MUNICIPAL COMMENTARY
AUGUST 26, 2019

HilltopSecurities
A Hilltop Holdings Company

What are the Real Factors Driving Municipal Credit Now?

MUNICIPAL BOND SECTOR CREDIT OUTLOOKS

Summary

- We assigned two "Positive," three "Stable," three "Cautious," and three "Negative"outlooks to our municipal bond sectors.
- Common themes: 1) How issuers are reacting to the New Fiscal Reality and 2) rising costs of pension liabilities are obvious drivers of credit quality and are the leading reasons we assigned "Cautious" outlooks to the tax-backed sectors.
- The Airport, Public Power, and Toll Facilities sectors are "Positive" or "Stable" but could encounter some weakness during the next economic downturn.
- The Health Care, Higher Education, and Tobacco sectors have all been experiencing a moderate to high amount of general credit deterioration and market conditions have generally resulted in an above average number of rating downgrades. Each of these sectors have a "Negative" outlook as a result.
- We assigned a "Positive" outlook to the Housing sector mostly because of the duarability state housing finance agencies (HFAs) exhibited through the recession, and because of the reinforcement most underwent in recent years by adding supplementary financing options to their repertoire.
- Water and Sewer issues are typically more insulated from economic cycles, and they have built extraordinary liquidity cushions since the end of the Great Recession. We assigned a "Stable" outlook to the sector.

HilltopSecurities Municipal Sector Credit Outlooks

Sector	Hilltop Credit Outlook	Key Sector Trends
State Government	Cautious	Unprecedented credit deterioration, budget stress, and pension obs weighing
Local Government	Cautious	Some locals tapping reserves/structurally imbalanced, pension crowd-out spending
School Districts	Cautious	State funding came back in some cases, pension requirements remain a drag
Airports	Positive	Enplanements rising, hub consolidation, additional leverage for needed upgrades
Health Care	Negative	Reimbursement uncertainty, margins pressured, M&A expected to continue
Higher Education	Negative	Enrollment declines from demographics, Alaska could be a sign of things to come
Housing	Positive	State HFA single and multi-family credit quality remains strong, others case by case
Public Power (Elec.)	Stable	Essential purpose, transition to cleaner alternatives not a negative force yet
Tobacco	Negative	Seen more negative rating action and expecting more, consumption continues to drop
Toll Facilities	Stable	Activity has risen, driver behavior, and tech-change to bring change to the sector
Water and Sewer	Stable	Essentially is key factor, climate change, and system upgrades looming

Source: HilltopSecurities.

Tom Kozlik
Head of Municipal Strategy & Credit
214.859.9439
tom.kozlik@hilltopsecurities.com

Table of Contents **Page**

Please see analyst certifications and disclosure starting on page 20.

Individual Investor Interest in Municipal Bonds

Almost three quarters of the $4 trillion of outstanding municipal bonds are owned by retail investors either in the form of individual bonds or through mutual funds.

Almost three quarters of the $4 trillion of outstanding municipal bonds are owned by retail investors either in the form of individual bonds or through mutual funds.[i] It is no surprise as there are several compelling reasons investors are interested in municipals. We highlight three key reasons below.

- Investors, specifically baby boomers, are in the midst of transitioning a total of $64 trillion of new assets into their investable asset accounts.[ii]
- Laws revised by the 2017 Tax Cut capped the property, sales, and income tax deduction at $10,000 and increased the value of the municipal bond tax exemption especially for higher income earners in states such as California, New York, and New Jersey.[iii]
- The after tax equivalent yield for municipals often offers a compelling relative value argument compared to other fixed income investments.

The above then raises the question, "What does credit quality look like in municipals?" To help investors both answer and understand the nuance involved, we took a look at 11 tax-backed and revenue-backed municipal sectors. We assigned credit outlooks to give investors an idea of the current level of credit quality they can expect when comparing investment alternatives.

Broader U.S. Economic Backdrop

The U.S. economy officially entered the longest economic expansion in its history. As of August 1, the nation's gross domestic product has grown at a positive clip for 122 straight months, beating the 120-month expansion that occurred from 1991 to 2001.[iv] And while we can debate the differences in this record breaking expansion compared to others, those ingredients are in fact similar in some cases as to why we have assigned three "Cautious" outlooks and three "Negative" outlooks to our municipal bond market sectors.

Some positive news has been in the headlines concerning California as its state tax collections have come in at levels just above forecasts.

California and Texas Economic Updates

Some positive news has been in the headlines concerning California as its state tax collections have come in at levels just above forecasts.[v] Capital gains from IPOs for tech companies such as Lyft and Uber heavily contributed to the numbers. June employment growth (46,200 new jobs in June 2019) in California was above the 12-month average and the state's unemployment rate remained at 4.2%. The construction, trucking, and warehouse industries are the weak-spots in California while the technology and entertainment sectors are the positives.[vi] Trade and foreign investment slowed in California at the end of 2018 and home sales have been weakening in recent months, as the number of June homes sales remained below its long-term historical monthly average.[vii] Finally, although the California State Fiscal Health Index remains relatively high, it has declined for the last three months. The weakness in the Health Index seems to be driven by declining home sales, slowing home building, falling car sales, and lower values in the S&P 500.[viii]

Texas remains one of the United States' fastest growing state economies as it has done much to diversify its industry mix. Positive demographic and employment trends are helping the Lone Star State outpace many other states in several growth metrics. State GDP was just over 3% for 2018 and outpaced the U.S. Texas added 45,000 jobs in June, the strongest month since 2017. For the summer months, job additions have averaged 36,600. The Texas unemployment rate has further improved and is at 3.4%, better than the U.S. which is at 3.7% for June. Most of the larger Texas housing markets are continuing to gain population fueled by the energy, mining, construction, and manufacturing sectors.[ix]

Texas remains one of the United States' fastest growing state economics as it has done much to diversity its industry mix.

Trade War Impact on U.S. Agriculture Sector

The trade war between the U.S. and China has resulted in tariffs on agricultural products like fruit, nuts, vegetable, dairy, and livestock. Chinese demand for these U.S. products has been hit. On the surface, agriculture typically makes up a small percentage of state GDP. And that is true even in California (1.26% of state GDP) and Texas (0.52% of state GDP). However, California and Texas are the U.S states with the highest agricultural output in terms of dollars, and the highest in employment. Texas employs over 265,000 in the sector and California 237,000. Federal assistance could help make up for some of the lost opportunities for farmers in California and Texas, and nationwide for that matter. Currently we are not seeing that the trade war is impacting the agriculture sectors in these states, but this exposure could evolve, and it is worth watching.[x]

Currently we are not seeing that the trade war is impacting the agriculture sectors in these states, but this exposure could evolve, and it is worth watching.

The New Fiscal Reality for the Municipal Bond Market

The challenges facing most municipal bond market issuers are substantial, and that statement is meaningful considering we just began the 11th year of a record economic expansion. The key test all municipal bond issuers face is the need to navigate what we refer to as, "the New Fiscal Reality." The New Fiscal Reality is characterized, across practically all sectors, as a condition where expenditure demand and its growth is far outpacing revenues. The pace and factors may be slightly different issuer to issuer, region to region, or even sector to sector but the New Fiscal Reality has been and will continue to be a dilemma for municipal bond market issuers.

Other challenges, many of which the below sectors share, include: weak demographics, general operating pressures, the redefining of the federal/state relationship, the need for cybersecurity, climate change, infrastructure, technological change (and the pace of), and lower than historical economic growth.

The challenges facing most municipal bond market issuers are substantial, and that statement is meaningful considering we just began the 11th year of a record economic expansion.

And then there are public sector pension liabilities. For many public sector employers pension liabilities are a structural imbalance subject to a worsening condition from cyclicality. Sure, the magnitude of the structural imbalance now can be debated. But public sector employers do not have limitless resources they can use to fund the benefits, despite the belief by some that simply raising revenue or taxes will solve the funding gap. There is a reason most private employers no longer offer defined benefit pension plans. It is because the benefits offered are typically too rich, and the financial and demographic reality makes them too expensive and unrealistic to fund.

In the municipal sector's best situations, defined benefit pension liabilities are crowding out other expenditures. In some circumstances, it appears that public sector employers have all but given in to the futility of "fully funding," mostly because of the extreme expense the number(s) have risen to. In the worst of situations plans are either insolvent or we are now able to count the number of years—if not months—to insolvency.

All of these challenges flow through and pressure the below municipal sectors in slightly different ways, but in most cases these are the challenges municipal issuers are facing. Let's take a sector by sector look below.

U.S. State Government: Sector Outlook – "Cautious"

A key credit strength for U.S. state governments is their sovereign ability to raise revenue and cut spending when necessary. Spending cuts were the typical strategy states used to balance budgets through the Great Recession and to this day downstream funding has still not been completely restored nationwide. Higher education institutions, K-12 schools, and other local governments especially felt the pain of downstream cutbacks.

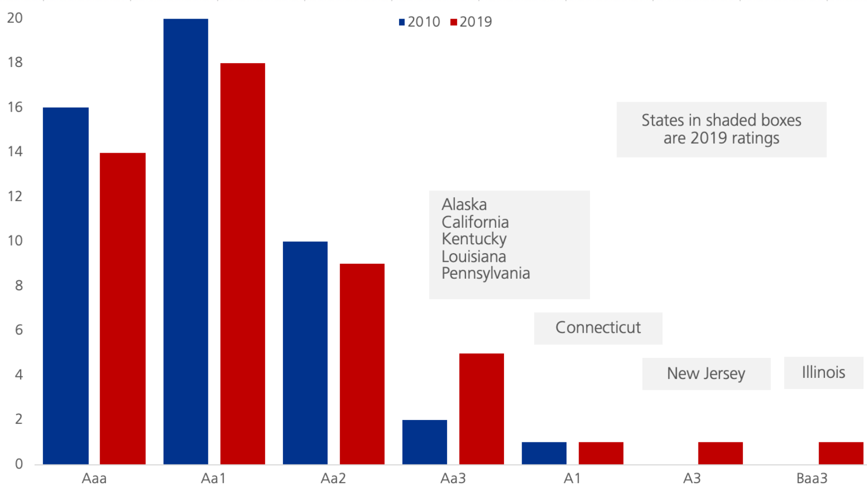
For many public sector employers pension liabilities are a structural imbalance subject to a worsening condition from cyclicality.

Going forward we expect to see state governments continue to utilize their sovereign ability, but mostly in the form of cuts, not actions that will result in higher taxes. The state budget process remains a highly politicized procedure and this process is only going to become more contentious as resources become more scarce and expenditure demand intensifies.

It may surprise some to read the following, but state governments have experienced an unprecedented level of credit deterioration during this record-breaking economic expansion.

It may surprise some to read the following, but state governments have experienced an unprecedented level of credit deterioration during this record-breaking economic expansion. Moody's data shows that since the end of the Great Recession state governments have done their best to keep their heads above water but some are struggling. This is generally because expenditure demand is climbing while revenues are not rising fast enough, and pensions almost always have an outsized impact. The majority of those states that have experienced downgrades below the double-A category are those that have struggled with rising pension liabilities. Illinois (Baa3/BBB-/BBB) specifically is on the edge of investment grade.

Unprecedented State Credit Deterioration Since the Great Recession



Source: Moody's and HilltopSecurities.

In 2017 S&P warned about "complacency when it comes to state finances."

The state ratings at S&P are experiencing a similar level of deterioration. And, in 2017 S&P warned about "complacency when it comes to state finances." In a commentary piece posted on The Hill, S&P wrote:

> *U.S. states have entered a new era characterized by chronic budget stress. For the past 130 years, states have mostly been financially resilient through a range of economic conditions. In fact, no state has defaulted on its debt since Arkansas in the 1930s. This long period of relative calm may have lulled some people into complacency when it comes to state finances. It shouldn't have.*[xi]

A new level or type of distress has already hit Kentucky, where its second largest pension plan has effectively been funded on a pay-as-you-go basis for the last two years.

A new level or type of distress has already hit Kentucky, where its second largest pension plan has effectively been funded on a pay-as-you-go basis for the last two years. The Kentucky rating has not been hit just yet, but once an economic downturn materializes and Kentucky cannot dip into a rainy day fund (because it has all but been exhausted), it will be difficult for the Commonwealth to fund pensions pay-as-you-go.

Three other states—and we should stress that they are meaningful states for the municipal bond market—New Jersey, Connecticut, and Illinois are forecast to exhaust their pension assets within three to six years after a shock scenario, according to a May 2019 Moody's analysis. Even worse is that there are 12 other states that are forecast to exhaust their pension assets within six to eight years.[xii]

New Jersey, Connecticut, and Illinois are forecast to exhaust their pension assets within three to six years after a shock scenario, according to a May 2019 Moody's analysis.

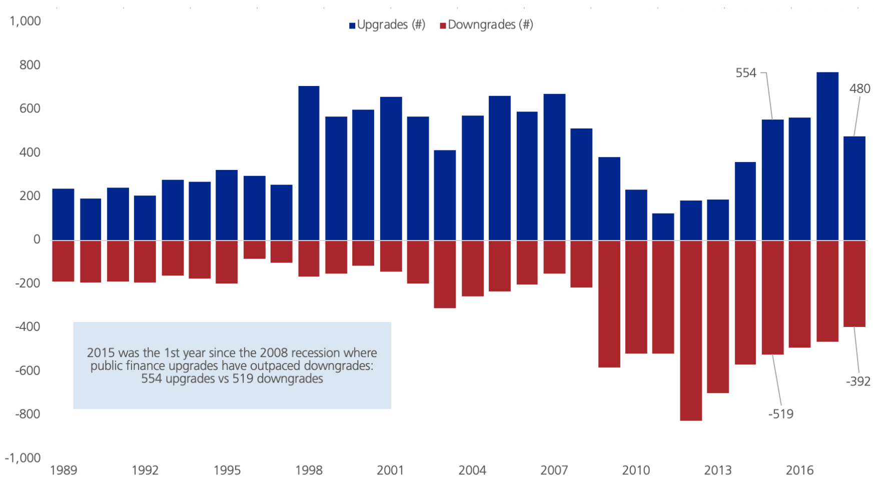
Are States Prepared for an Economic Slowdown?

We also question how prepared states are for a broader economic slowdown. Some have been storing nuts for the winter. Alaska, California, Michigan (dropping in recent years), and Texas all have total balances that are close to or higher than what they had stored away before the last economic downturn, according to data from the National Association of State Budget Officers. The flip side shows that there are a few states that are less prepared now than they were in 2006. Maryland, Massachusetts, and Vermont have at least 6% of revenues or more, but the cushion they have now is only about half of what they had stashed away 13 years ago. Illinois, Kentucky, and Pennsylvania have all but run out of rainy-day funds.[xiii]

U.S. Local Government: Sector Outlook – "Cautious"

Property tax revenue has been steadily growing in the years since the Financial Crisis of 2007-08. More good news is that the aggregate general fund data is rather robust for the local government sector as well. These numbers are somewhat misleading however because they not take into account how each local government is reacting and operating within the New Fiscal Reality.

There are Still a Significant Number of Public Finance Downgrades



Source: Moody's and HilltopSecurities.

Alaska, California, Michigan (dropping in recent years), and Texas all have total balances that are close to or higher than what they had stored away before the last economic downturn, according to data from the National Association of State Budget Officers.

It was in 2015 that the number of upgrades finally outpaced downgrades for Moody's public finance ratings and that trend has continued. Good news right? In some ways yes, but in others no. What has been happening when you look closer at the numbers is not good news.

There are two key problems with looking at the high-level results. The first problem is that the number of downgrades is still elevated. The number of downgrades is still almost as high as the number of upgrades. This is troubling experience especially considering that we just began the 11th year of an economic expansion.

Illinois, Kentucky, and Pennsylvania have all but run out of rainy-day funds.

The second key problem is the reason why local governments specifically are being downgraded. Our analysis demonstrates that about half of local government downgrades are occurring because of multi-year structural imbalances. And about another quarter of the downgrades are occurring because of a narrowing of reserves. This activity is a result of the New Fiscal Reality.

Our analysis demonstrates that about half of local government downgrades are occurring because of multi-year structural imbalances.

There is a bright side, at least for the credits that are being upgraded. We found that the upgraded local governments are those who several years ago recognized the New Fiscal Reality and steadily made revenue and expenditure adjustments that would strengthen their credit position.

Pensions Have Been and Will Be a Significant Drag on Local Govt. Credit Quality

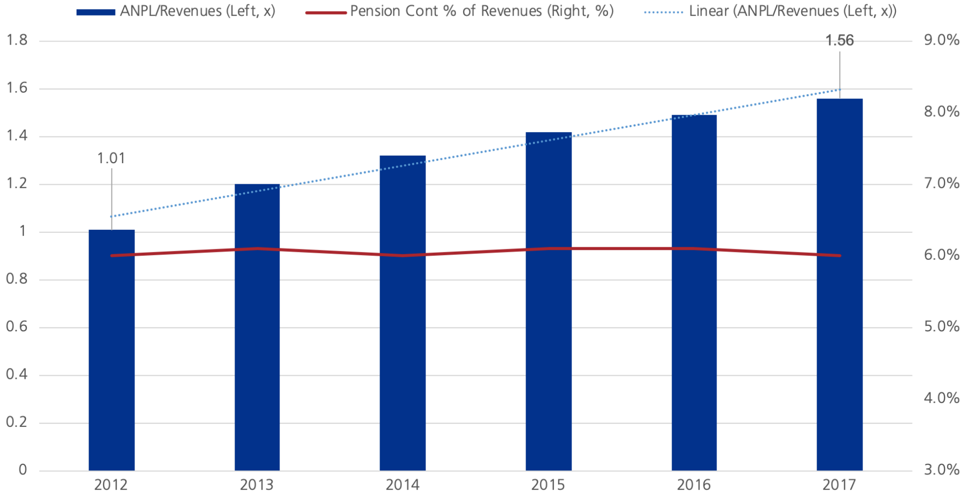
Higher required pension contributions are somewhat factoring into the above results, but they are not yet a driving force for most local governments. Many local governments are able to come close to or meet a tread water pension payment amount. But that does not mean they will be able to in coming years, and it definitely does not mean the payments they are making now are not squeezing their budgets. In fact, we expect a situation where, after revenues drop mostly likely during an economic downturn, issuers will take pension funding holidays. This only exacerbates the pension-funding dilemma, forces credit quality to decline, and quickens the path to asset insolvency.

Let's illustrate the magnitude of what local governments are facing with pensions using some numbers. Total local government revenue growth is forecast in the near term to top out at about 3%. At the same time pension contributions are expected to grow at 8%.[xiv] Now, even assuming there is a moderate amount of willingness to raise taxes, which we do not think generally exists, that gap between 3% and 8% is going to be very difficult to close in the near to medium term.

We found that the upgraded local governments are those who several years ago recognized the New Fiscal Reality and steadily made revenue and expenditure adjustments that would strengthen their credit position.

Local governments categorically cannot afford an expense that is rising at this trajectory. The below figures show that adjusted net pension liabilities have risen by over 50% over the last five years while pension contributions have stayed the same. This data indicates to the market that local governments are facing an uphill battle that they likely cannot win. Again, this is in the 11th year of an economic expansion. If they are not going to pay down their pension liabilities now, when will they be able to do it?

Pension Liabilities are Rising but Payments Remain the Same



Source: Moody's and HilltopSecurities.

Now, even assuming there is a moderate amount of willingness to raise taxes, which we do not think generally exists, that gap between 3% and 8% is going to be very difficult to close in the near to medium term.

School Districts (Public): Sector Outlook – "Cautious"

School districts are having to deal with rising pension liabilities as well, and these organizations are often less equipped to tackle expenditures that rise as fast as pension liabilities have been. Local school districts typically have less flexibility with their revenue streams and have limited control over the amount they pay for pensions, especially if they are paying into state-sponsored shared plans.

School districts are having to deal with rising pension liabilities as well, and these organizations are often less equipped to tackle expenditures that rise as fast as pension liabilities have been.

To make matters worse, schools are also on the receiving end of state governments' ability to manage their expenditures—the same sovereign ability states possess to manage revenues and expenses we wrote about in the State Government section above. K-12 school districts are still taking it on the chin as it relates to their state funding. Capital spending for K-12 schools is still well below 2008 levels.[xv] State aid to schools for instruction remains weak in some places. There are five states where state K-12 funding is still 10% lower in 2019 than it was in 2008: Texas (-20%), Oklahoma (-15%), Alabama (-15%), Kentucky (-13%), and Kansas (-12%). There are another seven states with state funding formula levels below where they were in 2008.[xvi]

Cybersecurity is a threat to state and local government including school districts, especially those that are on the small side. In July, the State of Louisiana declared a state of emergency after cybercriminals attacked school districts for example.[xvii] Just this weekend a collection of government agencies and local governments in Texas were hit by an apparent ransomware attack.[xviii] These recent events illustrate the increased threat.

Permanent School Fund Enhancement Structure

We should note that there is a high level of security devoted to bondholders in a permanent school fund structure. The Texas Permanent School Fund has a substantial amount of assets backing its liabilities, for example. $44 billion of assets guarantee $79 billion in Texas Permanent School Fund bond principal.[xix] Both the ability and willingness to pay is high where this program structure is concerned.

Cybersecurity is a threat to state and local government including school districts, especially those that are on the small side.

School District Subsector - Charter Schools (not related to above outlook):

- Charter school issuance continued to come in strong with almost $3 billion sold in 2018. Four of the 10 largest charter school issues in 2018 were sold in Texas and almost 30% of the par amount sold was in Texas. The second largest amount was 10% in CA.[xx] S&P rated 282 individual charter schools in 2018: 33% are rated BBB- while 43% are BB+/BB.
- The Equitable School Revolving Fund sold the first financing for its pooled charter school loan program in August 2019. The financing included 11 loans with a loan balance of $158 million which will be pledged toward $111 million of bonds. The fund expects to sell a bond issue every summer and the total par amount should increase in size annually. We see this as an innovative financing solution for charter schools that benefits investors because it diversifies risk and benefits issuers because the pooled funded approach helps lower financing costs for the participating charter schools. We expect more issuer/investor demand for this unique structure going forward. The August 2019 issue was 11x oversubscribed overall and was 18x oversubscribed in the longer maturities. S&P rated the first Equitable School Revolving Fund bond sale an "A" with a"Stable"outlook.[xxi]

Airport Sector Outlook – "Positive"

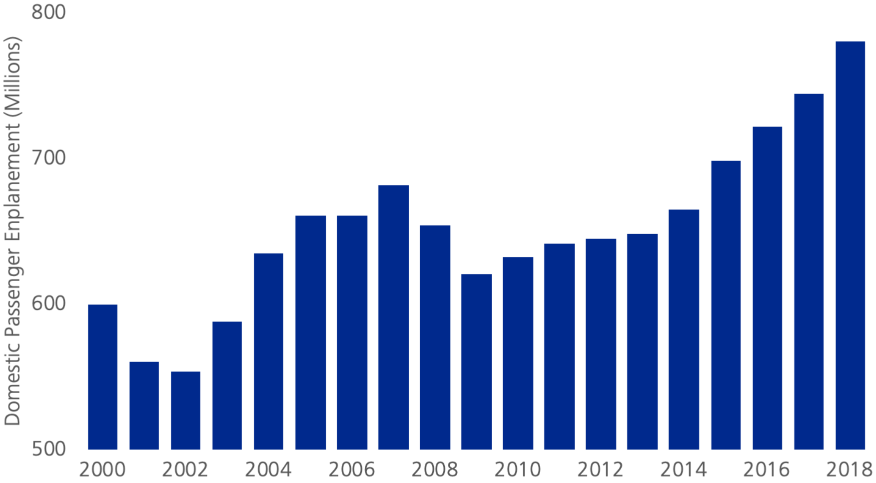
If there is a bright spot in the municipal bond market, it is in the airport sector. Security types for issues in this sector vary. There are first lien general airport revenue bonds and bonds backed by passenger facility charges, as well as rental car facilities charges, which offer another type of security, for example.

If there is a bright spot in the municipal bond market, it is in the airport sector.

Broadly, there are some of the underlying themes such as demographics and technological change that are impacting the airport sector. But overall the underlying stresses are being overshadowed with strong enplanement growth, slower but still positive airfare increases, and strong financial performance in general. Enplanement growth has slowed somewhat but is still substantial, especially compared to the minimal growth in the years just after the Great Recession.

Enplanement growth has slowed somewhat but is still substantial, especially compared to the minimal growth in the years just after the Great Recession.

Enplanement Growth Bodes Well for the Airport Sector



Source: U.S. Bureau of Transportation Statistics and Hilltop Securities.

Larger airport hubs are commonly among those with better than average utilization metrics. There is some regional differentiation in the airport sector investors should be aware of for sure. Growth in the West and South is certainly having a positive impact on airports in Los Angeles, Austin, Dallas-Fort Worth, San Diego, Portland (OR), and Seattle among others. The larger locations in Florida are also thriving.

Disruption from companies such as Uber and Lyft have been a concern but most airports have largely addressed—or are in the end stages of addressing—any negative revenue impacts.

Disruption from companies such as Uber and Lyft have been a concern but most airports have largely addressed—or are in the end stages of addressing—any negative revenue impacts. In the medium term, we will look to see how facilities are planning to combat the potential disruption from and increased utilization of autonomous vehicles. This could be particularly troubling for revenue streams related to parking for example.

The need for infrastructure upgrades is significant in the sector still. Capital spending is essential in most locations and this is an area that requires tracking on an airport by airport basis because of the specific requirements. We are seeing in some cases significant capital programs that are expected to take years and in some cases a heavy amount of debt to fulfill.

Potential Meaningful Legislation Related to the Airport Sector

- Federal legislation was proposed to eliminate the federal cap on airport passenger facility charges in July 2019.[xxii] This offers some additional revenue potential if passed.

Health Care (Not-for-Profit) Sector Outlook – "Negative"

A host of factors are straining many institutions operating in the not-for-profit Health Care sector, but we mostly expect operating headwinds to continue to drive our "Negative" outlook for the sector. It does not mean there are not any health care issuers with stable or even improving credit quality. But it does mean a large segment

A host of factors are straining many institutions operating in the not-for-profit Health Care sector, but we mostly expect operating headwinds to continue to drive our "Negative" outlook for the sector.

of credits are expected to experience (or further experience) margin and balance sheet pressure in the near term and investors will need to search a little more than normal to find entities with favorable credit qualities in this sector.

Larger single-state and multi-state health care systems are better positioned to overcome the continued operating stress and uncertainty related to federal government changes.

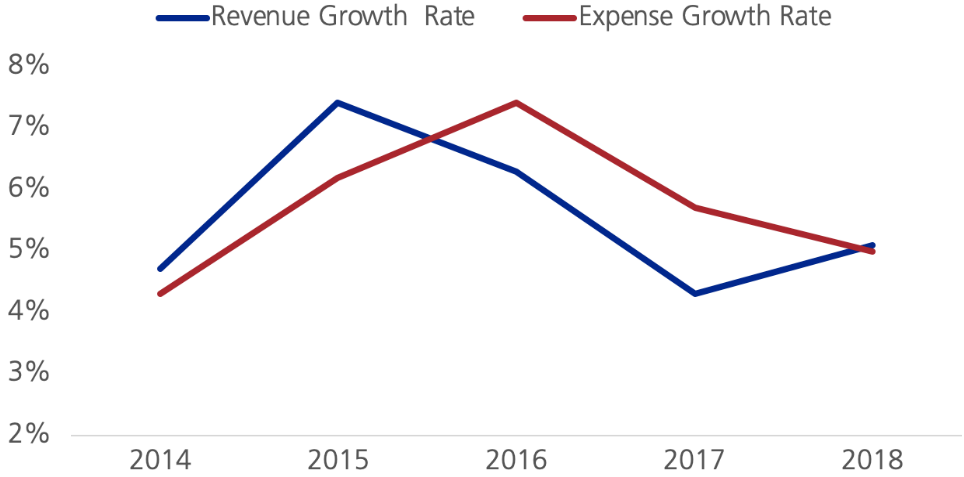
Larger single-state and multi-state health care systems are better positioned to overcome the continued operating stress and uncertainty related to federal government changes. Hospital merger and acquisition activity has driven consolidation in the industry and this is expected to continue as smaller entities look to partners for support and larger organizations look for growth opportunities.[xxiii]

Some small independent hospitals that are financially challenged are having a hard time in the current operating environment. Their size and lack of resources are a key barrier to their continued survival. These institutions are not able to compete effectively, in part due to their location, where demographics remain a challenging headwind, and in part due to their inability to effectively recruit and retain high quality leadership. Both are important differentiating factors to consider for all health care institutions but especially those smaller in size.

Financial performance as a sector has been weak. Industry operating cash flow growth was very strong in 2014 and 2015, which coincided with the benefits of the Affordable Care Act, including Medicaid expansion in some states, according to Moody's data. However, this performance has not been repeatable across the sector as some entities have struggled to turn positive margins in the years since.

Some small independent hospitals that are financially challenged are having a hard time in the current operating environment.

Health Care Revenue Growth Exceeded Expenses, Not Expected to Become a Trend



Source: Moody's and HilltopSecurities.

Many key financial ratios remain under assault and margins are being squeezed by various factors that are often outside of the control of health care providers, no matter the size. 2018 revenue growth exceeded operating expenses for the first time since 2015, according to Moody's median data. However, the ability to consistently maintain that level of growth is questionable. Broadly speaking, patient volumes are flat to declining, and the shifting of the payor mix is causing strain on revenues. The demographic reality of America in 2019 is that the country's aging population has increased, and Medicare as a percentage of total revenue has grown to 47% in 2018 from 44% in 2014, also according to the most recent Moody's median sector data.

Many key financial ratios remain under assault and margins are being squeezed by various factors that are often outside of the control of health care providers, no matter the size.

This one sector (CCRCs) where the aging demographics of the U.S. is a credit positive and helps to drive strong metrics.

Health Care Subsector: Continuing Care Retirement Communities (not related to above outlook):
This is one sector where the aging demographics of the U.S. is a credit positive and helps to drive strong metrics. Continuing Care Retirement Communities (CCRCs) are benefiting from the maturing of the U.S. population. Operating performance is being positively impacted by the combination of strong occupancy rates and from the multi-year strengthening of many real estate markets. The majority (49%) of CCRCs rated by Fitch Ratings are in the BBB category.

Higher Education Sector Outlook – "Negative"

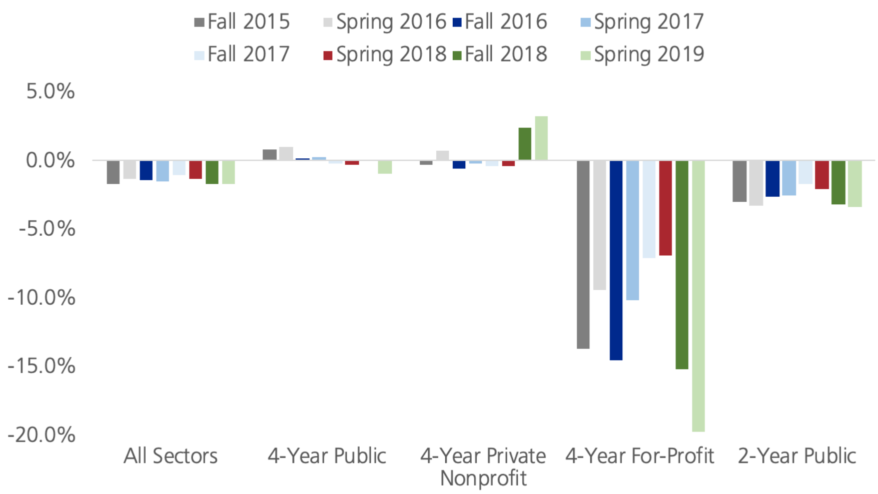
Rising costs for instruction, administrative expenses, and health care needs are all helping to drive tuition costs higher. And the rising level of tuition is the topic that gets the most attention in the sector typically from a general audience. Affordability is a pressure contributing to declining credit quality especially for the smaller, less-selective, private universities.

The shifting demographic landscape in the U.S. is the leading factor contributing to the changes in the higher-education sector. Many of those changes are more harmful to credit quality than good, unfortunately. The demographic shifts in the Northeast and Midwest are problematic for schools of all sizes but are especially burdensome for smaller private schools without a specialization or market niche.

The shifting demographic landscape in the U.S. is the leading factor contributing to the changes in the higher-education sector.

On the surface, positive demographic trends in the West and South lead investors to think all is good in the sector in those areas but that is not necessarily true. Nathan Grawe's Higher Education Demand Index notes that enrollment managers need to be aware of college-bound college-aged children in order to differentiate between who is and who is not likely to attend a higher education institution.[xxiv] This new evaluation process is different than traditional forecasts. Recent data seems to prove this out, at least recently. Estimated enrollment by state shows fall 2018 enrollment in California (-2.0%) and Florida (-1.7%) as lower, and enrollment in Texas (-0.3%) was down just slightly compared with fall 2017 enrollment.[xxv]

Enrollment by Higher Education Subsector, % Change from Previous Year



Source: National Student Clearinghouse Research Center, Term Enrollment Estimates, Spring 2019 and HilltopSecurities.

Nathan Grawe's Higher Education Demand Index notes that enrollment managers need to be aware of college-bound college-aged children in order to differentiate between who is and who is not likely to attend a higher education institution.

It is a mistake to think that online learning is going to be the absolute disrupter of higher-ed some predict it to be, despite Clayton Christensen's Meredith Whitney-like doomsday forecast.[xxvi] And technological change and on-line learning is not currently driving the shift in the higher education sector right now. Massive Open Online Courses (MOOCs) and online learning are only minimally being used by higher-ed institutions. In time, effective MOOCs and partnerships related to them will have an increasingly important impact on the higher-ed sector and will be a differentiator. A more accurate level of impact from online learning is likely going to be possible in coming years once the true capability of technology is effectively harnessed. In the end, technology is a way the gap could widen between the higher and lower end institutions.

It is a mistake to think that online learning is going to be the absolute disrupter of higher-ed some predict it to be, despite Clayton Christensen's Meredith Whitney-like doomsday forecast.

Revenue growth overall will continued to be constrained in the higher education sector. There are a variety of higher-education revenue streams but largely private institutions are funded by net tuition revenue, endowments, and gifts. Public institutions are funded by tuition, state-support, grants, and endowment income. The ability for publics and privates to raise tuition is certainly complicated because of cost and affordability concerns. This significantly constrains many entities. The lack of state funding for higher-ed has not helped either and the potential for more cuts during the next downturn is a significant risk for the sector.

State funding for public universities has been gutted. States are spending $7 billion less for public higher education now than in 2008. Forty five states are spending less per student in 2018 than ten years ago, and nine states are now spending 30% less than in 2008: Alabama, Arizona, Louisiana, Mississippi, Missouri, New Mexico, Oklahoma, Pennsylvania, and South Carolina. The only states currently spending more on public higher education now are California, Hawaii, North Dakota, and Wyoming.[xxvii]

Typically, during recessions people tend to expand their higher education horizons and enrollments increase. This scenario is likely to help community colleges and public universities more than privates.

In July 2019, the state of Alaska cut state funding for the University of Alaska (UA) by 41%. UA's Board of Regents declared financial exigency on July 22. Then, on August 13 the University of Alaska and the governor reached an agreement to only reduce state funding by $25 million with additional reductions occurring in coming years.[xxviii]

This is one sector that could benefit from the inevitable recession that is looming around the corner. Which corner, and exactly when the recession happens, is still uncertain but it is coming. Typically, during recessions people tend to expand their higher education horizons and enrollments increase. This scenario is likely to help community colleges and public universities more than privates.

Housing Sector Outlook – "Positive"

The details of this sector description refer to single and multi-family housing revenue bonds sold by state housing finance agencies (HFAs). There are several other housing subsectors, and we made a few notes for those at the end of this section.

The main reason we have assigned a "Positive" outlook to the HFA Housing sector is because of the very high credit quality that exists generally in the sector, and also because we think that even if, or when, there is a recession or economic downturn that the credit quality will mostly remain very high. State HFA credit quality remained resilient, even in the depths of the last recession, which significantly pressured housing markets across the country.

The main reason we have assigned a "Positive" outlook to the HFA Housing sector is because of the very high credit quality that exists generally in the sector, and also because we think that even if, or when, there is a recession or economic downturn that the credit quality will mostly remain very high.

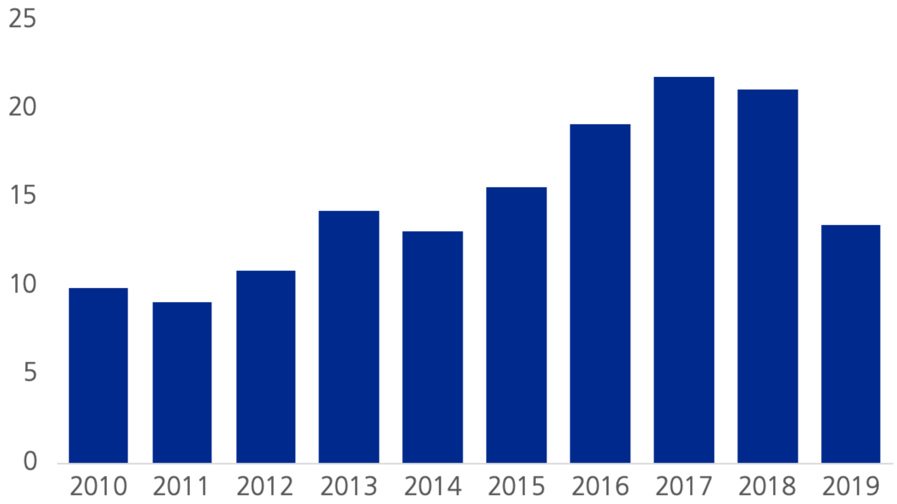
Demographics are a negative across almost all municipal bond market sectors. Not here. Not in this sector. The current demographic trends throughout the country are a credit plus for State HFA single and multi-family affordable housing products. Millennials are currently the largest cohort of single-family homebuyers and that should continue to be a driver of HFA single-family loans. Boomers and the Silent Generation are downsizing and are leading candidates for HFA multi-family units.

Just after the recession, HFAs took measures to adjust their business models to address challenges in the falling interest rate environment. They used pass-through structures and secondary market mortgage backed security sales before rates began to rise in recent years. These strategies could once again be utilized if necessary, especially considering where the direction interest rates may be headed in the near term. This menu of options will only help strengthen or least again stabilize HFA balance sheets.

Just after the recession, HFAs took measures to adjust their business models to address challenges in the falling interest rate environment.

HFA asset to debt ratios dropped slightly because of the increased amount of bond issuance that has been sold, but the metric still remains very strong. Investors should not be concerned as the asset to debt ratio continues to drop in the near term as it is expected.

Single and Multi-Family Housing Bond Issuance is Coming Back



Source: Thomson Reuter's data as of July 31, 2019 and HilltopSecurities. Includes single and multi-family only. ($ in billions)

Investors should not be concerned as the asset to debt ratio continues to drop in the near term as it is expected.

On the multi-family side it is possible that the lower values for Low Income Housing Tax Credits as a result of the 2017 tax reform could remain, but overall the need for low-income multi-family housing and other state and local subsidies should help the projects develop. Demand in the form of vacancies of HFA multi-family projects at only 2.2%[xxix] compared with the national average of 4.7%[xxx] illustrate the high demand for HFA multi-family program units.

Housing Subsectors (not related to above outlook):
Private Student Housing

- General demand for student housing can drive solid performance in this sector and occupancy is mostly very strong.
- However, while the number of stressed projects have increased, the absolute number has remained very small in the last few years as enrollments at some institutions have come in under expectations.
- Clarion University Foundation, PA, for example has occupancy levels at 90%, 84%, and 62% driven by falling enrollment trends (down 7% in 2018, flat in 2017, and down 3% in 2016[xxxi]).

Military Housing

- The U.S. Department of Defense increased the 2019 Basic Allowance for Housing (BAH) by an average 2.55%[xxxii], a credit positive for bond financed military housing projects, which improves near term metrics like debt service coverage ratios.

The U.S. Department of Defense increased the 2019 Basic Allowance for Housing (BAH) by an average 2.55%, a credit positive for bond financed military housing projects, which improves near term metrics like debt service coverage ratios.

Public Housing Authorities Capital Fund Transactions

- Legislation signed by President Donald Trump at the beginning of 2019 included a spending increase for the Public Housing Capital Fund in the amount of $2.78 billion, a 1% increase compared to FY18. Even though it was a small increase, it is still a significant pick-up from the funding levels of 2011 to 2017.[xxxiii]

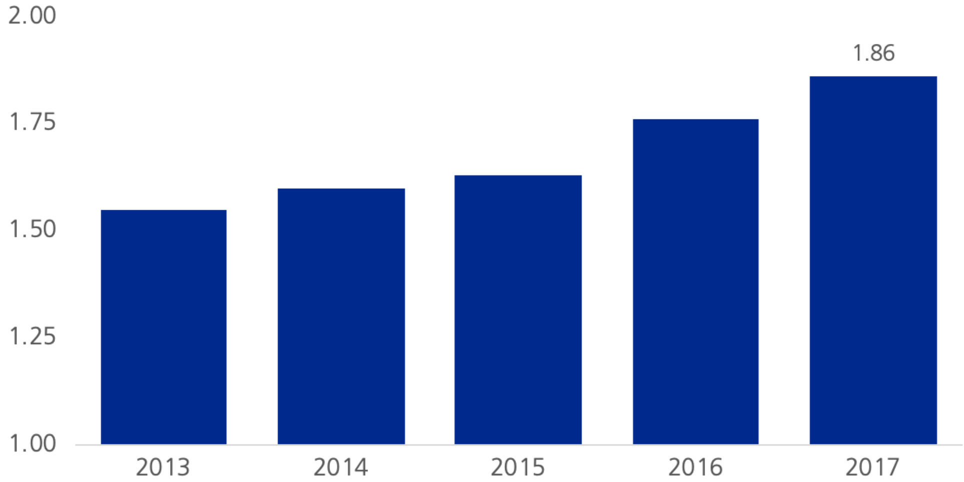
Annual total electrical generation has remained very constant even through the sources have shifted, most notable is the increase in natural gas but low natural gas prices have limited the financial impact of this shift for now.

Public Power Sector Outlook – "Stable"

Annual total electrical generation has remained very constant even though the sources have shifted, most notable is the increase in natural gas. But low natural gas prices have limited the financial impact of this shift for now.[xxxiv] There is typically a relationship between the growth, or decline in the overall economy and energy use. This exposure exists in other sectors but is very apparent in public power.

The essential nature of this product for commercial and residential usage underscores its importance and strengthens the argument for the sector's "Stable" outlook despite the fact that usage would likely decline during an economic slowdown. The utilities that own generation rate setting ability has helped them create stable to increased coverage metrics in recent years. And while days cash on hand fell to 229 days from 242 days, it remains strong according to Moody's medians. But, there are still a small number of individual cases where rate setting pressures are greater than the rest of the sector, mostly due to legacy expenses and/or high cost structures.

Public Power Median Fixed Obligation Charge Coverage Continues to Improve



Source: Moody's and HilltopSecurities.

The essential nature of this product for commercial and residential usage underscores its importance and strengthens the argument for the sector's "Stable" outlook despite the fact that usage would likely decline during an economic slowdown.

So far the transition to green, or cleaner, energy alternatives has not had any impact on the sector, but this topic has potential to present difficulty in the future. The threat of a cyber-attack is a more immediate threat to public power utilities. One third of U.S. electricity comes from the interstate natural gas pipeline, which a Dec. 2018 U.S. Government Accountability Office report said is an "attractive target for hackers and terrorists" and has its security "weaknesses."[xxxv]

Tobacco Sector Outlook – "Negative"

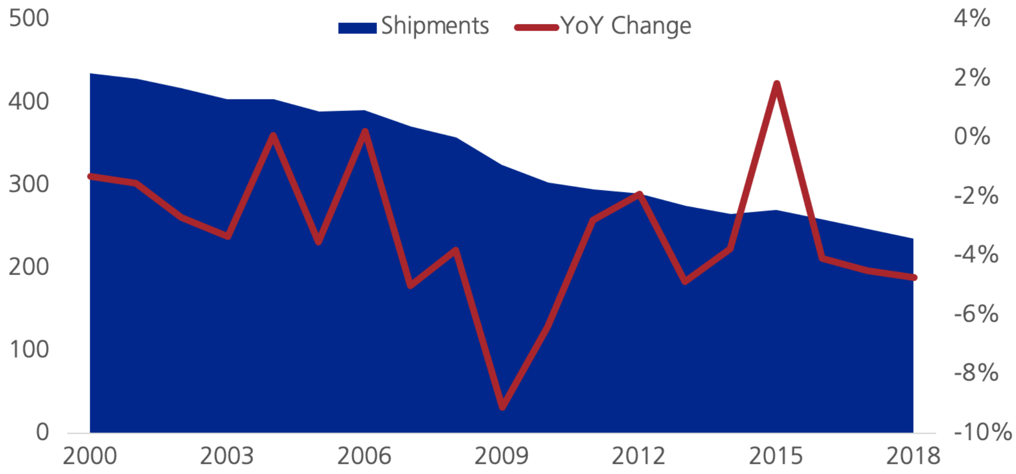
The tobacco settlement revenue securitizations are bond issues secured by the tobacco settlement revenues tobacco companies agreed to pay to state and other governments under the Master Settlement Agreement (MSA) in 1998. Falling domestic cigarette sales are largely responsible for declines in the actual MSA payments that secure the bonds.

Declining domestic cigarette sales are largely responsible for declines in the actual MSA payments that secure the bonds.

The National Association of Attorneys General released its annual U.S. MSA domestic cigarette shipment data in May 2019. It reported another decline of shipments with a year over year change at -4.75%. This does not come as a surprise to most who follow this sector. Higher sin taxes on tobacco can have a significant impact on consumption. On average a pack of cigarettes costs $5.51 nationwide; in New York they average $12.85.[xxxvi] Other influences that can impact consumption and thus shipments include: changing consumption patterns, restrictions on advertising tobacco, the use of e-cigarettes and other alternatives (not included in the MSA), a more health conscience citizenry, and government efforts to curb smoking. These are all factors that weigh heavily on the potential for these results to continue to fall.

The National Association of Attorneys General released its annual U.S. MSA domestic cigarette shipment data in May 2019.

U.S. Cigarette Shipments on a Downward Trajectory



Source: National Association of Attorneys General and HilltopSecurities. (in billions)

On average a pack of cigarettes cost $5.51 nationwide; in New York they average $12.85.

The consistent declining revenue stream has resulted in many downgrades to below investment grade, and reserve fund draws for these structures. Although a new generation of tobacco bonds incorporate more conservative underlying assumptions about smoking declines than earlier issues. This new generation includes bonds issued by Illinois (in 2010 that have since been refunded), Minnesota (2011), and Pennsylvania (2018).

Toll Facilities Sector Outlook – "Stable"

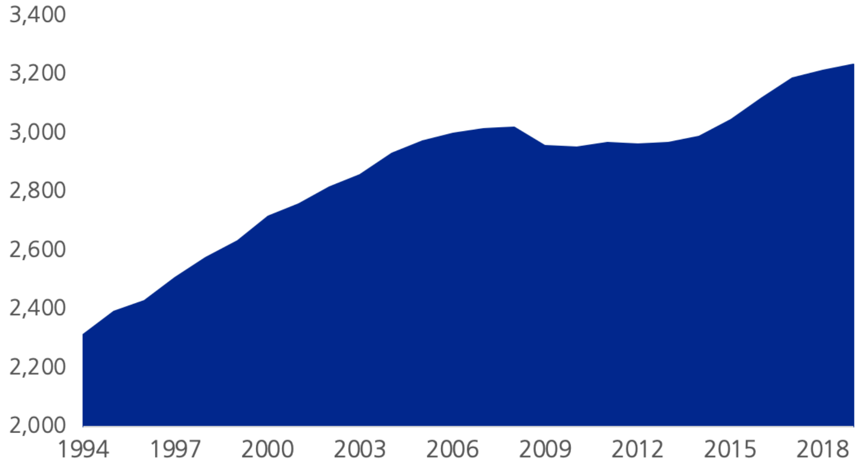
Toll traffic has been supported by stable economic growth in recent years and in some cases we have seen steady fee or toll increases to keep revenues rising at the necessary levels to maintain sufficient debt service coverage levels. Traffic activity could taper off as growth subsides, and in that case we will have to see how individual entities are able to react with needed revenue enhancements or added rounds of toll increases.

At the federal level, we expect there will be a continued dialogue about how to effectively and efficiently fund toll road infrastructure. But for now we will have to settle for the political deadlock DC lawmakers have come to related to the lack of potential for an infrastructure funding plan that was highly touted before and just after the 2016 Presidential election and at the beginning to middle of 2019. There is currently no indication an infrastructure bill is going to be considered anytime soon.

Toll traffic has been supported by stable economic growth in recent years and in some cases we have seen steady fee or toll increases to keep revenues rising at the necessary levels to maintain sufficient debt service coverage levels.

Road related statewide ballot measures fared well in the 2018 midterm elections.

National Vehicle Miles Traveled Still Rising, But Leveling Out



Source: Federal Highway Administration and HilltopSecurities. (# in billions)

Toll Road and Transportation Related Ballot Measures

Road related statewide ballot measures fared well in the 2018 midterm elections. On election day voters passed 71% of ballot measures, accounting for about $33 billion of additive transportation funding.[xxxvii] Here are some of the details and the status of midterm election and other measures we believe are of interest to the investing community related to transportation and toll roads throughout the country:

California voters rejected Proposition 6, a measure that would have repealed the 12 cents a gallon increase to the state gas tax and new annual vehicle fees ranging from $25 to $175 per car approved by lawmakers in April 2017.

- California voters rejected Proposition 6, a measure that would have repealed the 12 cents a gallon increase to the state gas tax and new annual vehicle fees ranging from $25 to $175 per car approved by lawmakers in April 2017.[xxxviii]
- Maine approved $106 million in bonds for road and bridge maintenance.[xxxix]
- Missouri's Proposition D, which would have increased the state gas tax by 10 cents and would have been phased in over four years with the proceeds going for road construction and the highway patrol, was voted down with 54% of votes against the increase.[xl]
- Colorado voters will not be able to vote on a $2.3 billion transportation measure until the 2020 presidential election.[xli]
- Michigan lawmakers are still trying to figure out how to pay for an upgrade [xlii] to the state with the "worst roads in the country," according to a Lvl5 analysis.
- Pro-road Texas legislation, Proposition 1 and 7[xli], approved in 2014 and 2015 could expire in coming years without renewed lawmaker action.[xlv]

Update on Toll Road and Transportation Lawsuits

Some recent lawsuits had implications for toll road and transportation observers, and even other revenue bond investors. The first can best be described as "not a credit negative" for the PA Turnpike. The second has major implications for how investors should view the protection of special revenue bonds in a restructuring. We highlight more detail below:

- In recent weeks a Florida judge ruled state lawmakers violated the state constitution by passing a law that abolished the Miami-Dade County Expressway Authority. The decision is being appealed to the First District Court of Appeal in Tallahassee.[xlvi] Moody's, S&P and Fitch all have downgraded the bonds in recent months and all presently have assigned a "Negative" credit outlook.

Pro-road Texas legislation, Proposition 1 and 7, approved in 2014 and 2015 could expire in coming years without renewed lawmaker action.

- It would have been a credit negative for the Pennsylvania Turnpike if the court had ruled otherwise, but the US appellate court affirmed the dismissal of a lawsuit filed against PA Turnpike by trucking industry organizations just recently.[xlvii]
- Moody's downgraded the Illinois State Tollway Authority (ISTA) to A1 from Aa3 after the U.S. Court of Appeals for the First Circuit ruled the Commonwealth of Puerto Rico is not required to pay special revenue debt service on Puerto Rico Highway & Transportation Authority bonds during the pending restructuring. The rating agency cited the close alignment of ISTA to the state of Illinois (Baa3/BBB-/BBB) and the potential for serious fiscal distress as a key risk. The decision by the court and the rating agency highlights the potential credit contagion risk that exists between a state government and its enterprise units. This relationship risk may not be limited to only transportation related entities.xlviii

The decision by the court and the rating agency highlights the credit contagion risk that exists between a state government and its enterprise units.

Water and Sewer Sector Outlook – "Stable"

The essentiality factor of water and sewer service is a significant driver of the strong financial and credit conditions of most of the issuers in this sector. Operating revenues have grown 3.0%+ annually since the Great Recession. And, most recently operating revenue grew by 5% in 2018 and has been climbing as high as 4% in 2019 to date, all according to Fitch.

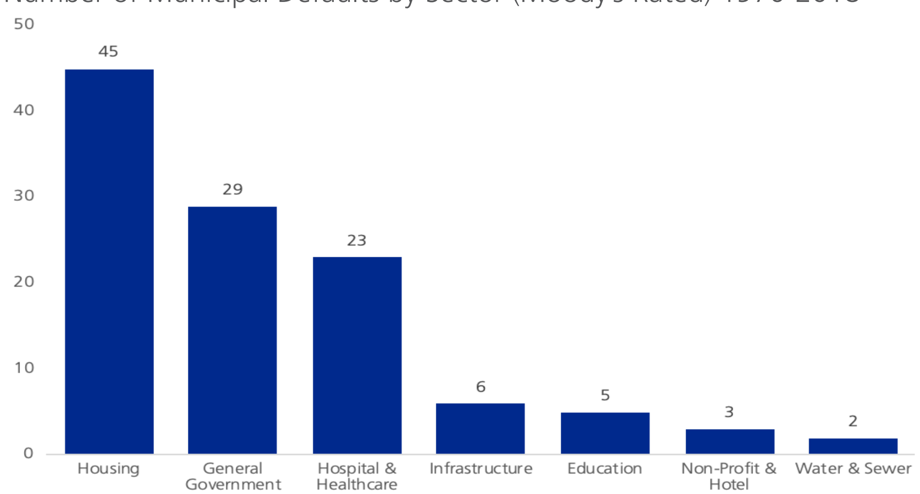
Other medians (also according to Fitch) in the water sector are very strong. Liquidity metrics are 50% higher than they were 10 years ago, and that is not because they were so low back then—it is frankly because they are extraordinary now. Days cash on hand is at a high 561 days of operating expenses. And, debt service coverage have been over 2.0x for five straight years. Overall it is the larger and medium sized systems that are likely to remain the most stable, and should be able to maintain financial results that are closer to what they have been able to attain in recent years when the economy turns. However, we should note that this sector can be considered more insulated from economic cycles than others in the municipal bond market.

The essentially factor of water and sewer service is a significant driver of the strong financial and credit conditions of most of the issuers in this sector.

There is a downside. And that is, as you might imagine, that needed infrastructure upgrades are overdue. Even though capital spending is up, the age of facilities has risen to a record high of 16 years, also according to Fitch water and sewer medians.

The financial strength we are reporting above is one of the reasons that there have only been two defaults of rated water and sewer issues since 1970, according to the

Number of Municipal Defaults by Sector (Moody's Rated) 1970-2018



Source: Moody's and HilltopSecurities.

Liquidity metrics are 50% higher than they were 10 years ago, and that is not because they were so low back then—it is frankly because they are extraordinary now.

recent Moody's default and recovery study. Surely the financial performance could weaken some during the next recession, but issuers in this sector are doing what they need to in order to weather the next economic storm.

The drought conditions that much of the Southwest and Western United States experienced in 2018 have subsided (This is true except for the below note about the status of the Colorado River Basin). Now mostly "abnormal dryness" and some "moderate drought" conditions exist, but none of the more intense extreme drought conditions we saw last year. During drought conditions, users often cut back on water usage. Therefore, a more regular amount of use can be expected in the current meteorological circumstances.

The drought conditions that much of the Southwest and Western United States experienced in 2018 have subsided (This is true except for the below note about the status of the Colorado River Basin).

The Law of the River[l]

Water scarcity is a reality in the Southwest United States as drought conditions since 2000 have exacerbated water levels in the Colorado River basin. The president and Congress approved a water shortage agreement for the seven states: AZ, CA, CO, NM, NV, UT, and WY that would be impacted. Arizona would be most affected since almost the entire state is mostly in the lower basin.[li]

During drought conditions, users often cut back on water usage. Therefore, a more regular amount of use can be expected in the current meteorological circumstances.

Water scarcity is a reality in the Southwest United States as drought conditions since 2000 have exacerbated water levels in the Colorado River basin.

---

[i] *See the most recent 1Q19 Financial Accounts of the U.S. Z.1 data on page 121. In 4Q18 the Fed began accounting for the accumulated valuation difference between issuance and holdings. This is why you now see $4 trillion instead of $3.8 trillion.*

[ii] *The $64 trillion of new investable assets comes from: $23 trillion of retirement plan assets, $30 trillion of personal assets (home downsizing, etc.) and $11 trillion from the sale of small businesses. Source is a Tiburon CEO Summit XXXIV presentation given on April 10, 2018, page 19;*

[iii] *Gillers, Heather and Richard Rubin, New Tax Laws Drive More Americans Into Muni Bonds, The Wall Street Journal Aug. 7, 2019*

[iv] *Please see the economic commentary by Hilltop Securities Scott McIntyre, especially his Quarterly Economic Recap and Rate Outlook dated July 10, 2019 and his Stocks Fall and 30-year Treasuries Approach Record Lows as Trade Fears Increase dated August 8, 2019 for more economic information.*

[v] *June 2019 State Tax Collections, California Legislative Analyst's Office, July 30, 2019.*

[vi] *Ibid.*

[vii] *Home Sales Update: June 2019, California Legislative Analyst's Office, July 22, 2019.*

[viii] *State Fiscal Health Index: June 2019, California Legislative Analyst's Office, Aug. 7, 2019*

[ix] *Data from the Federal Reserve Bank of Dallas.*

[x] *Wells Fargo published an in-depth look at The State of Agriculture with a focused look at certain U.S. states from an economic perspective. August 9, 2019.*

[xi] *Your State is Probably Facing a New Dawn of Public Finance Problems, by Gabe Petek of S&P, April 4, 2017.*

[xii] *Please see page five of Most States Have the Financial Flexibility and Reserves to Manage a Recession, Moody's May 20, 2019.*

[xiii] *The Fiscal Survey of States Spring 2019, The National Association of State Budget Officers.*

[xiv] *The numbers we cited are from Local Government – 2019 Outlook Remains Stable With Tax Revenue to Grow Modestly, Moody's, December 5, 2018, pages 1 and 9.*

[xv] *K-12 Funding Cuts Include Capital Spending to Build and Renovate Schools, Center on Budget and Policy Priorities, June 25, 2018.*

[xvi] *K-12 School Funding Up in Most 2018 Teacher-Protest States, But Still Well Below Decade Ago, Center on Budget and Policy Priorities, March 6, 2019.*

[xvii] *Please see Louisiana Declares State of Emergency After Cybercriminals Attack School Districts, CNBC, July 26, 2019.*

[xviii] *Texas cities, towns slammed by costly cyberattack, Rachel Tesler, Fox Business, Aug 19, 2019.*

[xix] *Texas Permanent School Fund financials at Texas Education Agency web-site.*

[xx] *Charter School Bond Sector: 2018 Year in Review, Equitable Facilities Fund, Wendy Berry, June 26, 2019.*

[xxi] *See the Equitable Facilities Fund Investor Website. There is a link to the S&P rating report.*

[xxii] *See HR 3791 Investing in America: Rebuilding America's Airport Infrastructure Act, July 17, 2019.*

[xxiii] *See recent sector M&A activity here: Healthcare Finance News Mergers & Acquisitions, last referenced Aug 13, 2019*

[xxiv] *Please see Nathan D. Grawe, Demographics and the Demand for Higher Education, Baltimore, MD: Johns Hopkins University Press, 2018.*

[xxv] *Term Enrollment Estimates, Fall 2018, National Student Clearinghouse Research Center, pages 11-13.*

[xxvi] *Please see: Clayton Christensen, Doubling Down, Doug Lederman, Inside Higher-Ed, April 28, 2017.*

[xxvii] *See more in Unkept Promises: State Cuts to Higher Education Threaten Access and Equity, Center on Budget and Policy Priorities, Oct. 4, 2018.*

[xxviii] *University of Alaska and Governor Dunlevy Reach Budget Agreement, Governor's Office, August 13, 2019*
[xxix] *Moody's sample of HFA programs in 2018. 2019 Sector Outlook, Nov 27, 2018.*
[xxx] *CBRE US Apartment Overview and Outlook Q2 2018 as cited in Moody's Housing 2019 Sector Outlook, Nov 27, 2018.*
[xxxi] *See Clarion University 2018-2019 Factbook.*
[xxxii] *DOD Releases 2019 Basic Allowance for Housing Rates, www.defense.gov, Dec. 14, 2018.*
[xxxiii] *See HUD FY2019 Appropriations: In Brief, The Congressional Research Service, April 2, 2019, page 5.*
[xxxiv] *See the Net Generation by Energy Source: Electric Utilities, 2009-May 2019, U.S. Energy Administration, July 24, 2019.*
[xxxv] *Critical Infrastructure Protection: Actions Needed to Address Significant Weaknesses in TSA's Pipeline Security Program Management, GAO, Dec. 19, 2018.*
[xxxvi] *Prices of Cigarettes by State, Fair Reporters, March 25, 2019.*
[xxxvii] *Update: Voters Approved $33 Billion for Transportation on Election Day, Alexander Laska, Eno Transportation Weekly, Dec 10, 2018,*
[xxxviii] *California voters reject repeal of state gas tax and vehicle fee increase, Patrick McGreevy, LA Times, Nov 7, 2018.*
[xxxix] *Mainers approve bonds totaling $200 million, AP/WGME, Nov 7, 2018.*
[xl] *Missouri voters pass higher minimum wage, ethics reforms. But not gas tax, Kansas City Star, Rick Montgomery, Nov 7, 2018.*
[xli] *Colorado lawmakers put $2.3 billion transportation ballot measure on ice as they press to end TABOR refund instead, Jon Murray, The Denver Post, May 2, 2019.*
[xlii] *Road Rage and Raising Revenue: Is it Time For States To Embrace Even Bigger Gas Tax Increases? Renu Zaretsky, Tax Policy Center, July 3, 2019.*
[xliii] *Introducing Crowdsourced Pavement Quality Maps – Lvl5 Releases List of States with the Best and Worst Road Quality Based on 5 Million Miles of Payver Driver Data, Andrew Kouri, Medium, Oct 30, 2018.*
[xliv] *Transportation Funding in Texas 2019 Edition, see page 3 for details about Prop 1 and 7 funding.*
[xlv] *As Texas grows, so do highway needs. Yet road funding is about to hit this dead end, Brian Johnson, Fort-Worth Star Telegram, Feb 24, 2019.*
[xlvi] *Florida judge strikes down bill abolishing Miami-Dade toll road agency, Shelly Sigo, The Bond Buyer, Aug. 12, 2019.*
[xlvii] *Appeals court hands truckers defeat in Pennsylvania Turnpike toll lawsuit, AP, Aug 13, 2019.*
[xlviii] *Nuveen also wrote about the decision in: Puerto Rico case alters how investors evaluate bankruptcy risks, May 31, 2019.*
[xlix] *United State Drought Monitor, University of Nebraska-Lincoln, comparisons of April 15, 2019 map to assorted maps in 2018 on April 16, 2019.*
[l] *The Law of the River refers to The Colorado River Compact of 1922.*
[li] *For more please see Management of the Colorado River: Water Allocations, Drought, and the Federal Role, Congressional Research Service, May 17, 2019.*

State and Other Select Issuer Ratings (Aug. 23, 2019)

	MOODY'S			STANDARD & POOR"S			FITCH			KROLL		
State	Rating	Outlook	Last	Rating	Outlook	Last	Rating	Outlook	Last	Rating	Outlook	Last
Alabama	Aa1	Stable	4/16/10	AA	Stable	10/7/04	AA+	Stable	5/3/10	-	-	-
Alaska	Aa3	Negative	7/25/19	AA	Stable	6/8/18	AA	Stable	11/2/13	-	-	-
Arizona (*)	Aa2	Stable	5/4/15	AA	Stable	5/20/15	-	-	-	-	-	-
Arkansas	Aa1	Stable	4/16/10	AA	Stable	7/24/91	-	-	-	-	-	-
California	Aa3	Positive	7/23/18	AA-	Stable	7/2/15	AA	Stable	8/16/19	-	-	-
Colorado (*)	Aa2	Stable	4/16/10	AA	Stable	7/7/18	-	-	-	-	-	-
Connecticut	A1	Stable	5/15/17	A	Positive	3/19/19	A+	Stable	5/12/17	AA-	Stable	7/11/19
Delaware	Aaa	Stable	4/16/10	AAA	Stable	2/22/00	AAA	Stable	4/13/06	AAA	Stable	10/5/18
Florida	Aaa	Stable	6/21/18	AAA	Stable	7/12/11	AAA	Stable	4/25/16	-	-	-
Georgia	Aaa	Stable	4/16/10	AAA	Stable	7/29/97	AAA	Stable	4/13/06	-	-	-
Hawaii	Aa1	Stable	9/14/16	AA+	Stable	9/12/16	AA	Stable	4/28/17	-	-	-
Idaho (*)	Aa1	Stable	4/16/10	AA+	Stable	3/29/11	AA+	Stable	6/15/11	-	-	-
Illinois	Baa3	Stable	7/19/18	BBB-	Stable	7/12/17	BBB	Stable	7/31/19	-	-	-
Indiana (*)	Aaa	Stable	4/16/10	AAA	Stable	7/18/08	AAA	Stable	4/5/10	-	-	-
Iowa (*)	Aaa	Stable	4/16/10	AAA	Stable	9/11/08	AAA	Stable	4/5/10	-	-	-
Kansas (*)	Aa2	Stable	4/30/14	AA-	Stable	5/4/18	-	-	-	-	-	-
Kentucky (*)	Aa3	Stable	7/20/17	A	Stable	5/18/18	AA-	Stable	11/8/12	-	-	-
Louisiana	Aa3	Stable	7/2/18	AA-	Stable	8/24/18	AA-	Stable	4/5/10	-	-	-
Maine	Aa2	Stable	6/4/14	AA	Stable	5/24/12	AA	Stable	1/23/13	-	-	-
Maryland	Aaa	Stable	4/16/10	AAA	Stable	5/7/92	AAA	Stable	4/13/06	-	-	-
Massachusetts	Aa1	Stable	4/16/10	AA	Stable	6/7/17	AA+	Stable	4/5/10	-	-	-
Michigan	Aa1	Stable	7/24/15	AA	Stable	7/23/18	AA	Stable	4/2/13	-	-	-
Minnesota	Aa1	Stable	7/30/13	AAA	Stable	7/25/18	AAA	Stable	7/28/16	-	-	-
Mississippi	Aa2	Stable	10/3/18	AA	Stable	9/7/18	AA	Stable	7/15/16	-	-	-
Missouri	Aaa	Stable	4/16/10	AAA	Stable	2/16/94	AAA	Stable	4/13/06	-	-	-
Montana	Aa1	Stable	4/16/10	AA	Stable	5/5/08	AA+	Stable	4/5/10	-	-	-
Nebraska (*)	Aa1	Stable	9/27/17	AAA	Stable	5/5/11	-	-	-	-	-	-
Nevada	Aa2	Stable	3/24/11	AA	Positive	9/20/18	AA+	Stable	4/5/10	-	-	-
New Hampshire	Aa1	Stable	4/16/10	AA	Stable	12/8/14	AA+	Stable	4/5/10	-	-	-
New Jersey	A3	Stable	3/27/17	A-	Stable	8/25/17	A	Stable	8/18/15	A	Stable	10/28/15
New Mexico	Aa2	Stable	6/18/18	AA	Stable	9/12/18	-	-	-	-	-	-
New York	Aa1	Stable	6/16/14	AA+	Stable	7/23/14	AA+	Stable	5/31/11	AA+	Stable	3/9/15
North Carolina	Aaa	Stable	4/16/10	AAA	Stable	6/25/92	AAA	Stable	4/13/11	-	-	-
North Dakota (*)	Aa1	Stable	4/16/10	AA+	Stable	2/18/16	-	-	-	-	-	-
Ohio	Aa1	Stable	4/16/10	AA+	Stable	7/15/11	AA+	Stable	4/11/11	-	-	-
Oklahoma	Aa2	Stable	4/16/10	AA	Stable	3/1/17	AA	Stable	7/11/17	-	-	-
Oregon	Aa1	Stable	4/16/10	AA+	Stable	3/9/11	AA+	Stable	4/5/10	-	-	-
Pennsylvania	Aa3	Stable	8/5/16	A+	Stable	9/20/17	AA-	Stable	7/30/19	-	-	-
Puerto Rico	Ca	Negative	10/11/17	NR	NR	NR	D	D	D	-	-	-
Rhode Island	Aa2	Stable	4/16/10	AA	Stable	6/18/14	AA	Stable	7/18/11	-	-	-
South Carolina	Aaa	Stable	4/16/10	AA+	Stable	7/11/05	AAA	Stable	4/13/06	-	-	-
South Dakota (*)	Aaa	Stable	7/11/16	AAA	Stable	5/4/15	AAA	Stable	6/15/16	-	-	-
Tennessee	Aaa	Stable	4/16/10	AAA	Stable	5/26/16	AAA	Stable	4/5/10	-	-	-
Texas (*)	Aaa	Stable	4/16/10	AAA	Stable	9/27/13	AAA	Stable	4/5/10	AAA	Stable	7/13/17
Utah	Aaa	Stable	4/16/10	AAA	Stable	6/7/91	AAA	Stable	4/13/06	-	-	-
Vermont	Aa1	Stable	10/23/18	AA+	Stable	11/10/14	AA+	Stable	4/5/10	-	-	-
Virginia	Aaa	Stable	4/16/10	AAA	Stable	6--18	AAA	Stable	4/13/06	-	-	-
Washington	Aaa	Stable	8/23/19	AA+	Stable	11/13/07	AA+	Stable	7/19/13	-	-	-
West Virginia	Aa2	Stable	2/21/17	AA-	Stable	4/21/16	AA	Stable	5/4/28	-	-	-
Wisconsin	Aa1	Stable	8/4/17	AA	Stable	8/15/08	AA+	Stable	10/19/17	AA+	Stable	10/19/17
Wyoming (*)	-	-	-	AA+	Stable	5/3/17	-	-	-	-	-	-

Source: Moody's, S&P, Fitch, Kroll and HilltopSecurities.(*) denotes a Lease or Issuer Credit Rating.

Municipal Credit Rating Scale and Definitions

	Rating Agency				Definition
	Moody's	S&P	Fitch	Kroll	
Investment Grade	Aaa	AAA	AAA	AAA	Exceptionally strong credit quality and minimal default risk.
	Aa1	AA+	AA+	AA+	Upper investment grade and subject to low default risk.
	Aa2	AA	AA	AA	Upper investment grade and subject to low default risk.
	Aa3	AA-	AA-	AA-	Upper investment grade and subject to low default risk.
	A1	A+	A+	A+	Medium investment grade and subject to low default risk.
	A2	A	A	A	Medium investment grade and subject to low default risk.
	A3	A-	A-	A-	Medium investment grade and subject to low default risk.
	Baa1	BBB+	BBB+	BBB+	Low investment grade and possesses some speculative characteristics.
	Baa2	BBB	BBB	BBB	Low investment grade and possesses some speculative characteristics.
	Baa3	BBB-	BBB-	BBB-	Low investment grade and possesses some speculative characteristics.
Sub-Investment Grade	Ba1	BB+	BB+	BB+	Weak credit quality with speculative elements and substantial credit risk.
	Ba2	BB	BB	BB	Weak credit quality with speculative elements and substantial credit risk.
	Ba3	BB-	BB-	BB-	Weak credit quality with speculative elements and substantial credit risk.
	B1	B+	B+	B+	Very weak credit quality, very speculative with high credit risk.
	B2	B	B	B	Very weak credit quality, very speculative with high credit risk.
	B3	B-	B-	B-	Very weak credit quality, very speculative with high credit risk.
	Caa1	CCC+	CCC+	CCC+	Extremely weak credit quality and subject to very high credit risk.
	Caa2	CCC	CCC	CCC	Extremely weak credit quality and subject to very high credit risk.
	Caa3	CCC-	CCC-	CCC-	Extremely weak credit quality and subject to very high credit risk.
	Ca	CC	CC	CC	Highly speculative and in or near default with some prospects of recovery.
	C	C	C	C	Highly speculative and in or near default with some prospects of recovery.
		D	D	D	Issuer is in default and/or has failed to make a payment.
		SD	RD		SD (Selective Default); RD (Restricted Default)

Source: Moody's, S&P, Fitch, Kroll and HilltopSecurities.

Definition of Outlooks

Positive: Hilltop Strategy and Credit believes there are factors which point towards improving issuer or sector credit quality which may result in a higher level of credit ratings upgrades versus downgrades.

Stable: Hilltop Strategy and Credit believes there are factors which point towards stable issuer or sector credit quality which are likely to result in an even level of credit ratings upgrades versus downgrades.

Cautious: Hilltop Strategy and Credit believes there are factors which introduce the potential for declines in issuer or sector credit quality that may result in potential credit ratings downgrades only slightly outnumbering upgrades.

Negative: Hilltop Strategy and Credit believes there are factors which point towards weakening issuer or credit quality that will likely result in a higher number of credit ratings downgrades versus upgrades.