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