Municipal Market Insight

December 2018

Portfolio Advisory Group – U.S. Fixed Income Strategies

What's inside

Peak rates?

The interest rate environment has changed quickly in the space of two months. Misplaced expectations for runaway rates has given way to the belief the Federal Reserve is close to the end of its rate hike cycle due to slower growth and low inflation. Earlier this month, Fed Chair Jerome Powell and Vice Chair Richard Clarida suggested, contrary to their previous comments, that the rate at which monetary policy is neither tight nor easy (the neutral rate) may be hit after two to three rate hikes; this could be by June 2019. In our view, the 10-year Treasury yield hit its high for the year at 3.24% in early November and with the recent drop to 2.90%, high-quality assets should continue to outperform. Munis are now posting positive returns for the year and it is likely that December will be a strong month.

Media outlets are full of reports concerning flat U.S. Treasury yield curves and what they mean for the economy. We agree that yield curves are an important recession indicator, but we don't expect a recession until 2020 at the earliest. What is lost in the yield curve noise, however, is the fact that the muni yield curve has remained steep so that investors have been able to pick up additional yield by extending maturities. We think this will continue to be a winning strategy especially as investors look to reinvest proceeds from year-end tax loss swaps.

U.S. Treasury rate forecasts (% as of November 30, 2018)

	2018				2019			
	Q1	Q2	Q3	Q4E	Q1E	Q2E	Q3E	Q4E
FF	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50
2-yr	2.27	2.52	2.81	2.90	3.10	3.25	3.40	3.60
5-yr	2.56	2.73	2.94	3.10	3.25	3.40	3.55	3.65
10-yr	2.74	2.85	3.05	3.30	3.45	3.60	3.70	3.75
30-yr	2.97	2.98	3.19	3.50	3.65	3.75	3.80	3.85

Source - RBC Economics

Treasuries vs. municipals

	5-yr TSY	5-yr Muni	10-yr TSY	10-yr AAA Muni	30-yr TSY	30-yr AAA Muni
Beginning of month (11/1/18)	2.96%	2.31%	3.13%	2.75%	3.38%	3.40%
Mid-month (11/15/18)	2.94%	2.27%	3.11%	2.68%	3.36%	3.35%
End of month (11/30/18)	2.81%	2.14%	2.99%	2.51%	3.29%	3.21%

Source - Bloomberg (Treasury), Thomson Reuters TM3 (Municipals)

Click here for authors' contact information.

RBC Wealth Management

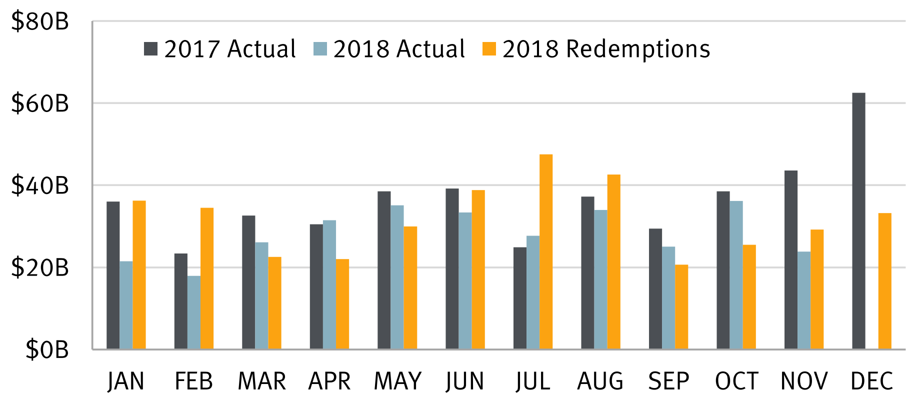
Munis experienced their second-strongest performance of the year in November.

Market investment strategy & market commentary

Market Performance – A November to remember

After posting negative returns the previous two months, munis experienced their second-strongest performance of the year in November. The November rally erased the majority of this year's cumulative losses. The muni market benefitted from a 47.5% decline in November issuance, while issuance of $312B YTD is 28% lower y/y. November marked the ninth month this year in which volume was below the 10-year average.

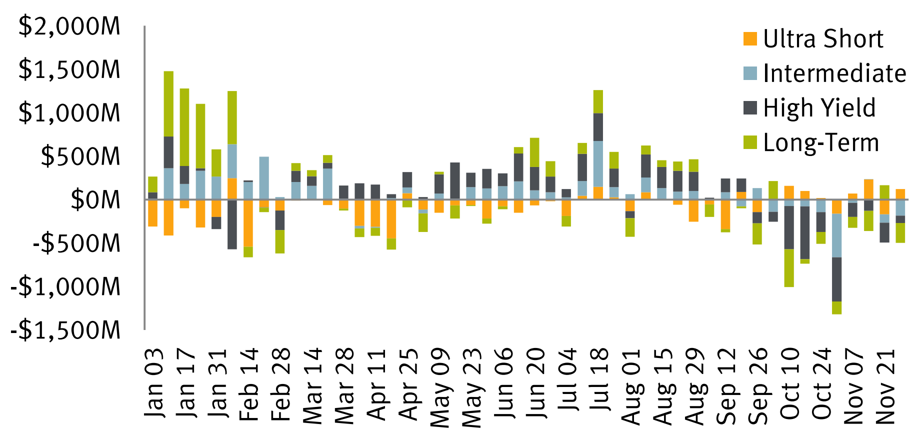
Year-over-year supply and 2018 redemptions



* December 2018 supply and redemptions are estimates
Source - RBC Capital Markets

November's rally was impressive in light of the fact muni bond funds have experienced 10 consecutive weeks of outflows as investors withdrew $4.8B over the period. Muni bond funds remain in the black year to date with net inflows topping $4B.

2018 municipal bond fund flows

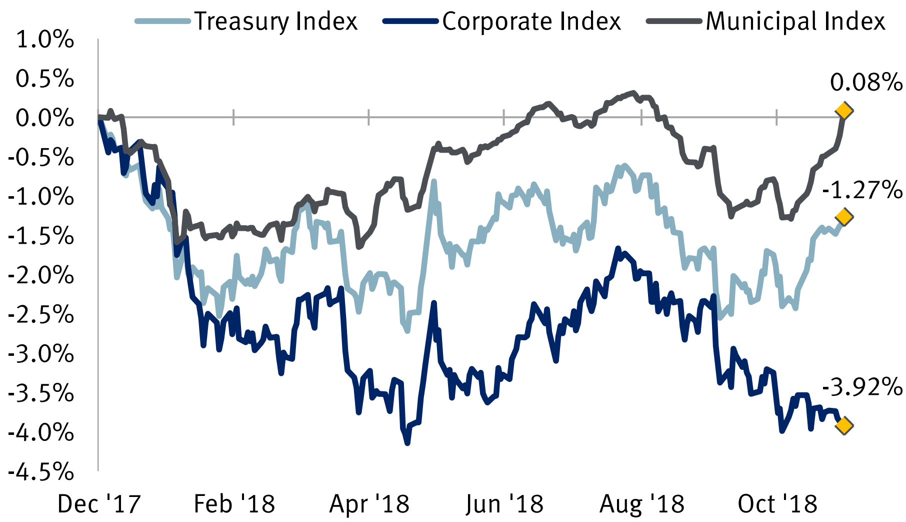


Source - Lipper U.S. Fund Flows, RBC Wealth Management; weekly data through 11/28/18

The muni market's solid November showing beat out both corporates and Treasuries for the month. Munis returned 1.11% in November, outperforming corporates, which returned -0.17%, and Treasuries, which returned 0.89%. As of November 30, munis had returned 0.08% YTD, corporates -3.92%, and Treasuries -1.27%.

We expect the Fed to continue its tightening cycle this month, raising interest rates for the fourth time this year.

Year-to-date returns



Source - Bloomberg Barclays Indexes, RBC Wealth Management; data through 11/30/18

As we begin December

The Bond Buyer's 30-day visible supply is low at $12B and presents significant challenges with respect to low inventory available for purchase for buyers seeking investing opportunities during the month. RBC Capital Markets is projecting December issuance of $24B while $29B of muni debt is maturing or will be paid off and an additional $15.8B will be paid to investors as interest payments, creating a potential $20.8B demand/supply imbalance in December. In addition to our expectations of a demand/supply imbalance, recent equity market volatility amid growing trade-war concerns has caused investors to reduce risk as they seek safe-haven bets, leaving munis well-positioned to rally through the end of the year.

Last month to take advantage of tax-loss swap season

We expect the Fed to continue its tightening cycle this month, raising interest rates for the fourth time this year. We think investors should remain focused on high-grade, higher coupon (4% and higher) munis that we expect will outperform lower coupon bonds, which have experienced sharp pricing declines as a result rising interest rates. Investors should consider harvesting lower coupon bonds (below 4%) in December as tax-loss swap selling season is upon us. Investors can capitalize on this year's strong equity market gains by selling their lower coupon munis offsetting those losses against their equity market capital gains.

This month's focus: California wildfires

This year, California has experienced the most destructive wildfire season in state history. The recent Camp Fire wildfire in Northern California was the state's single deadliest, most destructive wildfire on record, destroying over 13,000 residences and 500 commercial buildings, including most of the town of Paradise. Additionally, to-date in 2018, the Carr Fire and Mendocino Complex Fire were the two largest wildfires by land-area. The Carr Fire consumed 1,079 homes and 230,000 acres while the Mendocino Complex Fire burned a much larger 459,000 acres yet destroyed only 157 homes due to the more sparely populated land area.

In response, President Donald Trump approved a Major Disaster Declaration for California on November 13, which activated a variety of federal assistance including grants for temporary housing and home repairs, low-cost loans to cover uninsured property losses, and other programs to help wildfire recovery.

Typically, federal and state programs and fiscal programs have helped local communities respond to both the immediate disaster conditions and ultimate recovery. For example, the State of California chose to allocate $53M in lost property tax revenue due to the California wildfires in 2017 as part of its fiscal 2019 budget. Furthermore, according to the California Department of Education, school districts affected by disaster can apply for a waiver to the Local Control Funding Formula, which is the basis by which district's receive state aid.

While the Camp Fire causes us more trepidation because of the scope of destruction, overall, we believe the combination of private and public insurance, advantageous locations in some cases, shortage of housing statewide, the potential ability to waive school attendance requirements to receive state aid, and the state's past willingness to allocate funds to subsidize lost property tax revenues may sufficiently protect bondholders.

We believe the state will be inclined to subsidize the property tax loses this season similar to past decisions because such revenues are necessary for municipalities to function.

We believe the state will be inclined to subsidize the property tax loses this season similar to past decisions because such revenues are necessary for municipalities to function. However, if the state decides to scrutinize the composition of the property tax bills, then bondholders of municipalities with outsized destruction could be much more vulnerable. In a worst case, the state could decide to subsidize specific portions of the tax bill without funding others. We believe this outcome is unlikely given the relatively small size of debt service as a percentage of a typical tax bill. Furthermore, the municipal market would view the state actions as deliberately deciding to snub bondholders, which would have repercussions.

Future uncertainty

Experts believe the confluence of climate change, an increase in dead tree fuel, and the increased encroachment of human development adjacent to forest lands will hasten more frequent and more devastating wildfires in California. As such, investors in California municipal bonds not only need to factor in existing catastrophic risks such as earthquakes and drought, but now should consider wildfire risks too.

The 2018 wildfires, especially the Camp Fire, may be outliers, but their full effects will not be known for several months to years. Historically, California municipalities that were adversely impacted by wildfires did not translate into municipal bond payment defaults or material credit deterioration. Nonetheless, the expectation for more numerous and more destructive wildfires at least incrementally increases California municipalities' risk profile.

Territorial update

Puerto Rico – COFINA voting options

Investors owning Puerto Rico sales tax bonds, otherwise known by their Spanish acronym COFINA, are being asked to vote on a debt restructuring plan. Under the proposed restructuring, senior lien bondholders would receive 93% principal recovery in the form of 11 new bonds and other cash payments while subordinate lien bondholders would receive 56% principal recovery in the form of new bonds. The new bonds would consist of four current interest bonds due through 2058 and seven capital appreciation bonds due through 2051.

Insured Ambac and National Public Finance Guarantee COFINA bondholders are being asked to elect either trust certificates or receive the new bonds plus a cash payment from the insurer as compensation to extinguish the existing insurance policy. The trust certificates would consist of the new bonds plus certain cash payments to generate 93% recovery, and retention of the existing insurance policy. All rights and remedies under the existing insurance policy would be preserved and remain in full force and effect. If Ambac- or National-insured COFINA bondholders do not make an election, the default election is release of the existing insurance policy in return for the cash payment from the insurer.

Both senior and subordinate lien COFINA bondholders would exchange outstanding bonds for new senior lien bonds (one lien level) secured by a statutory first lien on a portion of the 5.5% sales tax. The Commonwealth projects coverage on the new bonds will be at least 2.0 times.

The new senior lien bondholders would receive the first sales tax revenues collected in each fiscal year until a predetermined amount was reached, at least until 2024. Thereafter, if certain tests are met, the annual COFINA fund up would be the first sales tax revenues collected on a quarterly fund-up basis.

Puerto Rico Government Development Bank (GDB)

U.S. District Court Judge Laura Taylor Swain, tasked with overseeing the commonwealth's record bankruptcy, approved the plan authorized by bondholders to write down $4B of GDB debt. The approval marks the first court-authorized workout for an island debtor. The commonwealth began defaulting on its debt obligations in 2015.

University of Puerto Rico (UPR) – Expectations of continued interest payments

The university is expected to continue meeting its debt service obligations according to sources close to the matter.

Despite being in technical default, the university is expected to continue meeting its debt service obligations according to sources close to the matter. UPR's budget calls for $1.3B in receipts, including $646M of commonwealth appropriations, and $48.3M in debt service payments for the fiscal year ending June 30, 2019. Debt service payments are expected to be made according to the forbearance agreement which expires at the end of this year and is expected by the involved parties to be extended past the expiration date.

U.S. Virgin Islands (USVI) – Pension contribution shortfall, and sees a surge in rum tax collections

USVI Government Employees Retirement System (GERS) administrator Austin Nibbs said the USVI owes the GERS approximately $72.2M in unpaid employer contributions. The $72.2M represents the shortfall in government direct contributions accumulated—now 20.5% of employee's wages. The $72.2M shortfall is significant and represents 8% of the USVI FY2019 general fund budget and is well short of the $267.7M actuarially determined employers' contribution owed through 2017.

The USVI reported rum tax receipts jumped 27.8% in FY2018, which ended on September 30. Rum tax collections jumped $49.3M for FY2018 to $226.2M compared with $176.9M collected the previous year. The USVI benefitted from 19.8M proof gallons shipped, a 3.1M increase from 2017.

State news

Outlook for 2019 – States poised to remain conservative on borrowing

A majority of states began FY2018 with surpluses but remained cautious with respect to increasing their debt burdens despite strong economic gains. We expect the trend to continue in FY2019, as many states are facing rising pensions and health care costs. Standard & Poor's reported health care liabilities grew for the third straight year in FY2017. State unfunded liabilities for health care and other non-pension benefits promised to public employees grew 10% to $678B in FY2017, after growing 3.9% in FY2016 and 12% in FY2015. The Standard & Poor's report went on further to say "plans that do not address OPEB costs in a timely manner may be exposed to large future swings in contributions and an increased likelihood that rapidly increasing benefits become unaffordable if no other action is taken to reduce costs."

A recent article by Debtwire said governors from Alaska, Nevada, and Oregon are planning to boost spending in their next budget cycle while Vermont's budget is said to remain tight.

Alaska Governor Bill Walker, who left office on December 2, submitted a draft budget that lifts spending $330M. The increased spending is expected the governor to be partly funded by the recent improvement in oil prices. All or some of the spending boost will remain contingent on incoming Republican Governor Mike Dunleavy's approval.

Outgoing Nevada Governor Brian Sandoval is working on a proposed two-year budget said to be worth $8.8B, a $700M bump from the fiscal 2017–2019 budget. Sandoval's budget calls for the redirection of a 10% marijuana sales tax toward

State/territory credit ratings

State/Territory	Fitch	Moody's	Standard & Poor's
Alabama	AA+	Aa1	AA
Alaska	AA	Aa3	AA
Arizona	-----	Aa2	AA
Arkansas	-----	Aa1	AA
California	AA-	Aa3	AA-
Colorado	-----	Aa1	AA
Connecticut	A+	A1	A
Delaware	AAA	Aaa	AAA
Florida	AAA	Aa1	AAA
Georgia	AAA	Aaa	AAA
Hawaii	AA	Aa1	AA+
Idaho	AA+	Aa1	AA+
Illinois	BBB	Baa3	BBB-
Indiana	AAA	Aaa	AAA
Iowa	AAA	Aaa	AAA
Kansas	-----	Aa2	AA-
Kentucky	AA-	Aa3	A
Louisiana	AA-	Aa3	AA-
Maine	AA	Aa2	AA
Maryland	AAA	Aaa	AAA
Massachusetts	AA+	Aa1	AA
Michigan	AA	Aa1	AA
Minnesota	AAA	Aa1	AAA
Mississippi	AA	Aa2	AA
Missouri	AAA	Aaa	AAA
Montana	AA+	Aa1	AA
Nebraska	-----	Aa1	AAA
Nevada	AA+	Aa2	AA
New Hampshire	AA+	Aa1	AA
New Jersey	A	A3	A-
New Mexico	-----	Aa1	AA
New York	AA+	Aa1	AA+
North Carolina	AAA	Aaa	AAA
North Dakota	-----	Aa1	AA+
Ohio	AA+	Aa1	AA+
Oklahoma	AA	Aa2	AA
Oregon	AA+	Aa1	AA+
Pennsylvania	AA-	Aa3	A+
Rhode Island	AA	Aa2	AA
South Carolina	AAA	Aaa	AA+
South Dakota	AAA	Aaa	AAA
Tennessee	AAA	Aaa	AAA
Texas	AAA	Aaa	AAA
Utah	AAA	Aaa	AAA
Vermont	AAA	Aa1	AA+
Virginia	AAA	Aaa	AAA
Washington	AA+	Aa1	AA+
West Virginia	AA	Aa2	AA-
Wisconsin	AA+	Aa1	AA
Wyoming	-----	-----	AA+
District of Columbia	AA+	Aaa	AA
Guam	-----	-----	BB-
Puerto Rico	-----	Ca	D
Virgin Islands	-----	-----	-----

Blue text indicates ICR (Issuer Credit Rating); all other ratings are GO
Source - Fitch Ratings, Moody's Investors Service, Standard & Poor's

education instead of the redirection to the state's rainy day fund. The state will also need to spend an additional $210M associated with the rising costs of Medicaid as a result of gradually declining federal funding.

Oregon Governor Kate Brown, who was re-elected to her last term in November, put forth an $83.5B two-year budget that proposes increasing school funding by a record $2B. Brown's new budget also includes revamping Oregon's energy program. The governor plans to launch a carbon emission cap-and-trade system that is expected to impose tighter limitations and restructure the state energy department and carbon policy agency into a new climate authority.

State ratings roundup – A quiet month with no rating changes

- **Colorado:** On November 13, S&P affirmed the state's AA issuer credit rating and the AA- long-term rating on the state's lease debt and certificates of participation (COPs) and the A+ rating of the state's moral obligation debt. The rating affirmation is reflective of the state's broad and diverse economy, which continues producing better-than-average income, employment, and population trends.

Other State News

California – October revenue misses the mark
California State Controller Betty T. Yee said the state collected $6.6B of revenue in October. The total was 5.9% or $412.2M below the states 2018–2019 budget assumptions. For the month, sales tax revenue of $1.03B was the only bright spot, increasing 8.2% more than anticipated.

Colorado – Voters reject limiting drilling in the state
Proposition 112, which would have forced oil and gas development further away from residential and environmentally sensitive areas, curbing drilling in more than half of the state, was rejected by 57% of voters in November. As of August, Colorado's 477,000 barrels a day of output led the state to overtake California and become the nation's fifth-largest oil producer.

Proposition 112 was rejected by 57% of voters in November.

Connecticut – Revises budget deficit downward and voters approve lockbox
The state reduced its two-year budget deficit by $600M as a result of the state's economic growth and a new tax increase on pass-through entities that is generating revenue growth. The state is still facing a significant budget deficit at the end of the two-year budget period. The state is expecting to face a $1.73B deficit in the fiscal year beginning July 1, 2019 and $2.37B beginning in fiscal year 2021, leaving the state with a $4.1B deficit.

State voters approved an amendment to Connecticut's constitution by a vote of 88% to 12% requiring any revenue in its special transportation fund be used solely for transportation purposes, including the payment of debt service.

Kansas – Department of Transportation downgraded
On November 14, S&P downgraded the Department's highway revenue bonds two notches to AA from AAA, the outlook is stable. S&P said, "The downgrade follows the application of our Priority-Lien criteria, which factors in both the strength and stability of the pledged revenues, as well as the general credit quality of Kansas as issuing obligor."

New Jersey – Year-over-year revenues boosted
The state reported revenue collections increased 9% y/y for the four months through October 2018, according to the Department of Revenue. The department reported revenue was on target for the first four months of FY2019. The state has collected $7.99B through the first four months, up $663M from the same period the prior year.

New Mexico Finance Authority – Rating cut
On November 15, S&P downgraded the Authority's senior-lien transportation revenue bonds to AA+ from AAA with a stable outlook. S&P said, "The downgrade follows the application of our 'Priority-Lien' criteria, which factors in both the strength and stability of the pledged revenues, as well as the general credit quality of New Mexico as issuing obligor."

New York – Investors lose coveted AAA rating
New York state investors holding bonds secured by the state's personal income and sales-tax receipts pledge were downgraded to AA+ from AAA following the application of S&P's "Priority Lien" criteria. The downgrade, places ratings in line with the state's rating. S&P said the revenue backing the debt might not have priority in a "distress scenario," which is why the rating is capped at the state's rating.

Pennsylvania – State facing out-year deficits
Beginning in FY2020, the state will be facing budget deficits as one-time savings measures expire, according to report published by the Independent Fiscal Office that studied the state's five-year outlook. The state's economic and budget outlook for FY2019 to FY2024 projects revenue to grow 3.1% annually over that period, but expenses are projected to increase 8.9% in FY2020. The report shows the general fund began FY2018 with a $1.5B deficit, which improved to negative $39M in FY2019 that began July, and is projected by the Independent Fiscal Office to reach zero by year-end. Entering FY2020, according to the report, the state is projected to have $1.7B deficit that is then expected to improve slightly in 2021 and 2022 before rising again, surpassing $1.75B in FY2023 and then improving slightly in FY2024 to a $1.58B deficit in FY2024.

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Regional updates and other market news

Local issuer rating updates

- **Atlantic City, NJ –** On November 1, Moody's upgraded Atlantic City's long-term issuer rating four notches to B2 from Caa3. The outlook remains positive. Moody's also affirmed the Baa1 enhanced rating on the city's Municipal Qualified Bond Act enhanced debt. Moody's said, "The upgrade reflects the city's continued, albeit reduced, financial and economic distress."
- **Detroit, MI –** On November 2, Moody's affirmed the city's Ba3 rating and maintained a stable outlook on the city. The Ba3 rating is based on the city's weaker economic base that remains sluggish relative to its peers and carries high recession risk from the city's low diversity labor market. Despite these challenges, the city has continued accumulating healthy reserves and continued setting aside to lessen the budgetary impact of future spikes in pension contributions.
- **Oak Lawn, IL –** On November 12, S&P lowered the village's rating four notches to BBB from A+ and maintained a negative outlook on the Oak Lawn's rating. The downgrade follows the village's downgrade last month by Moody's. The S&P downgrade was driven by the village's structural budget imbalance and very weak funding levels in its police and firefighter pension plans, according to the S&P report. S&P went on further to say there is a one-in-three chance it could lower the rating further within the next two years.
- **Pennsylvania Turnpike Authority –** On November 14, S&P downgraded the Authority's oil franchise tax senior bonds one notch to AA- from AA and at the same time lowered the Authority's oil franchise tax subordinate revenue bonds to A from A+, the rating outlook on both ratings is stable. The rating downgrade was based on S&P's application of its Priority Lien criteria, which factors in both the strength and stability of the pledged revenues, as well as the general credit quality

of the municipality where the taxes are distributed and/or collected (the obligor's credit worthiness).

- **PG&E, CA –** The utility company's woes continued in November when Fitch Ratings and Moody's downgraded the utility to the brink of junk at BBB- and Baa3, respectively. Both rating agencies said they could lower PG&E's rating into junk territory amid the company's $10B exposure to the California wildfires.
- **Richmond, CA –** On November 21, Moody's upgraded the city's general obligation and pension bonds ratings to Baa3 and Ba1, respectively. Moody's cited the "healthy growth in the city's tax base and economy, demonstrated by recovery and increases in assessed valuation, jobs and new development."
- **Santee Cooper, SC –** On November 14, Fitch Ratings downgraded Santee Cooper two notches to A- from A+ with a negative outlook. The downgrade reflects pronounced legal and political risks associated with legal action brought by the Central Electric Cooperative, which accounts for 60% of Santee Cooper's revenue. An adverse ruling would severely limit Santee Cooper's financial flexibility. The downgrade is also related to governance dysfunction brought on by political uncertainty, according to Fitch.
- **University of New Mexico –** On November 14, Moody's downgraded the underlying rating of the university's revenue bonds to Aa3 from Aa2. In addition, the rating agency revised the university's outlook to stable from negative. The downgrade was a result of the university's lackluster operating performance combined with thin operating reserves. The rating reflects the university's essential role as the state's flagship public university and major health care service provider.
- **Williston, ND –** The city's sale tax revenue bonds were downgraded two notches to BBB+ from A following S&P's application of its Priority Lien criteria that factors in the strength and stability of the pledged sales and use tax, as well as the general creditworthiness of Williston. The rating is now on parity with the city's rating.

Other municipal-related news

Cook County, IL – Board approves FY2019 budget

On November 15, the Cook County Board of Commissioners approved a $5.9B FY2019 budget that has no new taxes, fines, or fees. The budget is balanced and confronts the county's financial challenges following a long month of departmental and public hearings. The budget increases spending $738.5M compared to FY2018. Approximately $647.3M of the increased spending is for the health enterprise fund, driven by the expected growth of CountyCare enrollment to nearly 345,000 members. Rising costs in surgery, dialysis, and health center services are also drivers of increased spending.

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Houston, TX – Job cuts in the works

The morning after 59% of voters approved a referendum mandating $100M in pay raises for firefighters, Mayor Sylvester Turner announced plans to lay off city employees. Turner said the city's requirement to balance its budget and cap on revenues leaves him with no choice but to cut spending.

Jacksonville Electric Authority (JEA) and MEAG – Litigation remains in Florida

The Middle District of Florida Jacksonville Division dismissed a motion by the Municipal Electric Authority of Georgia's motion to move their ongoing litigation to the Northern District of Georgia Atlanta Division. MEAG was seeking to have the court combine two separate lawsuits into one under the Atlanta federal court. The ongoing litigation stems from JEA's challenge over the validity of a long-term power purchase contract it entered in 2008.

Metropolitan Transportation Authority (MTA), NY – Releases FY2019 budget

The Authority released its final FY2019 budget proposal and four-year financial plan, which paints a picture of declining fare and tax revenue, as well as the rising costs associated with providing service. The MTA projects balancing its FY2019 budget by restricting hiring and implementing other spending reductions. The MTA said rising service costs will require fare and toll increases and new sustainable revenue sources to avoid service reductions and layoffs.

San Diego County, CA – Voters approve restrictions on use of funds

Voters approved a ballot measure prohibiting city officials from siphoning funds set aside for pensions and baring the city from using long-term muni debt to pay for day-to-day operations. The county's pension funding status, which has dropped nearly 20%, prompted the ballot measure.

The State of Connecticut approved $8M of restructuring aid to the city over the next two years, in exchange for operational reforms by city leaders.

West Haven, CT – State comes to the rescue

The State of Connecticut approved $8M of restructuring aid to the city over the next two years, in exchange for operational reforms by city leaders. Receipt of the restructuring aid is contingent on the city submitting monthly financial reports, creation of a formal reserve policy for the city's general fund and health insurance plans, and an analysis for the sale of city-owned assets. The city expects to use the funds to close the 2018 budget deficit.

RBC Wealth Management retail trading (11/1/18 – 11/30/18)

Top 10 CUSIPs selling volume to retail customers

CUSIP	Description	Maturity	Coupon	Volume
072024TP7	BAY AREA TOLL AUTH-F1	04/01/2054	5.00	5,087
45470YCD1	IN FIN SISTERS ST FRA	11/01/2029	5.00	4,888
585488UK3	MELISSA ISD-BLDG	08/01/2048	5.00	4,292
574218X73	MD H/E-PREREF	07/01/2034	5.00	4,248
187145BJ5	CLIFTON HGR ED FIN	08/15/2042	5.00	4,109
64972GRF3	NYC MUNI WTR-CC-UNREF	06/15/2047	5.00	3,629
041806RS1	ARLINGTON HGR EDU FIN	08/15/2048	4.00	2,961
64578EME4	NJ EDU ECO DEV AUTH-B	06/15/2039	4.13	2,823
79904NGQ7	SAN MATEO JT PWRS-A	07/15/2052	4.00	2,789
643154DF1	NEW CANEY ISD-BLDG	02/15/2047	5.00	2,358

Top 10 CUSIPs buying volume from retail customers

CUSIP	Description	Maturity	Coupon	Volume
79765RUT4	SAN FRAN UTILS-A	11/01/2037	5.00	1,838
13063BSA1	CA ST-REF	02/01/2038	5.00	1,780
709224XL8	PA TURNPIKE-B2	06/01/2037	4.00	1,763
686432AW5	ORLANDO CONTRACT -A	11/01/2044	5.00	1,689
646136K26	NJ TRANSPRTN-AA-AGM	06/15/2025	5.00	1,432
913366HL7	UNIV CA RGTS-L-REF	05/15/2047	5.00	1,290
6582034V3	NC MUNI PWR 1-PREREF	01/01/2030	5.00	1,108
346668DD5	FORSYTH PCR	05/01/2033	5.00	1,097
672325TS6	OAKLAND USD	08/01/2034	9.50	1,042
59334PGK7	MIAMI-DADE CNTY-REF	07/01/2038	4.00	1,000

Source - RBC Wealth Management

RBC Capital Markets institutional trading (10/1/18 – 10/31/18)

Top 10 CUSIPs selling volume to institutional customers

CUSIP	Description	Maturity	Coupon	Volume
574193LG1	MARYLAND-REF-B	08/01/2025	4.00	25,625
79766DLF4	SAN FRANCISCO ARPT-D	05/01/2043	5.00	22,702
79766DKG3	SAN FRANCISCO CALIF C	05/01/2042	5.00	22,558
13048VBY3	CALIFORNIA ST MUNI FI	12/31/2043	5.00	22,310
13048VCD8	CALIFORNIA ST MUNI FI	12/31/2047	5.00	22,242
64971XFU7	NYC TRANS FIN AUTH-A1	08/01/2040	5.00	21,703
09182RAF8	BLACK BELT ENERGY GAS	12/01/2048	4.00	20,310
91802REJ4	UTIL DEBT SEC AUTH	12/15/2038	5.00	17,024
373385CQ4	GEORGIA ST-A	07/01/2031	5.00	16,741
677522VK7	OHIO-B	09/15/2025	5.00	14,768

Top 10 CUSIPs buying volume from institutional customers

CUSIP	Description	Maturity	Coupon	Volume
574193LG1	MARYLAND-REF-B	08/01/2025	4.00	25,592
79766DLF4	SAN FRANCISCO ARPT-D	05/01/2043	5.00	22,681
79766DKG3	SAN FRANCISCO CALIF C	05/01/2042	5.00	22,537
13048VBY3	CALIFORNIA ST MUNI FI	12/31/2043	5.00	22,289
13048VCD8	CALIFORNIA ST MUNI FI	12/31/2047	5.00	22,221
880443HZ2	TN ENERGY ACQUISITION	05/01/2048	4.00	19,051
64971XFU7	NYC TRANS FIN AUTH-A1	08/01/2040	5.00	17,306
91802REJ4	UTIL DEBT SEC AUTH	12/15/2038	5.00	17,010
74440DBD5	KY PUB ENERGY AUTH-B	01/01/2049	4.00	16,054
677522VK7	OHIO-B	09/15/2025	5.00	14,753

Source - RBC Capital Markets

Bond Buyer indexes

Weekly	Current 11/29/18	Previous 11/21/18	2018 high	Date	2018 low	Date
Bond Buyer Revenue Bond Index	4.68%	4.75%	4.88%	(10/11)	3.92%	(1/04)
Bond Buyer 20-Bond Index	4.22%	4.26%	4.37%	(10/11)	3.44%	(1/04)
Bond Buyer 11-Bond Index	3.73%	3.76%	3.85%	(11/08)	2.94%	(1/04)

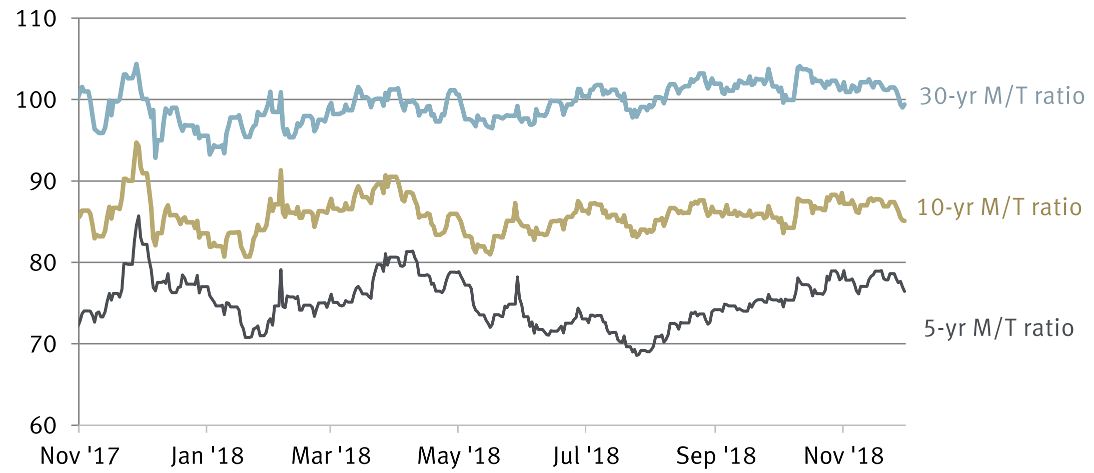
Source - *The Bond Buyer*

Barclays Municipal Index returns

	INDEX								
	1 Month	5 Year (4-6)	10 Year (8-12)	15 Year (12-17)	Long Bond (22+)	AAA	AA	A	BAA
Month-to-date total return	1.11%	0.80%	1.30%	1.45%	1.26%	1.18%	1.12%	1.04%	1.11%
Year-to-date total return	0.08%	0.70%	0.05%	-0.06%	-1.02%	-0.17%	0.01%	0.12%	0.90%

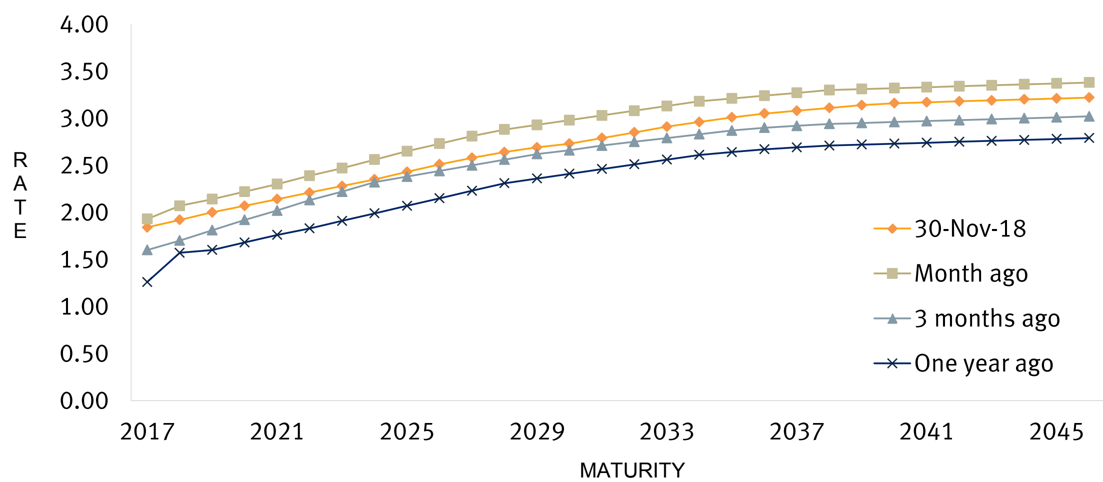
Source - Barclays; data as of 11/30/18

Muni/Treasury ratio comparison



Source - RBC Wealth Management, Bloomberg; data through 11/30/18

Muni market data AAA yield curve



Source - RBC Wealth Management, Thomson Reuters TM3

Municipal bond insurers

Insurer	Moody's	Standard & Poor's	Kroll Ratings
ACA	Not rated	Not rated	Not rated
AMBAC	Not rated	Not Rated	Not rated
Assured Guaranty (AGC)	A3 (stable outlook)	AA (stable outlook)	AA (stable outlook)
Assured Guaranty Municipal Corp. (AGM)	A2 (stable outlook)	AA (stable outlook)	AA+ (stable outlook)
Berkshire Hathaway (BHAC)	Aa1 (stable outlook)	AA+ (stable outlook)	Not rated
Build America Mutual (BAM)	Not rated	AA (stable outlook)	Not rated
FGIC	Not rated	Not rated	Not rated
Municipal Assurance Corporation	Not rated	AA (stable outlook)	AA+ (stable outlook)
National Public Finance (MBIA)	Baa2 (stable outlook)	Not Rated	Not Rated
Syncora	Not rated	Not Rated	Not rated

Source - RBC Wealth Management; data through 11/30/18

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