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CREDIT OPINION
9 July 2019

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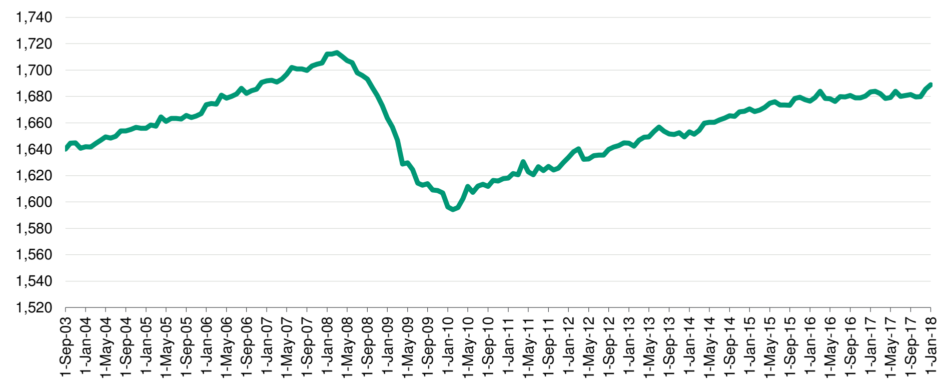
Connecticut (State of)

Update to credit analysis following affirmation of rating

Summary

Connecticut (A1 stable) has high income levels, strong governance, and strong liquidity, offset by high fixed costs for debt service, pension, and post-employment benefits relative to the state's budget. Unfunded pension liabilities combined with debt outstanding are among the highest, relative to revenues, of any state in the country. The rating also reflects a lagging economy that is highly dependent on volatile revenue sources and recent consecutive years of population loss. Recently, the state has been able to build considerable reserves, improving its preparedness for economic downturns and revenue volatility.

Exhibit 1
Connecticut total employment still well short of pre-recession peak



Source: US BLS; Moody's Analytics

Credit strengths

» Wealthiest state in the nation with per capita personal income levels well above national levels

» Demonstrated willingness to make mid-year budget adjustments

» Recently-enacted pro-active initiatives to mitigate impacts of revenue volatility and build rainy day fund

Credit challenges

» Fixed costs for debt, pension and other post-employment benefits (OPEB) relative to budget are among the highest in the nation and restrict budgetary flexibility

» Vulnerability to financial market fluctuations due to effect on capital gains for very high-wealth residents and employment in the financial services sector

» Unfavorable demographic trends resulting in population loss and an aging population

Rating outlook

Connecticut's outlook is stable, reflecting high level of budgetary reserves and the state's strong provisions to promote fiscal discipline, which pair redressing elements of its high leverage position and requiring GAAP-based budgeting.

Factors that could lead to an upgrade

» Achievement and maintenance of higher GAAP-basis combined available reserve levels

» Established trend of structural budget balance

» Evidence of sustained stronger economic performance

» Reduced pension and debt leverage relative to Moody's 50-state medians, resulting in lower annual fixed costs

Factors that could lead to a downgrade

» Significant additional leverage, encompassing bonded debt, pension and OPEB obligations and negative unassigned GAAP balances

» Rapid acceleration of revenue/economic/demographic weakness

» Significant decline in liquidity position

Key indicators

Connecticut (State of)	2014	2015	2016	2017	2018	50-State Median (2017)
Operating Fund Revenues (000s)	$16,880,411	$17,187,461	$17,750,816	$17,940,062	$20,026,439	$10,869,281
Available Balances as % of Operating Fund Revenues	-1.2%	-2.3%	-4.3%	-3.4%	4.8%	4.6%
Nominal GDP (billions)	$249.0	$259.7	$263.0	$265.5	$274.2	$224.0
Nominal GDP Growth	0.9%	4.3%	1.3%	1.0%	3.3%	3.9%
Total Non-Farm Employment Growth	0.7%	0.8%	0.3%	0.2%	0.1%	1.1%
Fixed Costs as % of Own-Source Revenue	29.0%	30.7%	30.0%	33.6%	30.7%	8.9%
Adjusted Net Pension Liabilities (000s)	$53,119,206	$52,942,059	$53,742,607	$71,223,221	$62,059,644	$12,033,341
Net Tax-Supported Debt (000s)	$20,272,617	$22,103,517	$23,265,534	$23,479,445	$24,299,690	$4,412,204
(Adjusted Net Pension Liability + Net Tax-Supported Debt) / GDP	29.5%	28.9%	29.3%	35.7%	31.7%	8.2%

Source: Moody's Investors Service; Connecticut financial statements

Profile

The State of Connecticut has a population of 3.57 million people located in the coastal northeastern US, bordered by Rhode Island (Aa2 stable), Massachusetts (Aa1 stable) and New York (Aa1 stable) with 618 miles of shoreline, according to the National Oceanic and Atmospheric Administration (NOAA). The state has a large and diverse economy with a gross state product of $274 billion in 2018. It is the wealthiest state in the country with per capita income of 139% of the US average.

Detailed credit considerations

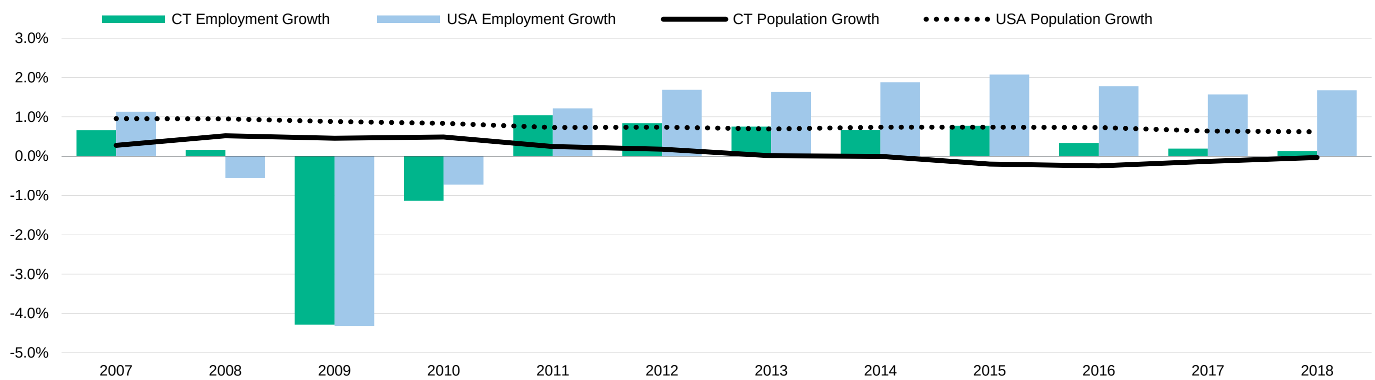
Economy: high income state lags US growth

We expect Connecticut's economy to continue to lag the nation. Connecticut is a wealthy state, with per capita personal income exceeding 139% of the US. However, the state's population has declined 0.6% since its peak in 2013. The population trends contribute to an underperforming housing market and lagging labor force growth. In 2018, the state's labor force grew 0.4%, compared to 1.1% nationwide. At the same time, the state's employment grew by a lackluster 0.1%, compared to 1.7% nationwide. Real GDP growth was positive in 2018, at 1.0% growth, but still less than the 2.9% growth nationally.

Exhibit 3

Employment and population growth lag US

% change from previous year



Source: US BLS, US Census Bureau

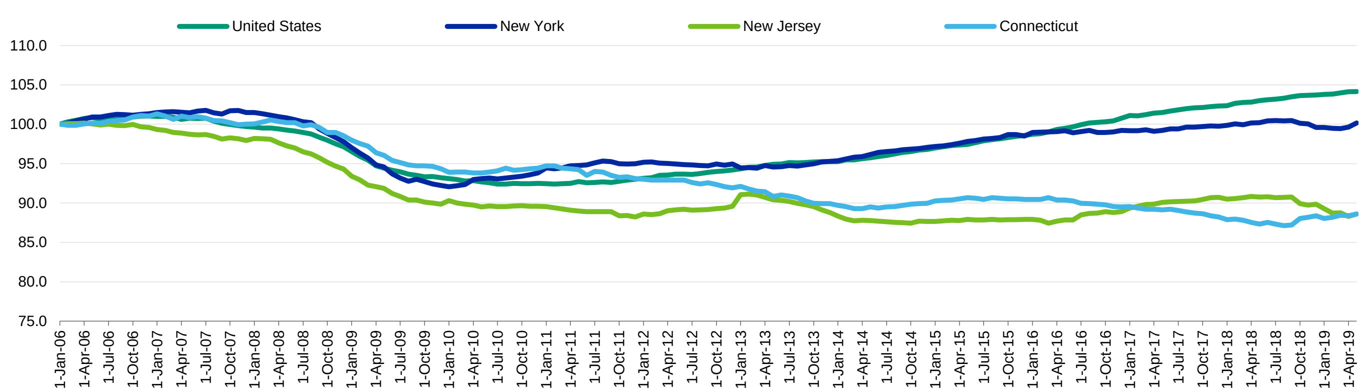
The state's payroll employment still remains shy of its pre-recession peak. In 2018, the job counts in the state's manufacturing and financial activities sectors were each considerably lower than pre-recession levels. State and local government employment is also lower as government budget cuts led to headcount reductions across the state. However, manufacturing has seen some turnaround in recent years, bolstered by defense-related production. Overall job growth has been primarily driven by services, especially the state's education and health sector and leisure and hospitality sectors.

Economic headwinds include lackluster performance in the state's high-paid financial activities sector (see Exhibit 4). While the US recovered all the financial activities jobs lost in the recession and neighboring New York recovered most of them, Connecticut's finance sector has alternately declined and stalled. The failure of the sector to recover contributes to the state's slow wage growth: growth in total wages in the post-recession period has grown at roughly half the rate as in the expansion leading up to the recession.

Exhibit 4

Connecticut's financial activities sector fails to gain traction

Jan 2006 financial activities employment is indexed to 100



Source: US BLS, Moody's Analytics, Moody's Investors Service

With the US economy in the late phase of an economic expansion, Connecticut's economy has shown some recent signs of improvement, although still considerably underperforming the US. Employment growth ticked up slightly in late 2018, and a long slide in residential housing permits may be coming to an end.

Environmental Considerations

The US states sector in general has low exposure to environmental risk. However, due to its coastline along the Long Island Sound, Connecticut is moderately exposed to climate change risks. With its southern counties situated along the shore of the Long Island Sound, the state is vulnerable to sea level rise and coastal storms, although the storm risk is mitigated by the protective barrier formed by Long Island to the south. The state does not currently have a systematic climate resiliency plan although state officials report that the state is evaluating the location of key utilities along the coast.

Finances and Liquidity: state increases reserves despite fixed cost budget pressures

A slowly growing revenue base and high fixed costs will continue to characterize Connecticut's credit profile and create budgeting and political challenges for the foreseeable future. Spending growth is driven by rising costs for pension and retiree health expenses, as well as Medicaid, crowding out other more discretionary state spending.

However, an influx of revenue in the last two years due to a variety of factors occurred just as the state had put in place a mechanism to channel some of its revenues into reserves (see Liquidity section below). As a result, the state is much better positioned than just two years ago to weather an economic downturn.

Future budget deficits, such as have occurred in recent years, could erode this cushion even in the absence of a recession, however. The state ended the fiscal year with operating deficits in fiscal years 2015 through 2018, each time drawing on the rainy day fund to balance the budget. The fiscal 2019 operating surplus of roughly $700 million stands out in contrast but is not expected to recur. The consecutive years of deficits point to difficulty managing a structural deficit. It is possible that more conservative revenue forecasting, which featured in fiscal 2019 operating results, will aid in reducing that deficit.

The enacted biennial budget closed budget gaps most recently estimated at $1.2 billion in fiscal 2020 and $1.8 billion in fiscal 2021, leaving small projected year-end surpluses. The gaps were largely closed on the revenue side, most significantly with the extension of a hospital tax that improves the state's ability to draw down federal Medicaid reimbursements. In addition, the sales tax base was broadened to include certain services. The state is also planning expenditure savings from renegotiating provider rates for employee and retiree health insurance and its restructuring of the contribution schedule for the Teachers Retirement System (see Pensions below). Governor Ned Lamont was unsuccessful in achieving additional state pension savings by shifting a portion of annual service costs for teachers to local governments.

The enacted budget includes non-recurring resources that grow from $150 million in fiscal 2020 and $440 million in fiscal 2021, representing 0.8% and 2.2% of projected revenues, respectively. This number grows to $1.1 billion in fiscal 2022, or 5.6% of revenue, according to projections by the state budget office.

Exhibit 5
Biennium budget balance emphasizes revenue actions
$ millions

	2020	2021
Projected gap	(1,220)	(1,798)
Revenues changes	1,054	1,448
Spending changes	209	366
Operating results	44	15

Source: Connecticut Office of Policy and Management

Fixed Costs Command a Third of Budget

We expect the state's fixed costs to remain stubbornly high at about 30% of revenues for the foreseeable future, creating a significant drag on its credit profile. These obligations reduce the share of discretionary spending and the state's budgetary flexibility during economic downturns. The state's combined debt service, pension, and OPEB contributions in fiscal 2017 were 30% of own-source governmental revenues, among the highest of the states. Fixed costs would represent an even higher (33.6%) share of revenues had the state made sufficient payments to "tread water" on its pension contributions (see Pensions and OPEB below). However, this shortfall relative to the tread water threshold is expected to shrink as the state phases in a new pension contribution schedule. High fixed costs show the tight squeeze that the state's long-term obligations are placing on the operating budget. They are partly attributable to the state's absorption of certain costs covered by local governments in most other states.

Long-Term Plan to Address Large Negative GAAP Balance Unfolds Slowly

On a GAAP basis, the state has a long-standing large cumulative unassigned GAAP deficit, which stood at -$241 million on June 30 2018. The state implemented a plan to address the deficit, which included devoting the proceeds of $560 million of 2013 general obligation bonds to reduce it and committing to amortize the remaining gap from annual payments from the general fund. The payments were suspended in fiscal 2017 through 2019 as the state applied the contributions toward closing budget gaps, but better fiscal discipline has nonetheless reduced the GAAP unassigned deficit from almost $1 billion in 2016. The enacted budget appropriates $75 million in GAAP amortization payments in fiscal 2020, but syspends them again for fiscal 2021.

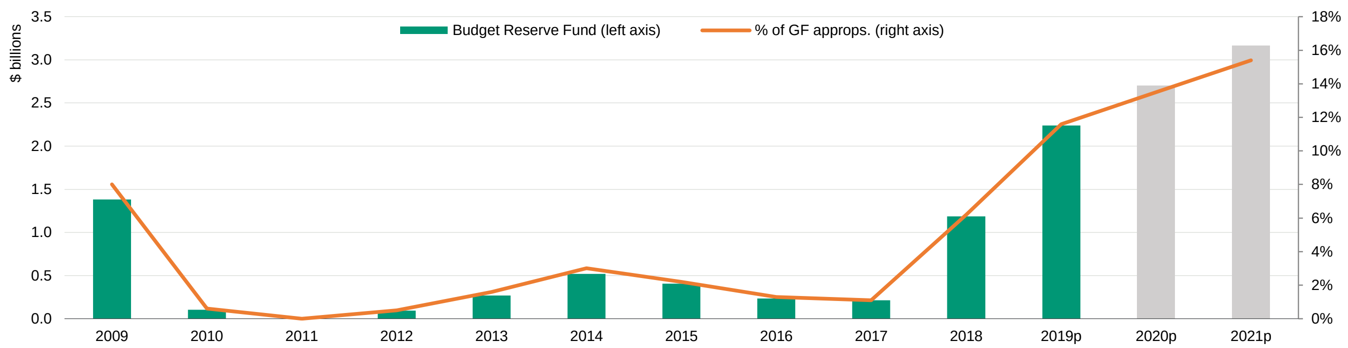
LIQUIDITY

Connecticut's liquidity has strengthened dramatically. The state has not needed to borrow for cash purposes in recent years. As of mid-June 2019 available cash was about $5 billion.

A tax windfall and new rainy day fund rules have helped the state bolster its finances by providing significant funds for its budget reserve fund. Last year, one-time tax payments by hedge funds pursuant to federal law and mandatory rainy day fund deposits pursuant to a recent "volatility cap" provision resulted in a rainy day fund deposit of $972 million. In fiscal 2019, strong personal income tax withholding taxes and final settlement payments will help swell the state's coffers sufficiently to double the fund's balance to an estimated $2.24 billion. The biennial budget projects a deposit of $459 million in fiscal 2020 and another deposit of $467.7 million in fiscal 2021, which would bring the fund to more than $3 billion and exceed a cap on the fund set at 15% of net appropriations (see Exhibit 6). Were the state to maintain that 15% target, by statute additional funds in excess of the state's thresholds are to be deposited to the state employees and teachers retirement systems and then toward bonded indebtedness.

Exhibit 6

Revenue upside has been channeled into reserves



Fiscal 2020 and 2021 balances are projections

Source: Connecticut Office of Policy and Management

Debt and Pensions: large liabilities underlie high fixed costs

Connecticut is a frequent borrower and the state's debt per capita and debt-to-personal income ranked first and second, respectively, among the 50 states for Moody's 2019 debt medians. Net tax-supported debt equaled $6,802 per capita and 9.4% of total state personal income, well above the 50-state median of $1,068 in debt per capita and 2.2% for debt-to-personal income. These high debt ratios are partly due to substantial capital financing for K-12 school building construction that is carried out at the local level in many other states; combined state and local debt metrics place Connecticut closer to the middle of the pack. However, pension obligation bonds and GAAP conversion bonds to address a portion of the state's sizeable cumulative GAAP deficit add considerably to the state's normal sizeable annual debt issuances and ensure that Connecticut's debt ratios will remain among the highest in the country for the foreseeable future. Governor Lamont's capital plan, which decreases the pace of borrowing, is pending final approval.

DEBT STRUCTURE

Connecticut's $24.8 billion in net tax-supported debt outstanding consists primarily of general obligation bonds, which account for 66% of NTSD (see Exhibit 7). Bonds backed by special taxes for highway construction account for another 24% of state debt. Most GO debt is structured with 20-year principal amortization and a declining debt service schedule, resulting in a pay-out rate of 70% within 10 years. Other debt consists primarily of bonds issued by the University of Connecticut through a debt service commitment and by related organizations for which the state guarantees payment from special capital reserve funds. In 2018, the state also absorbed about $540 million in general obligation debt issued by the city of Hartford (B1 issuer rating) as a form of municipal assistance.

Exhibit 7
Connecticut's debt outstanding consists mostly of GOs and highway bonds

	2018
General Obligation Bonds	16,397,019
Lease Rental Bonds/Appropriation Debt	11,095
Highway Revenue Bonds:	6,064,065
Capital Leases:	15,811
Other Bonded Debt:	2,351,700
Total	24,839,690

Source: Connecticut financial statements; Moody's Investors Service

The state has $1.176 billion in variable rate debt as of July 1, most of which is indexed to SIFMA. Its variable rate debt accounts for about 7% of the state's total GO debt, One variable rate series (2016 Series C) is privately placed with an SBPA provided by Bank of America, N.A. (Aa2(cr)/ P-1(cr)). Two series are direct placements, 2017 Series C and 2017 Series D.

DEBT-RELATED DERIVATIVES

Only $20 million of the state's variable rate debt is swapped to fixed, based on 60% of LIBOR or a percentage point above CPI. The swap counterparty is JP Morgan Chase Bank, N.A. (Aa1(cr)/P-1(cr)). As of June 30, 2019, the mark-to-market was minimal, at negative $400,000 against the state. In accordance with its swap guidelines, the state generally negotiates provisions that permit funding a required termination payment over a period of time to allow time for a refunding. Accordingly, the state would have 270 days to fund a termination payment for its general obligation swaps. The state has no plan to incorporate swaps into future GO bonds.

PENSIONS AND OPEB

Connecticut's adjusted net pension liability (ANPL), our measure of the government's pension burden, is significantly above the 50-state median. As of the state's 2018 financial statements, ANPL was $62 billion, or 22.6% of state GDP. In 2017, the state ranked second highest among the states for this measure. The state participates in several pension systems, of which the most significant are the State Employees Retirement System (SERS) and the Teachers Retirement System (TRS). Connecticut is among the handful of states that take responsibility for directly funding teacher pensions. Moody's ANPL reflects certain adjustments made to improve comparability of reported pension liabilities.

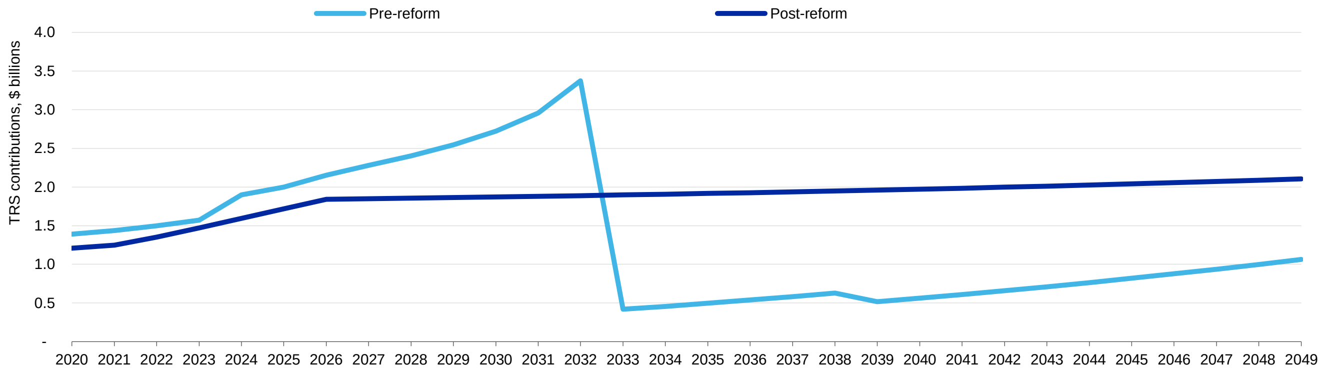
Pension contributions remain a very significant and growing part of the state's budget. The state contributes the full amount of its actuarially determined contributions, about $2.57 billion in fiscal 2018. It is required via bond indenture to pay the full required contribution to the TRS plan and by collective bargaining to do the same for SERS. Even so, its 2017 contributions were not enough to prevent its net pension liability (NPL) from growing even if investment returns all the actuarial assumptions associated with the plan had come to fruition. The contributions were about 80% of our "tread water" benchmark, which is the payment covering the year's newly accrued service costs and interest on the NPL.

The state has made substantial changes to its pension funding approach. It has stretched amortization periods for both SERS (in 2016) and TRS (in 2019), combined with lowering the discount rate for both systems to 6.9% and shifting to a level dollar amortization approach. In addition to maintaining an unrealistically high investment rate of return (discount rate) assumption, the state hitherto followed a less conservative funding approach linked to assumed wage growth that resulted in back-loaded pension contributions. It was to avoid rapidly escalating contributions, illustrated for the TRS in Exhibit 8, that the state took these actions. Nonetheless, to achieve the actuarially-determined level dollar payment requires several years of escalating contributions, during which time the state will continue to fall short of the tread water benchmark for each system.

Exhibit 8

Connecticut risked sharp escalation in Teachers Retirement System contributions over next decade

Unrealistic investment return assumption and amortization schedule would lead to escalating costs



Pre-reform projection assumes 8% discount rate but 6.9% average annual returns. Post-reform projection assumes TRS achieves assumed 6.9% average annual return but with longer amortization period.
Source: Connecticut Office of Policy and Management

Connecticut also has a very high OPEB liability. As reported under GASB 75 reporting standards in the fiscal 2018 financial statements, the net OPEB liability is $20.59 billion, including a $3.5 billion Teachers' OPEB liability as of the June 30 2017 measurement date. Adjusted for a common discount rate, we calculate the liability as a slightly lower $19.87 billion. Employees have been required to make contributions to prefund OPEB benefits since 2011, and the state is now making matching contributions, which total about $120 million in fiscal 2019.

Governance: state profile features strong practices

The state's financial management is characterized by strong practices that include timely budget adoption and binding consensus revenue forecasting conducted at least three times a year. Annual multi-year Fiscal Accountability reports are produced by both the governor's budget office and the legislative office of fiscal analysis, and the state releases monthly budgetary updates. The state constitution requires a balanced budget, given greater force by the state's recent move to GAAP-basis budgeting. In addition, the state is not constrained by supermajority requirements to enact tax increases, mandated initiatives or voter referenda.

The governor's executive authority to cut expenses mid-year without legislative approval is limited to 5% of an individual appropriation, not to exceed 3% of any fund providing only moderate flexibility. We consider strong executive flexibility to make mid-year spending adjustments a plus. If a deficit exceeds 1% of the general fund, a timely deficit mitigation plan is required to be developed by law. Some of the state's financial provisions are not highly effective, as the state has accumulated high debt levels and did not until this year make a constitutional spending cap operative.

The state has taken action to address some of its most pressing long-run financial challenges in recent years by implementing pension and OPEB reforms and committing to moving pension contributions to a more adequate level, although the state's long-term obligations remain formidable. In addition, the state legislature recently passed a number of measures designed to contain spending and debt growth, rebuild the state's rainy day fund, and more frequently assess the condition of its pension funds. Following some of these provisions will now be required by bond covenants. While the required practices would strengthen the state's long term credit profile, covenanting to follow them reduces budgetary flexibility.

Rating methodology and scorecard factors

The US States and Territories Rating Methodology includes a scorecard, which summarizes the 10 rating factors generally most important to state and territory credit profiles. Because the scorecard is a summary, and may not include every consideration in the credit analysis for a specific issuer, a scorecard-indicated outcome may or may not map closely to the actual rating assigned.

Exhibit 9

States rating methodology scorecard

Connecticut (State of)

Rating Factors	Measure	Score
Factor 1: Economy (25%)		
a) Per Capita Income Relative to US Average [1]	138.8%	Aaa
b) Nominal Gross Domestic Product ($ billions) [1]	$274.2	Aaa
Factor 2: Finances (30%)		
a) Structural Balance	Aa	Aa
b) Fixed Costs / State Own-Source Revenue [2]	30.7%	Ba
c) Liquidity and Fund Balance	Aa	Aa
Factor 3: Governance (20%)		
a) Governance / Constitutional Framework	Aa	Aa
Factor 4: Debt and Pensions (25%)		
a) (Moody's ANPL + Net Tax-Supported Debt) / State GDP [2] [3]	31.7%	Baa
Factors 5 - 10: Notching Factors [4]		
Adjustments Up: None	0	
Adjustments Down: Growth Trend; Economic or Revenue Concentration or Volatility	-1	
Rating:		
a) Scorecard-Indicated Outcome		A1
b) Actual Rating Assigned		A1

[1] Economy measures are based on data from the most recent year available.
[2] Fixed costs and debt and pensions measures are based on data from the most recent debt and pensions medians report published by Moody's.
[3] ANPL stands for adjusted net pension liability.
[4] Notching factors 5-10 are specifically defined in the US States and Territories Methodology.
Source: US Bureau of Economic Analysis; Connecticut audited financial statements; Moody's Investors Service

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