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Commonwealth of Massachusetts

Strong economy makes outsized liabilities affordable

Massachusetts' (Aa1 stable) debt and pension liabilities are among the highest in the nation and will remain elevated given its borrowing practices, which include issuing debt on behalf of other municipal governments. Massachusetts' strong economy has kept pace with growing liabilities, but difficult decisions may be ahead in the event the state's trend of above-average economic growth is reversed due to its aging population.

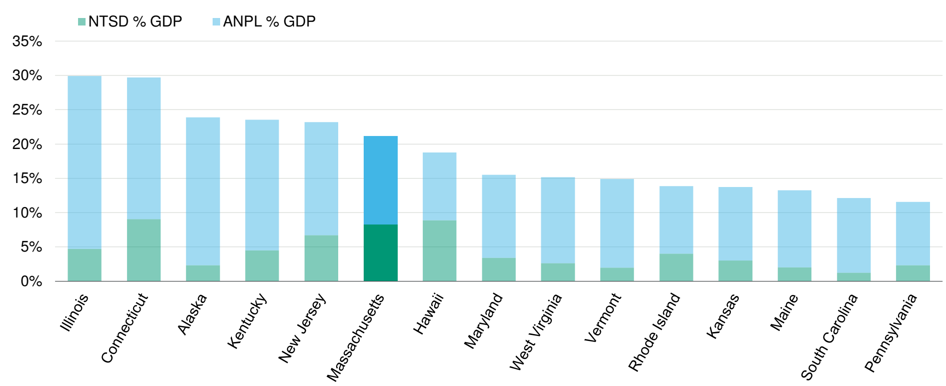
» **Massachusetts' debt and pension liabilities are sixth highest among the 50 states, as a percentage of GDP.** The combined state and local government debt burden is more moderate.

» **Borrowing on behalf of other governments has helped to drive up Massachusetts' liabilities.** The commonwealth has amassed large liabilities, in part, by borrowing for schools and mass transit; many other states handle this borrowing at the local level. State pension funding has been lower than levels needed to keep liabilities from growing.

» **Massachusetts' growing economy is providing a solid base to keep pace with its high liabilities.** The state's higher education, technology and healthcare sectors are among the strongest in the nation. But future economic slowing, potentially driven by the commonwealth's aging population, could result in challenging budget decisions ahead.

Exhibit 1

Massachusetts debt and pension liabilities are sixth highest in the nation
State net tax supported debt (NTSD) and state adjusted net pension liability (ANPL) as a % of gross domestic product 2016



*State NTSD debt data as of fiscal 2017 as reported by Moody's; State ANPL data as of fiscal 2016 as reported by Moody's; GDP data as of 2016
Source: Moody's Investors Service; US Bureau of Economic Analysis

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Massachusetts' long-term liabilities are among the highest in the nation

Massachusetts high debt and pension liabilities weigh on the commonwealth's overall credit quality, with its significant leverage distinguishing it from most of its state peers. Liabilities have been manageable, though, because of a more moderate burden across the whole tax base.

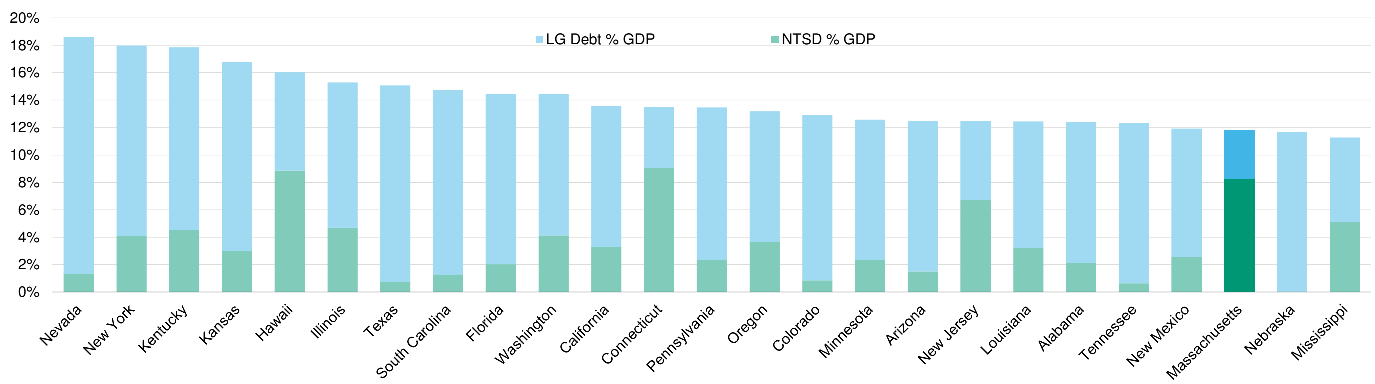
Massachusetts has one of the highest debt burdens in the nation, with the third highest net tax supported debt (NTSD) burden and sixth highest combined debt and adjusted net pension liability (ANPL) burden. The commonwealth's 2017 tax supported debt equaled 8.3% of its GDP, significantly higher than the sector median of 2.1%. Adding in pension liabilities, the percentage increases to nearly 21%, three times' the sector median of 7.0%.

These figures, however, reflect borrowing for school construction and mass transit that other states account for at the local level. When factoring in debt issued by local governments, as reported by the US census, Massachusetts' leverage is more moderate. State and local debt represents 11.8% of Massachusetts' GDP, ranking the state 23rd and approximating the sector median of 11.2% (see exhibit 2). Including adjusted net pension liabilities for both the state and local governments, Massachusetts' leverage is likely to increase in comparison to its peers.

Exhibit 2

Massachusetts' total state and local government debt burden more in line with peers

State NTSD + local government debt as a % of GDP



*State NTSD debt data as of fiscal 2017 as reported by Moody's; Local Government debt data as of fiscal 2016 as reported by US Census; GDP data as of 2016

Source: State NTSD data from Moody's Investors Service; Local Government debt data from US Census; GDP from US Bureau of Economic Analysis

Leverage reflects sizable borrowing for downstream entities

Two major components of the state's borrowing are done for schools and transit authorities, which together are a quarter of Massachusetts' outstanding debt. This practice distinguishes it from some of its peers and reflects the state's active involvement in ensuring effective service delivery at the local level.

The commonwealth borrows for school district capital improvements across the state through the Massachusetts School Building Authority (MSBA, Aa2 stable senior, Aa3 stable subordinate). The program's outstanding debt, which is paid with dedicated statewide sales taxes, was a significant 14.4% of NTSD in 2017. Other states largely leave school construction costs to be born by local entities, but Massachusetts is not the only one to borrow for school capital projects. Florida (Aa1 stable) borrows heavily for school construction via its Public Education Capital Outlay program (Aa1 stable), in addition to at least five other states.

Massachusetts also takes an active role in funding capital costs for transit operations. Statewide sales tax revenues are committed to pay debt issued by the Massachusetts Bay Transportation Authority (MBTA, Aa2 stable), which was 9.7% of NTSD in 2017. The state also provides a general obligation backstop pledge on ferry system debt.

Commonwealth debt leverage also reflects prudent funding of capital maintenance costs

In recent years the administration has focused its capital improvement plans on addressing maintenance needs of existing assets. As a result of these road and bridge infrastructure investments, Massachusetts has a lower infrastructure maintenance backlog.

The commonwealth enacted two programs in 2010 and 2014, the Accelerated Bridge and Rail Enhancement programs, to address its backlog of infrastructure needs. As of 2017, approximately 8.2% of the commonwealth's debt outstanding was issued to address these critical infrastructure needs and its investment paid off. Based on Federal Highway Administration data, in 2007 11.8% of the state's bridges were deemed deficient. That has fallen to 9.3%, the most recent data show, just slightly greater than the 9% state median, and the state's high wealth means it can afford further improvements (see Exhibit 3).

Even with existing borrowing practices, the commonwealth's related authorities still face mounting capital maintenance costs. For example, MBTA's capital backlog is $7.3 billion, reflecting its status as the nation's oldest transit system, in addition to being located in the growing Boston (Aaa stable) metropolitan area with difficult weather conditions. Massachusetts schools are in overall good condition but 19% of buildings require moderate or extensive renovation in the near future, according to the MSBA's 2016 school survey. Leverage is likely to increase toward MSBA's statutory limit of $10 billion as the state focuses on addressing these needs.

Exhibit 3

Massachusetts has invested heavily to improve its bridges

Percent of deficient bridges compared to per capita personal income

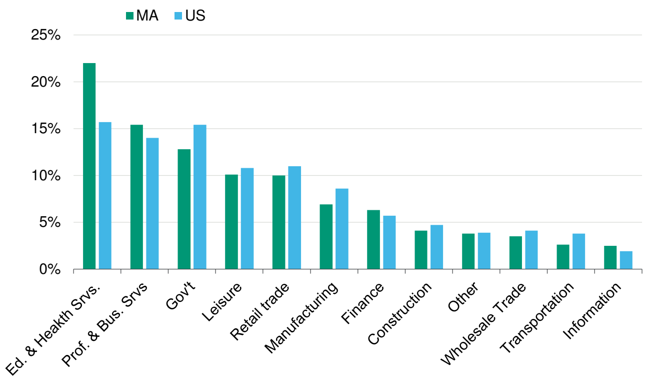
Source: US Federal Highway Administration and Moody's Investors Service

Strong economy positions state to keep pace with long-term liabilities

Massachusetts' economy is well positioned to keep pace with its long-term liabilities. Economic growth has been stronger than the national average, with employment increasing at an average annual rate of 0.6% since 2000, including the two periods of economic declines. During this period the state experienced a shift away from manufacturing jobs dominating employment, to jobs in education, healthcare and professional services. These three sectors now make up almost 40% of total state nonfarm employment, up from 31% in 2000, according to the Bureau of Labor Statistics (BLS). Conversely, manufacturing fell to 6.9% from 12.1% over the same period. High-tech jobs are 8.3% of the state's employment, well above the national rate of 4.8% (See Exhibit 4).

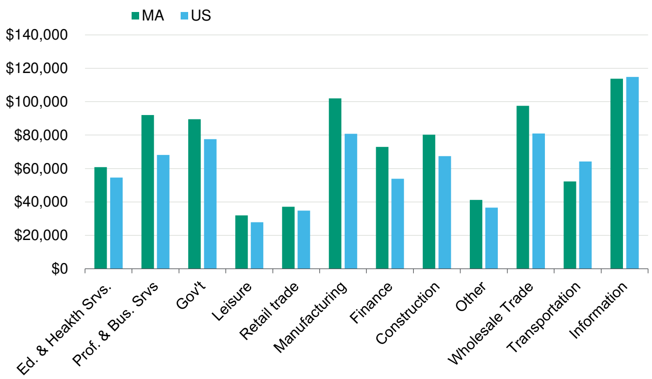
Average wages in every industry in Massachusetts except transportation/utilities and information outpace the nation, according to BLS (see Exhibit 5). Except for the two-year decline during the most recent recession, wages have steadily grown across the commonwealth, outpacing the nation as a whole. Between 2007 and 2016, average annual wage and salary growth in the commonwealth was 1.7%, exceeding the national average annual rate of 1.2%. Reflecting wage gains, per capita income reached 131% of the US average in 2017. At $505.8 billion, the commonwealth's gross domestic product, or measurement of its total economic output, placed it 11th among states in 2016. Its GDP per capita now is the highest of any state.

Exhibit 4
Eds, meds and white collar jobs dominate Massachusetts employment
Percentage of total employment



Source: Bureau of Labor Statistics

Exhibit 5
Wages in almost every Massachusetts industry outpace the US
Average industry wages

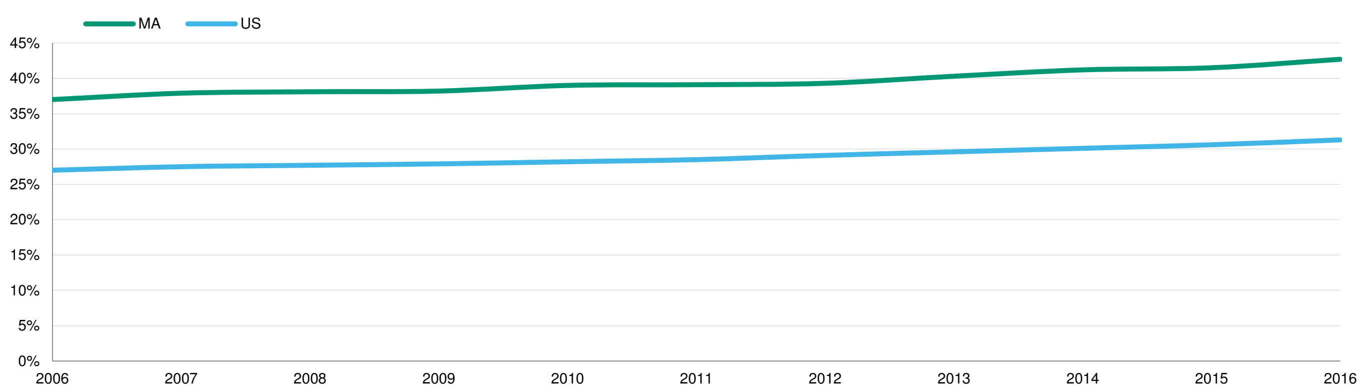


Industries are ordered based on percentage of Massachusetts total employment.
Source: Bureau of Labor Statistics

Population growth, however, has been less robust (see Exhibit 5). Currently the 15th largest state by population, the number of commonwealth residents grew to 6.8 million from 6.3 million between 2000 and 2016, a nearly 8.0% growth rate, but almost half the US rate of 15.0%.

The state population grayed over this period, too. While the state's percentage of working age residents is 40%, approximating the rate of the US, this portion of the population has been shrinking. The number of prime working age residents, or people 25 to 54 years old, declined by 4.5% since 2000. This is a striking contrast to the US 4.0% growth rate of working age residents over the same period. The median age in the commonwealth is now 39.4 years or 13th highest in the nation, exceeding the national median age of 37.9 years. Favorably, the commonwealth supplies employers with a well-trained labor pool. By 2016 nearly half the commonwealth's people of working age, 25 years and older, had a bachelor's degree, significantly exceeding the national rate of 31.3% (see Exhibit 6).

Exhibit 6
Massachusetts' labor pool consistently exceeds national levels of educational attainment
Percent of population 25 and older with bachelor's degree or higher



Sources: US Census Bureau; University of Massachusetts Donahue Institute Massachusetts Economic Due Diligence Report Q2 2018

The state has become an attractive place to live and work. The Tax Foundation ranks Massachusetts' business tax climate 22nd in the nation, with a low sales and individual income tax ranking, balanced out by a burdensome property tax levy.

Massachusetts' economy is strong, but a slowdown may be on the horizon (see Exhibit 7). Some declines are already starting to show, with GDP growth slowing to 1.6% in the first quarter of 2018, below the national growth rate of 2.3%. Moody's Analytics predicts this trend of lower GDP growth to continue through 2020, when the state's economy is only expected to grow by 0.9%. The slowing economy is in part because of the aging work force, according to University of Massachusetts Donahue Institute.[1] Aging is likely to continue over the near term, as Moody's Analytics predicts working age populations will decline slightly to below 40% of total state residents by 2020, with a slow decline continuing to 37% by 2040.

Exhibit 7
Massachusetts' growth may taper off in the coming two years

Massachusetts' wealth and growth have outpaced the US…

	MA	US
GDP Average Annual Growth (2013-2017)	4.5%	3.0%
Employment Average Annual Growth (2013-2017)	1.6%	1.5%
Avg Annual Salary and Wage Growth (2007-2016)	1.7%	1.2%
Population change 2000-2016	8.0%	15.0%
GDP Per Capita (2016)	$ 65,281	$ 57,542
Per Capita Income (2017)	$ 65,890	$ 50,392

… but a slight slow down may be on the horizon

		MA	US
GDP Annual Growth (Moody's Analytics Forecast)			
	2019	1.7%	1.9%
	2020	0.9%	1.0%
Employment Annual Growth (Moody's Analytics Forecast)			
	2019	1.7%	1.2%
	2020	-0.1%	0.2%

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

Should the projected economic slow down come to fruition, it may put the state in a position of having to make difficult budgetary decisions to accommodate its elevated fixed costs while maintaining adequate service delivery and balancing annual budgets. Regardless of the use of funds borrowed, the commonwealth has committed itself to repaying significant liabilities. Fixed costs have been an elevated 20% of revenue since fiscal 2014, significantly exceeding the 50 state median of 9-10% during this period. High fixed costs reduce the commonwealth's budgetary flexibility, exposing the state to more difficult budgetary decisions when revenues decline. Favorably, the commonwealth is moderately prepared to handle a recession, with its diversified revenue structure, as well as moderate expenditure flexibility and reserves, balancing out the aforementioned high costs.

Moody's related publications

States - US: Medians - State debt continues slow growth trend, April 2018

Medians - Moderate Adjusted Net Pension Liability Growth in 2016 Precedes Spike in 2017, September 2017

To access any of these reports, click on the entry above. Note that these references are current as of the date of publication of this report and that more recent reports may be available. All research may not be available to all clients.

Endnotes

1 MassBenchmarks Bulletin April 27, 2018

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