CREDIT OPINION
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Contacts

Nicholas Samuels +1.212.553.7121
VP-Sr Credit Officer
nicholas.samuels@moodys.com

Kenneth Kurtz +1.415.274.1737
Senior Vice President
kenneth.kurtz@moodys.com

Texas (State of)

Update to credit analysis

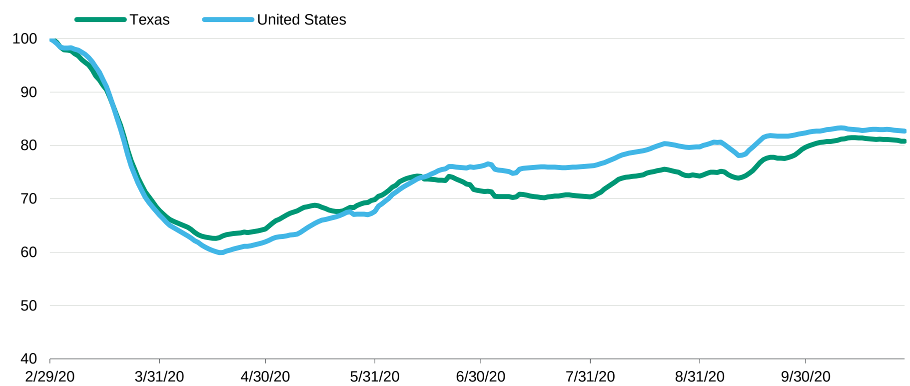
Summary

The State of Texas' credit profile reflects multiple strengths, including a strong economy that will continue to outpace the nation, robust population growth, reserves that provide a healthy buffer even after recent appropriations, good fiscal management and governance and low bonded debt, offset by high pension liabilities.

Exhibit 1

Texas has a longer way to go to its pre-pandemic economy than most states

Back-to-normal index



February 29, 2020 = 100. The index uses a mix of traditional economic data and real-time metrics being published by a host of private providers to capture trends both nationally and at a state level. The index is intended to go beyond the usual measures of employment and output to give a realistic sense of how businesses and consumers are responding to the pandemic.
Source: Moody's Analytics

We regard the coronavirus outbreak as a social risk under our ESG framework, given the substantial implications for public health and safety. We do not see any material immediate credit risks for the State of Texas. However, the situation surrounding coronavirus is evolving and the longer term impact will depend on both the severity and duration of the crisis.

Credit strengths

» Strong demographic and employment trends that drive tax revenue

» Economic diversification that helps buttress the state from energy market volatility

» Conservative revenue forecasting and a rainy day fund that provides an ample budgetary buffer

» Bonded debt ratios on both a per capita and personal income basis that are well below Moody's 50-state medians

Credit challenges

» Weak pension funding practices

» Budget balancing pressure amid growing state spending for K-12 education and demand for transportation funding in a political environment that is generally adverse to tax increases

» Social pressures like the nation's highest healthcare uninsured rate and above-average poverty that drive safety net spending

» Above average environmental exposures, especially to water stress and hurricanes

Rating outlook

The outlook for the State of Texas is stable. The state's economic fundamentals and reserve position are strong, but balancing the budget competes with the demand for education, transportation and pension funding in the fast-growing state.

Factors that could lead to an upgrade

» Not applicable

Factors that could lead to a downgrade

» Departure from strong fiscal management practices,

» Failure to devise a sustainable plan to improve pension funding materially

Key indicators

Exhibit 2

Texas (State of)	2015	2016	2017	2018	2019	50-State Median (2018)
Operating Fund Revenues (000s)	$57,320,739	$56,373,910	$58,463,188	$63,040,483	$66,263,962	$11,520,082
Available Balances as % of Operating Fund Revenues	19.8%	18.0%	18.9%	19.8%	17.6%	7.4%
Nominal GDP (billions)	$1,568.5	$1,565.6	$1,665.6	$1,802.5	$1,887.0	$236.9
Nominal GDP Growth	-0.3%	-0.2%	6.4%	8.2%	4.7%	4.7%
Total Non-Farm Employment Growth	2.3%	1.3%	1.8%	2.4%	2.3%	1.1%
Fixed Costs as % of Own-Source Revenue	11.2%	10.9%	11.5%	10.4%	NA	8.1%
Adjusted Net Pension Liabilities (000s)	$123,858,729	$108,618,781	$140,253,456	$132,760,832	NA	$12,209,760
Net Tax-Supported Debt (000s)	$10,513,260	$10,681,942	$11,603,694	$11,176,052	$10,994,229	$4,146,966
(Adjusted Net Pension Liability + Net Tax-Supported Debt) / GDP	8.6%	7.6%	9.1%	8.0%	NA	7.7%

Source: Audited financial statements, US Bureau of Economic Analysis, US Bureau of Labor Statistics, Moody's Investors Service

Profile

Texas is the second largest state by population and has the second largest state gross domestic product. Per capita personal income is 98% of the US level and it has the eleventh highest poverty rate among the states.

Detailed credit considerations

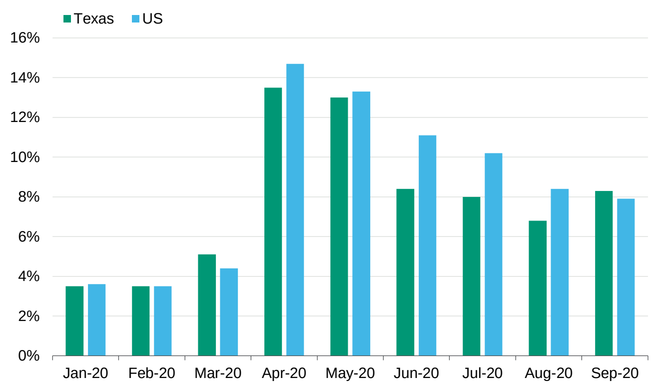
Economy: like all states growth takes a coronavirus hit but in the long run Texas will outpace the US

The size, long-term strength and increasing diversity of the Texas economy is a key credit driver, even through the coronavirus pandemic. Texas' GDP is the second largest among US states at nearly $1.9 trillion. While real GDP growth nearly slowed to a standstill in 2016 amid the oil price bust, the fact that it did not decline reflects an important shift for Texas. Energy is still a key sector but Texas has diversified into other growth sectors that offset the economic impact of oil price declines. Nonetheless the combined impact of the economic decline because of policy responses to the pandemic and low oil prices are taking a toll on the state's economy. Like 42 other states Texas saw its unemployment rate reach a record high at the height of the pandemic in April, a 7.7% increase from March (see Exhibit 3). The Texas unemployment picture has improved since then but some of that was because of an above-average decline in the labor force participation rate: underlying employment conditions may be weaker than the unemployment rate itself implies (see Exhibit 4). Texas also is more challenged than most states in getting its economy back on track. Based on the Moody's Analytics back-to-normal index, Texas ranks 40th on the path back to its pre-pandemic economy (see Exhibit 1 on page one).

Exhibit 3

Texas unemployment rises rapidly like most other states but generally stays below US rate...

Texas and US monthly unemployment rates

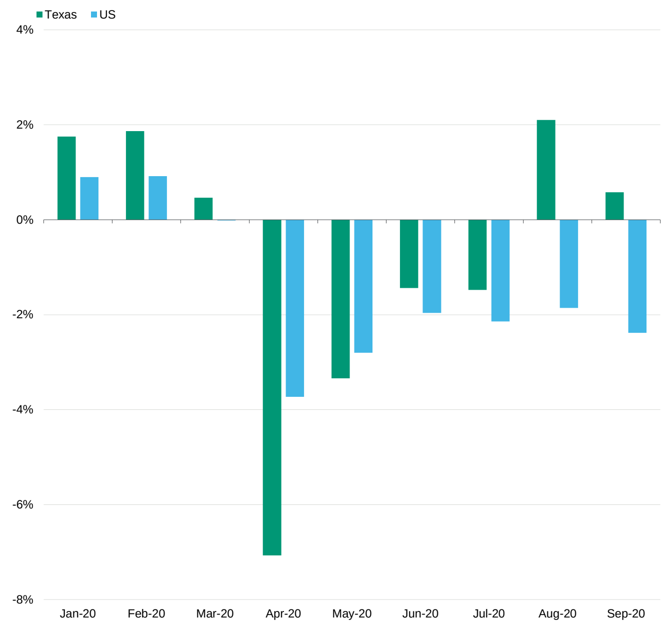


Source: US Bureau of Labor Statistics

Exhibit 4

... but dramatic swings in the Texas labor force may mean employment conditions remain volatile

Year-over-year change in labor force



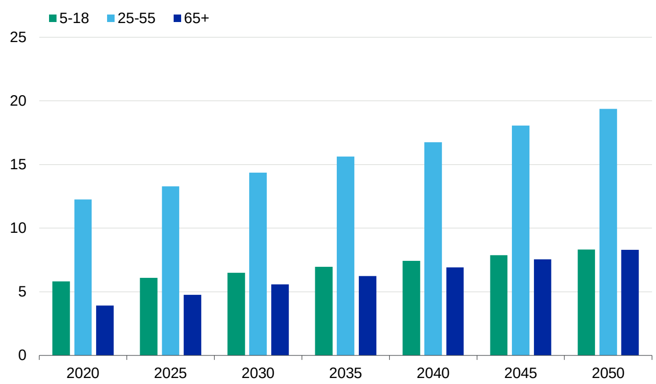
Source: US Bureau of Labor Statistics

In the long run, Texas will resume its very strong economic and demographic growth and continue to outpace the nation, with very strong growth in its working age (25-55) population that will drive tax revenue (see Exhibit 5). That growth is driven in part by the state's successful strategy of keeping the cost of living and cost of doing business low. Low state taxes combined with a somewhat higher local government tax burden result in state and local taxes per capita that rank 32nd according to the Federation of Tax Administrators. Overall Texas' cost of living index is just above the US level but its cost of doing business is the fourth lowest among states (see Exhibit 6). Some social risks limit Texas' potential, however and create financial drag, including the nation's highest uninsured rate and above average poverty (see Exhibits 7 and 8).

Exhibit 5

Strong growth in working age population will drive revenue

Forecast population by age cohort (millions)

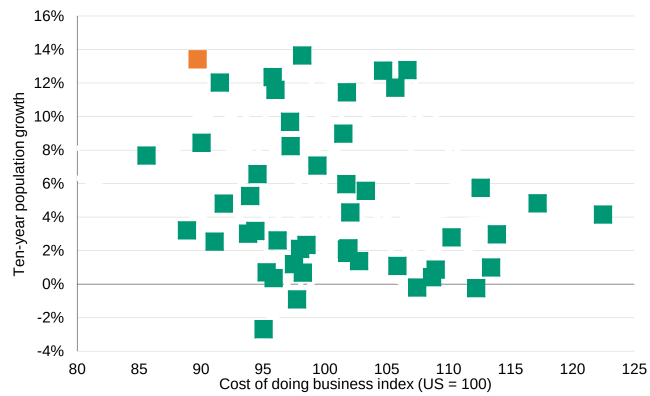


Source: Texas Demographic Center

Exhibit 6

Low business costs help drive the economy

Cost-of-doing business index and 10-year population growth (Texas in orange)

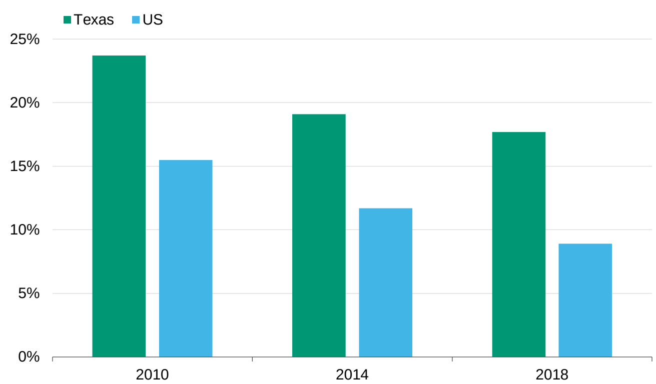


Source: US Census Bureau and Moody's Analytics

Exhibit 7

Texas uninsured rate is twice the nation's

Percent of population uninsured

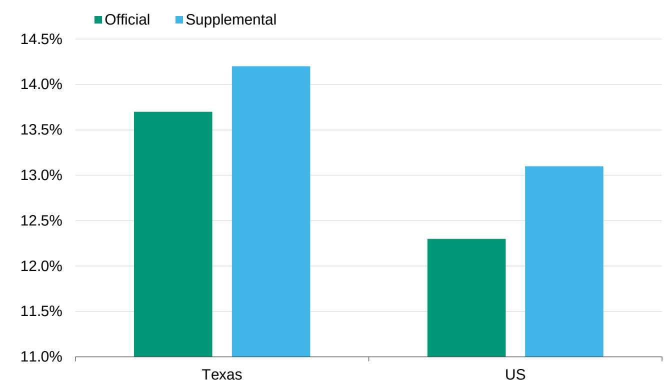


Source: US Census Bureau

Exhibit 8

Texas poverty exceeds the national average

Three-year average poverty rates (2016, 2017, 2018)



The supplemental poverty rate reflects cost-of-living differences by geography, including the costs of medical services and taxes and the localized impact of programs such supplemental nutrition and housing subsidies.
Source: US Census Bureau

Finances and liquidity: reserves remain strong but are expected to be used to balance the budget against coronavirus-related losses

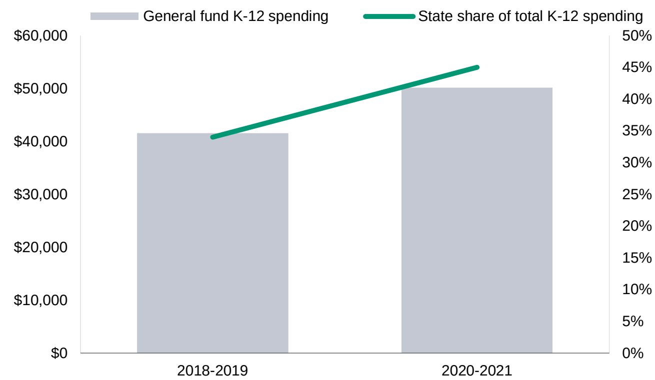
Texas' financial position is strong, driven by strong long-term demographic and employment trends and a strong reserve building mechanism. Nonetheless the economic fallout of the pandemic will challenge Texas in several ways. Even before the pandemic the state had taken over a greater share of K-12 education spending from local governments, increasing its school budget by $8.6 billion or 21% in the current 2020-21 biennium compared to the prior two-year period (see Exhibit 9). That new spending combined with stricter limits on the ability of local governments and school districts to increase property taxes without voter approval makes it more difficult for Texas to balance state finances without limiting other expenditures or tapping other revenue sources.

The public health responses to the pandemic have magnified the budget pressure. The state's largest revenue source, the sales tax, has declined for seven straight months and through October is down 3.5% compared to the same month in the prior year (see Exhibit 10); the fiscal 2021 estimate is for sales taxes to decline by 0.9%. In July the state comptroller lowered the biennial revenue estimate by 9.5% from the prior estimate. Subsequently the state has cut some state spending but held harmless some of the largest categories, including school spending. While federal measures like the CARES Act have provided substantial economic supports to states, they have not directly replaced lost tax revenue and many of the CARES Act provisions have expired. Combined with lower oil prices, Texas faces difficult budget balancing choices when the legislature reconvenes early in 2021.

Exhibit 9

Balancing the budget became harder when the state took on more of K-12 funding...

Biennial general revenue fund K-12 spending ($ millions)

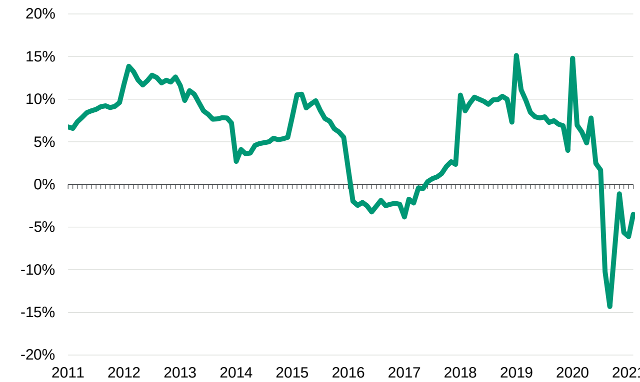


Source: Legislative Budget Board

Exhibit 10

... and the challenge has increased as sales taxes declined during the pandemic and amid lower oil prices

% change in sales tax revenue compared to same month in prior fiscal year



Years are fiscal years (September 1 to August 30)

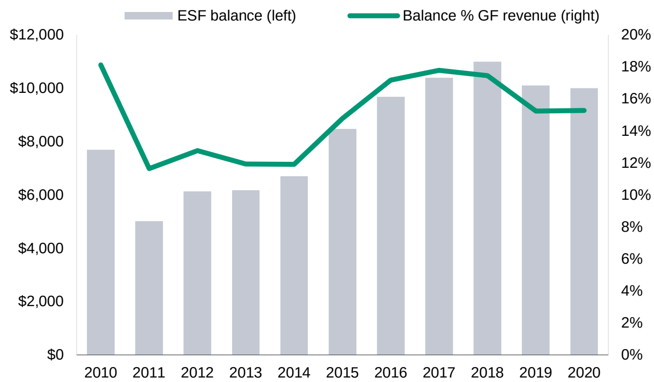
Source: Texas Comptroller of Public Accounts

LIQUIDITY

Texas' financial and liquidity position has been characterized by exceptionally strong reserves for a state. Reserves have accumulated through a constitutional formula that mandates that oil and severance tax revenue greater than the amount the state collected in 1987 be deposited to the Economic Stabilization Fund (ESF; since 2015, the deposit has been split between the ESF and the State Highway Fund). The fund ended fiscal 2020 with a $10 billion balance (see Exhibit 11). Even with fiscal 2020-2021 appropriations from the fund (mostly for Hurricane Harvey related expenses, to establish a resiliency fund and to increase the state's contributions to teacher pensions, among others), the fund equals 15.3% of pro forma fiscal 2020 revenue, about three times the Aaa median. With oil prices much lower than recent years and not expected to increase substantially in the medium term, deposits to the fund will be lower than the state has become used to and it decisions about how and when to use the fund will become more complicated.

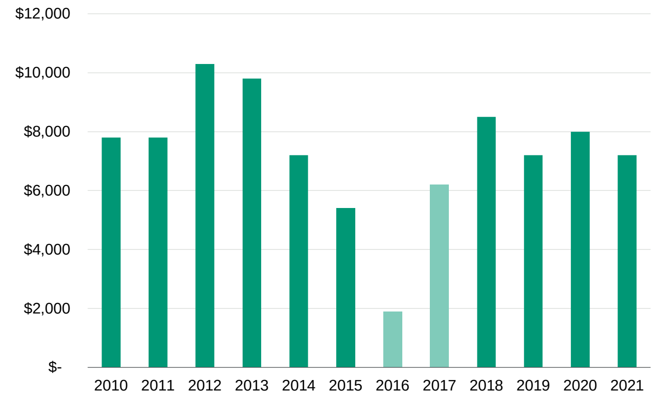
In addition, even though its liquid reserves are so strong Texas typically issues a large annual cash flow note to balance the mismatch between the front-loaded outflow of school aid payments and tax revenue. The size of the notes declined for several years and the state even was able to meet its cash needs without a public borrowing for two fiscal years but note size has increased recently (see Exhibit 12). Because the state has taken on a larger share of school funding this pressure will continue and illustrates that Texas' liquidity position is more constrained than implied by the sheer size of its reserves.

Exhibit 11
Texas budget reserves provides substantial liquidity...
Economic Stabilization Fund (ESF) balances (millions) and balance as percentage of general fund revenue



Years are fiscal years (September 1 to August 30)
Source: Texas Comptroller of Public Accounts and Moody's Investors Service

Exhibit 12
... but despite budget reserve size cash flow borrowing remains high
Annual note issuance plus internal borrowing



Years reflect fiscal years. Fiscal 2016 and 2017 reflect amounts of internal borrowing in lieu of public issuance.
Source: Texas Comptroller of Public Accounts

Debt and pensions: low bonded debt but high unfunded pension liabilities

DEBT STRUCTURE

Texas' bonded debt burden is low. Based on our state debt medians, net tax-supported debt per capita and as a percentage of personal income both rank 42nd, at $379 and 0.7%, respectively. By comparison, the 50-state median is $1,071 per capita and 2.0% of personal income.

General obligation debt is issued through a variety of issuers including the Texas Higher Education Coordinating Board, the Texas Public Finance Authority, the Texas Transportation Commission, the Texas Veterans Land Board and the Texas Water Development Board (see Exhibit 13). Certain smaller state agencies are less frequent issuers of state general obligation debt. A substantial amount of Texas general obligation debt is self-supporting, paid with non-operating revenue of the state such as veterans' mortgage loan repayments or college student loan repayments but with a backup pledge of the state's credit. Texas has a small amount of lease appropriation debt outstanding, mostly for essential government facilities in the state capital complex and small amounts issued by various mental health and disability service providers around the state payable with state funds.

In addition the Texas Transportation Commission issues revenue bonds (Aaa stable) paid by state motor fuels taxes, vehicle registration fees, other state transportation-related revenue and federal highway reimbursements. Bonds issued through a component unit of the Texas Department of Transportation, the Grand Parkway Transportation Corporation (Aa1 stable) are payable first from toll revenue but also have a subordinated contingent pledge of State Highway Fund Revenue.

About 17% of Texas' total outstanding debt is floating rate, a combination of demand bonds (VRDBs), commercial paper (CP) and index rate mode bonds. Of the total amount of outstanding variable rate debt, $529 million are VRDBs or CP with liquidity support provided through banklike facilities from the state comptroller. The Texas treasury maintains substantial balances to support the liquidity commitments if draws are required. Treasury balances are invested in a portfolio that primarily consists of short-term US Treasury and US government agency obligations, money market funds and overnight repurchase agreements. The investment portfolio is managed by the Texas Treasury Safekeeping Trust Company, a legislatively-created entity controlled by the state comptroller. As of October 31, 2020, total treasury balances were $41 billion. Our analysis of the state's internal liquidity commitments includes the state's credit, its very strong treasury management and broad pool of assets and examination of historical volatility in the state's cash flow.

Exhibit 13

Outstanding debt is mostly general obligation bonds
($ millions)

Security	Outstanding
General obligation	$18,138,727
Appropriation-backed	$286,700
State Highway Fund revenue bonds	$3,976,805
Other	$3,174,038
Gross debt	**$25,576,270**
Less self-supporting:	$14,164,250
Net tax-supported debt	**$11,412,020**

Other includes capital leases, certain bonds issued by the Grand Parkway Transportation Corporation and the Texas Windstorm Insurance Association. Data are as of August 30, 2019.
Source: Texas Bond Review Board and Moody's Investors Service

DEBT-RELATED DERIVATIVES

The state has an outstanding notional amount of interest rate swaps related to general obligation debt of $2.6 billion with a market value at the end of fiscal 2019 of -$275 million. The terms of the swaps are favorable to the state and its liquidity is more than ample to deal with any increased costs related to them. Effectively all of these swaps are Libor-based which poses some challenges since that rate is expected to sunset at the end of 2021. However the State of Texas is a sophisticated market participant that will take advantage of all of the options to transition to a new reference rate the market provides.

PENSIONS AND OPEB

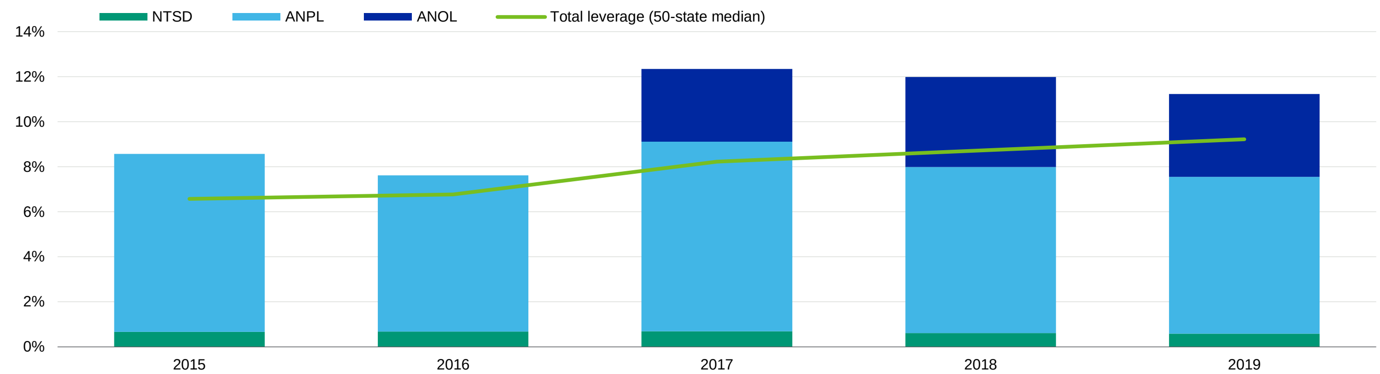
While Texas' bonded debt levels are low, its relatively weak pension funding practices result in high pension liabilities. At 161% of its own-source revenue, Texas has the tenth highest pension burden among states. That is expected to increase when fiscal 2020 data are available because own-source revenue will have decreased and because we estimate a 38% increase in adjusted net pension liability (ANPL) to reflect lower overall investment returns and a lower discount rate used in our adjustments. While outstanding bonded debt equals a low $379 per capita, Texas' unfunded pension liabilities total $4,550 per capita. Texas' combined outstanding bonded debt, ANPL and adjusted retiree healthcare liabilities (adjusted net other post-employment benefits or ANOL) total 11.2% of the state's GDP, compared to a 50-state median of 9.2%. Fixed costs for debt service, pension contributions (reflecting our tread water metric) and OPEB contributions also are elevated at 10.4% of own-source revenue in fiscal 2018 compared to the 50-state median of 8.0% (see Exhibit 14).

The state's liabilities are for its two multi-employer cost sharing plans, the Employees' Retirement System (ERS) and the Teacher Retirement System (TRS). Based on our calculations using fiscal 2019 data (the most current combined figures), the state is responsible for 100% of ERS funding and 67.4% of TRS funding.

The state's contributions to its pension plans equal only 62% of the amount that would allow the state's reported net pension liability to "tread water," assuming investment return and other actuarial assumptions are met for the year. The tread water amount is determined by the actuarial cost of the year's benefit accruals ("service cost") plus interest on the net pension liability at the beginning of the year. The state's contribution relative to the tread water benchmark implies a funding approach that will lead to growing net pension liabilities over time. The shortfall in the tread water contribution as a percentage of own-source revenue is increasing, from 2.2% in fiscal 2019 to 2.7% but that also reflects actions to lower the assumed rate of return for TRS, a positive change in our opinion that could lead to more sustainable funding.

Exhibit 14

Texas' bonded debt burden is low but total leverage is above 50-state medians



Adjusted net OPEB liability is not available before 2017.
Source: State CAFRs and Moody's Investors Service

ESG considerations

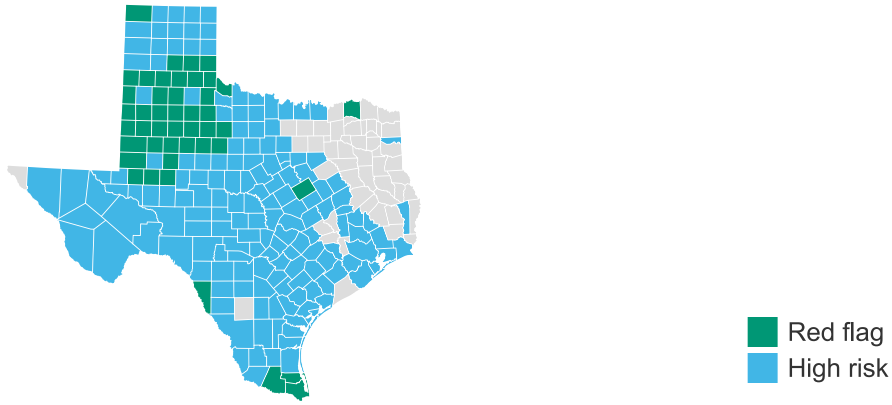
Environmental

The US states sector overall has low exposure to environmental risks because of states' large and diverse economies, revenue-raising ability and federal government support for disaster recovery costs via FEMA. Nonetheless, according to data from Moody's affiliate and climate intelligence firm Four Twenty Seven, Texas has above-average exposures to climate risks, especially water stress and hurricanes.

Water stress — the projected change in drought-like patterns — is Texas's most severe climate exposure, based on Four Twenty Seven data. Nearly 80% of Texas' counties (203 of 254) are classified as high risk or “red flag” counties, meaning they are exposed or highly exposed to scarce water resources today and those exposures are increasing (see Exhibit 15). That exposure could have a material impact on Texas' economy: those counties reflect 66% of the state's GDP (see Exhibit 16). To mitigate its water stress risk, the state has issued general obligation debt through the Texas Water Development Board (TWDB) since the 1950s to finance a variety of water conservation and supply projects. TWDB also issues debt through a State Revolving Fund program and more recently through the State Water Implementation Revenue Fund for Texas (SWIRFT), which was originally capitalized with a deposit from the state's Economic Stabilization Fund. Combined there are approximately $8 billion of state bonds outstanding to mitigate its water exposures, as well as debt issued by various local governments. High exposure to hurricane risk reflects a smaller number of counties but more than one-third of state GDP, largely because it includes Harris County (Aaa stable), the largest contributor (22% of state GDP).

Exhibit 15
Most Texas counties are expose to water stress in the two highest categories

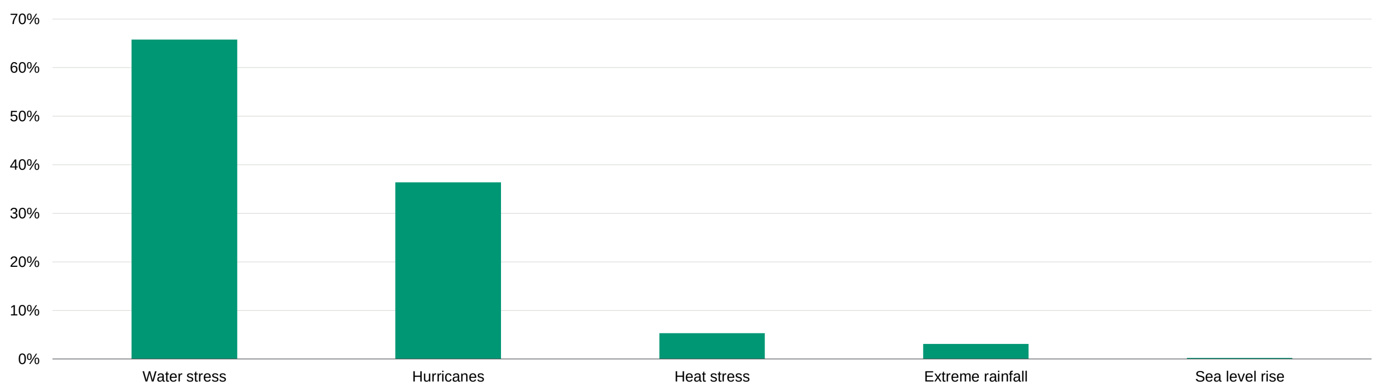
Climate risk: Texas county water stress



Source: Four Twenty Seven

Source: Four Twenty Seven

Exhibit 16
Texas counties with the highest exposures to water stress reflect 66% of state GDP
High risk and "red flag" counties' share of state GDP by environmental exposure category



Source: Four Twenty Seven, Moody's Investors Service

Social

Social issues, such as demographics, labor force, income and education, are key influencers of a state's economy, governance stability and financial and leverage trends. Texas benefits from its large and growing working age population but is challenged by relatively high poverty and its high healthcare uninsured rate. See the economy section of this report for more detail on social factors.

Governance

The constitutional and legal framework governing a state, along with the financial management and budgeting practices a state employs, are material considerations in state credit quality. Generally, states adhere to balanced budget requirements and have significant flexibility over their revenue and expenditures, contributing to strong governance frameworks across the sector. We view Texas' governance as strong. While most states issue a consensus revenue forecast, which we view as a best practice, in Texas the revenue estimate is set solely by the state comptroller and the legislature must abide by it. In Texas' case this creates stability in the state's budget since the Texas legislature meets only every other year. Government is more decentralized than in most states, with most functions overseen by commissions or boards appointed by the governor. That fact and the legislative schedule does not hinder the state from making spending cuts when necessary, exemplified in the cuts recently made in response to coronavirus-induced revenue shortfalls.

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 17

States rating methodology scorecard

Texas (State of)

Rating Factors	Measure	Score
Factor 1: Economy (25%)		
a) Per Capita Income Relative to US Average [1]	92.7%	Aa
b) Nominal Gross Domestic Product ($ billions) [1]	$1,887.0	Aaa
Factor 2: Finances (30%)		
a) Structural Balance	Aa	Aa
b) Fixed Costs / State Own-Source Revenue [2]	10.4%	Aa
c) Liquidity and Fund Balance	Aa	Aa
Factor 3: Governance (20%)		
a) Governance / Constitutional Framework	Aaa	Aaa
Factor 4: Debt and Pensions (25%)		
a) (Moody's ANPL + Net Tax-Supported Debt) / State GDP [2] [3]	7.6%	Aaa
Factors 5 - 10: Notching Factors [4]		
Adjustments Up: Growth Trend	0.5	
Adjustments Down: Pension or OPEB Characteristics	-0.5	
Rating:		
a) Scorecard-Indicated Outcome		Aaa
b) Actual Rating Assigned		Aaa

[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
[3] ANPL stands for adjusted net pension liability.
[4] Notching factors 5-10 are specifically defined in the US States and Territories Rating Methodology.

Source: US Bureau of Economic Analysis, state CAFRs, Moody's Investors Service

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Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
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