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# Municipal Bond Credit Report

Fourth Quarter and Full Year 2018

February 2019

## Key Takeaways

- 2018 municipal issuance volumes down 21.6% from 2017; refundings as % of issuance down with the elimination of advance refundings at the end of 2017
- Outstanding stock of municipal loans down 2.3% from peak of \$191.1 billion as issuers shift back to the securities market
- Floating rate note market begins shift from LIBOR to SOFR index at the end of 2018

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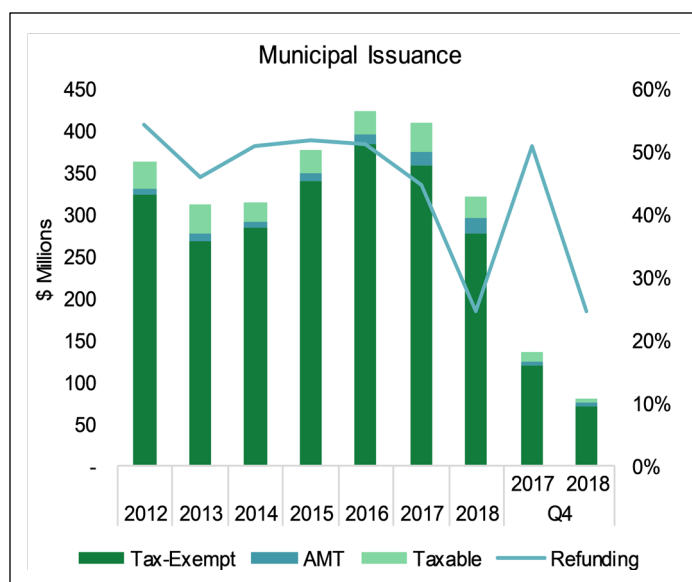
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## Market Summary

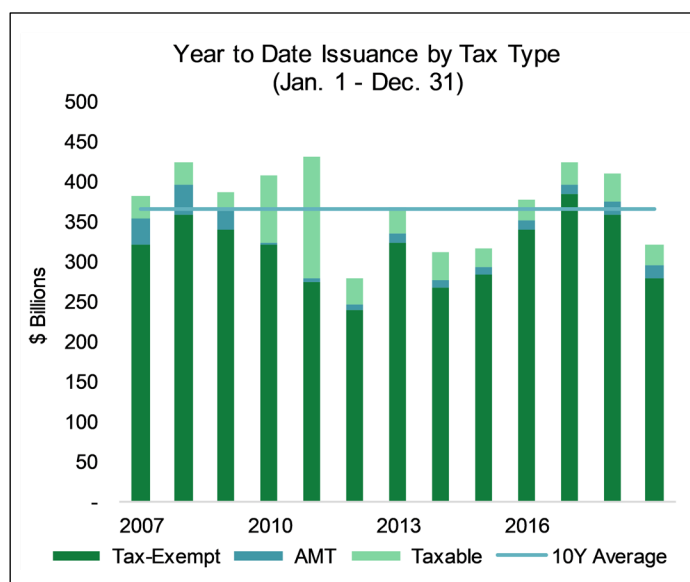
According to Refinitiv, long-term public municipal issuance<sup>1</sup> volume totaled \$83 billion in the fourth quarter of 2018, a decline of 2.1 percent from the prior quarter (\$83.0 billion) and a decline of 40.5 percent year-over-year (y-o-y) (\$136.4 billion). The steep drop in year-over-year volumes are due to higher than normal issuance volumes in December 2017 resulting from the impending elimination of advance refundings and then-anticipated possible elimination of private activity bonds in 2018 from the passage of the Tax Cuts and Jobs Act of 2017. For the full year, municipal issuance was \$320.2 billion, a decline of 21.6 percent from 2017, and is well under the 10-year average annual volume of \$363.8 billion. For 2019, participants in the SIFMA 2019 Municipal Issuance Survey (“SIFMA Survey”) expect issuance to dip slightly to \$317.0 billion.<sup>2</sup>

Tax-exempt issuance totaled \$71.7 billion in 4Q’18, an increase of 0.1 percent quarter-over-quarter (q-o-q) but a decline of 40.0 percent y-o-y; for the full year, tax-exempt issuance totaled \$277.9 billion, a decline of 22.6 percent from 2017. For 2019, SIFMA Survey participants expect tax-exempt issuance to remain unchanged from 2018 volumes at \$275.0 billion.

Taxable issuance totaled \$5.2 billion in 4Q’18, a decline of 28.1 percent q-o-q and 54.6 percent y-o-y; for the full year, taxable issuance totaled \$25.1 billion, a decline of 26.5 percent from 2017. For 2019, SIFMA Survey participants expect taxable issuance to also remain unchanged from 2018 volumes at \$25 billion.



Source: Refinitiv



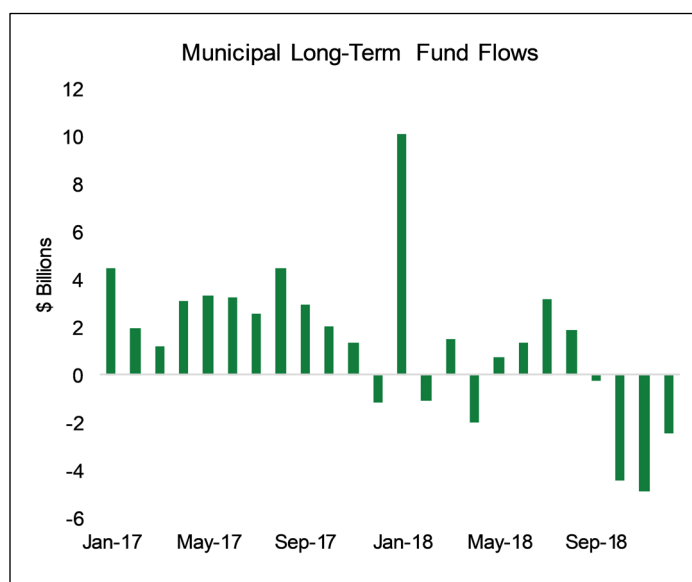
Alternative Minimum Tax (AMT) issuance was \$4.3 billion in 4Q’18, an increase of 5.0 percent q-o-q but a decline of 20.1 percent y-o-y; for the full year, AMT issuance totaled \$17.2 billion, an increase of 11.5 percent from 2017. For 2019, SIFMA Survey participants expect AMT issuance to remain unchanged at \$17 billion.

<sup>1</sup> All figures and charts exclude private placements.

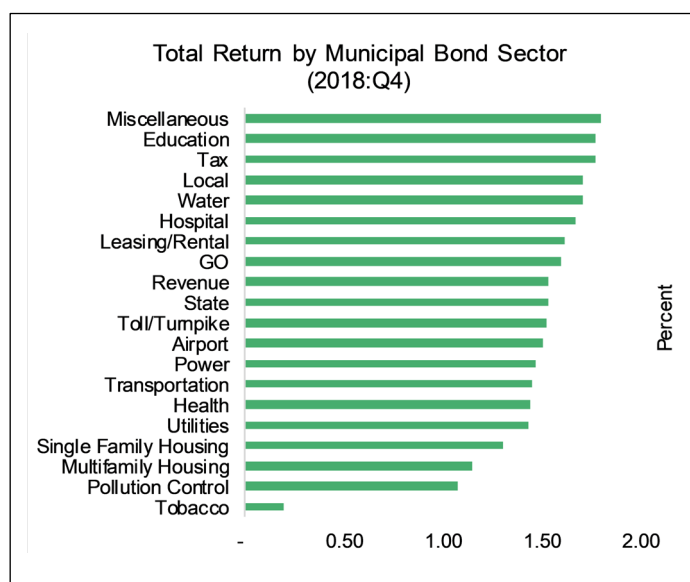
<sup>2</sup> SIFMA 2019 Municipal Issuance Survey, <https://www.sifma.org/resources/research/us-municipal-issuance-survey-2019/>, December 19, 2018

By use of proceeds, general purpose led issuance volumes in 4Q'18 (\$18.6 billion), followed by primary and secondary education (\$13.2 billion), general acute care hospital (\$7.8 billion), water and sewer facilities (\$5.7 billion), and airports (\$4.6 billion). For the full year, general purpose led issuance volumes (\$82.0 billion), followed by primary and secondary education (\$57.3 billion), water and sewer facilities (\$25.5 billion), general acute care hospital (\$21.5 billion), and higher education (\$20.8 billion).

Refunding volumes declined slightly to 24.6 percent of issuance in 4Q'18 from 28.6 percent in the prior quarter but remain well below the averages in prior years.<sup>3</sup>



Source: ICI (left), ICE BAML (right)



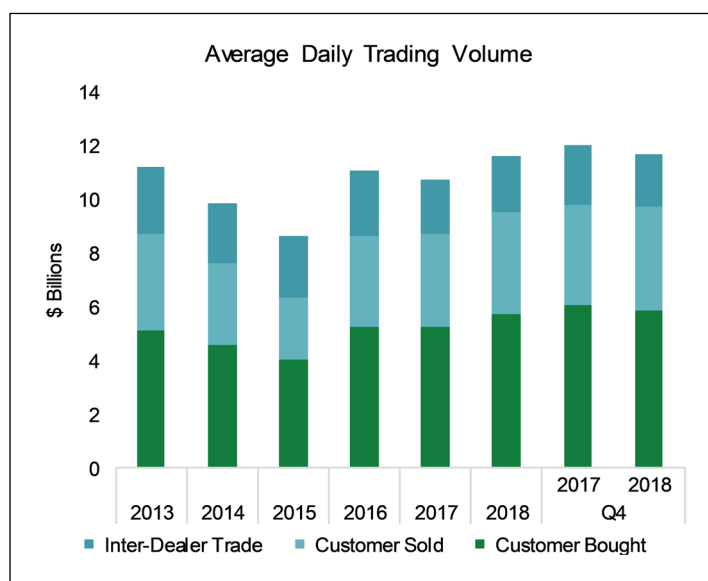
<sup>3</sup> Percentages represent both full refundings and the half the dollar amount of deals that contain both refundings and new financing.

## Yields, Inflows, and Total Return

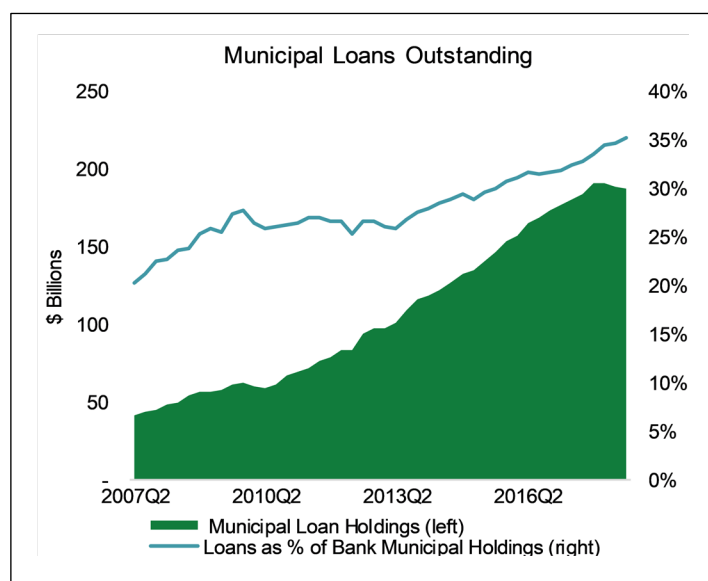
Ratios of 10-year tax-exempt AAA GOs and similar-maturity Treasuries rose slightly in the fourth quarter on a q-o-q basis, averaging 86.1 percent in 4Q'18 from 85.8 percent in 3Q'18 and 86.0 percent in 4Q'17.

According to the Investment Company Institute (ICI), fourth quarter net flow into long-term tax-exempt mutual funds was negative while flow into exchange-traded funds (ETFs) was positive: there was \$11.7 billion of net outflow in 4Q'18 in mutual funds (compared to \$4.8 billion of net inflow in 4Q'18) and \$3.6 billion of net inflow into ETFs (from \$499 million in 3Q'18).

According to the ICE BofAML indices, municipals gained 1.6 percent in total return in the fourth quarter of 2018, up from the 0.2 percent loss in 3Q'18. For the fourth quarter, education, tax, and local authorities outperformed among the individual municipal sectors (a gain of 1.78 percent, 1.77, and 1.71 percent, respectively) while tobacco, pollution control, and multifamily housing underperformed (a gain of 0.20 percent, 1.08 percent, and 1.15 percent, respectively). Build America Bonds (BABs) gained 1.70 percent in 4Q'18, outperforming similarly-rated corporate bonds (total return of 0.7 percent).



Source: EMMA MSRB (left); FDIC, Federal Reserve (right)



## Bond Insurance

Insured bonds remained relatively stable, rising slightly from the all time low of 5.6 percent of issuance in 2017 to 5.9 percent of issuance in 2018. At the end of 2018, \$347.03 billion of municipal bonds were insured, representing 9.6 percent of the municipal market.

## Trading Activity

Trading activity rose q-o-q to \$11.7 billion daily in 4Q'18, a 2.7 percent increase from 3Q'18 (\$11.4 billion) but a 2.6 percent decline from 4Q'17 (\$12.0 billion). By number of trades, trading activity increased 6.9 percent and 5.5

percent on a q-o-q and y-o-y basis. For the full year, average daily volumes were \$11.6 billion daily on 40,252 trades in 2018, an increase of 7.9 percent and 2.6 percent, respectively, from 2017.

## Broker-Dealers and Holdings

Bank holdings of municipal loans declined slightly in 3Q'18 from the prior quarter to \$186.7 billion (from \$188.6 billion) while holdings of bonds also declined to \$530.7 billion (from \$544.8 billion). The third quarter marks the second decline in a row for bank loans holdings since 2010; tax reform coming into effect in early 2018 and gross-up provisions in bank loans have generally made the bank loan market less attractive to issuers compared to prior quarters.

Broker-Dealers Dropping Municipal Business Lines, 2018	Broker	Dealer
CGIS SECURITIES LLC	*	
COMMERCE STREET CAPITAL, LLC	*	
FILLMORE ADVISORS, LLC	*	
GRF CAPITAL INVESTORS, INC.	*	*
HAPOALIM SECURITIES USA, INC.		*
HP SECURITIES, INC.	*	
INTEGRITY BROKERAGE SERVICES, INC.	*	
INVICTA CAPITAL LLC	*	
MHA FINANCIAL CORP	*	
MIDKIFF & STONE CAPITAL GROUP, INC.	*	
MMA SECURITIES LLC	*	
MOSS ADAMS SECURITIES & INSURANCE LLC	*	
MUNDIAL FINANCIAL GROUP, LLC	*	
NATWEST MARKETS SECURITIES INC.	*	*
NORTHERN LIGHTS DISTRIBUTORS, LLC		*
S F SENTRY SECURITIES, INC.	*	
SILICON VALLEY SECURITIES, INC.	*	
SOUTHERN TRUST SECURITIES, INC.	*	
STERLING MONROE SECURITIES, LLC	*	
TALCOTT RESOLUTION DISTRIBUTION COMPANY, INC.	*	
WEEDEN & CO.L.P.	*	

Broker-Dealers Adding Municipal Business Lines, 2018	Broker	Dealer
ARKADIOS CAPITAL	*	*
AXIO FINANCIAL LLC	*	*
B. RILEY FBR, INC.	*	*
COLDSTREAM SECURITIES, INC.	*	
MONEX SECURITIES, INC.	*	
PRIVATE CLIENT SERVICES, LLC		*
REVL SECURITIES, LLC	*	
WEALTHFRONT BROKERAGE LLC	*	
WHARTON MIDMARKET SECURITIES INC.	*	
WINTRUST INVESTMENTS LLC	*	
ZEUS FINANCIAL, LLC	*	

Year	2016	2017	2018
FINRA BD - Municipal Broker Business	1214	1200	1130
FINRA BD - Municipal Dealer Business	520	528	495
FINRA BD - Both Business Lines	446	453	429
FINRA BD - Total	1288	1273	1195

Source: FINRA

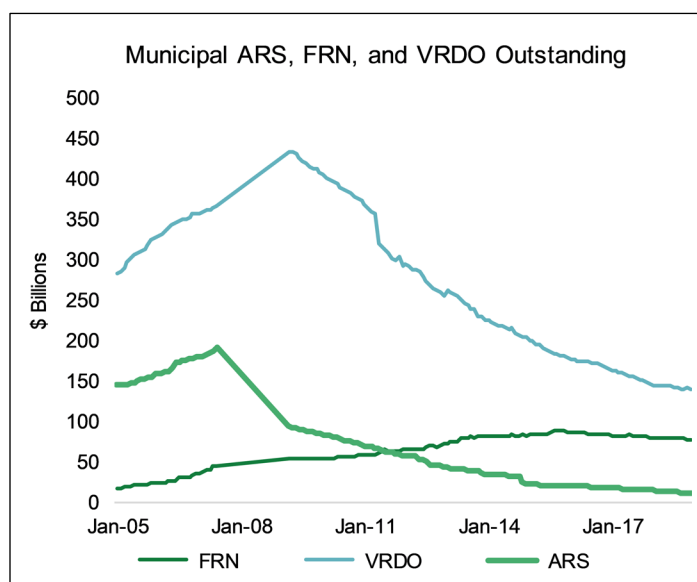
As of the end of 2018, approximately 21 broker dealers exited either the municipal broker or dealer business (not including firms that deregistered entirely from FINRA), while 11 entered either business (not including firms newly registered in 2018). Including closures throughout the year, 1,130 broker-dealers registered with FINRA were involved in the municipal broker business line, a decline of 5.8 percent y-o-y while 495 broker-dealers were involved in the municipal dealer business line, a decline of 6.3 percent, for a total of 1,195 broker-dealers involved in either business (a decline of 6.1 percent y-o-y). Figures echo the overall trend of consolidation within the industry.<sup>4</sup>

## ARS, FRN and VRDO Update

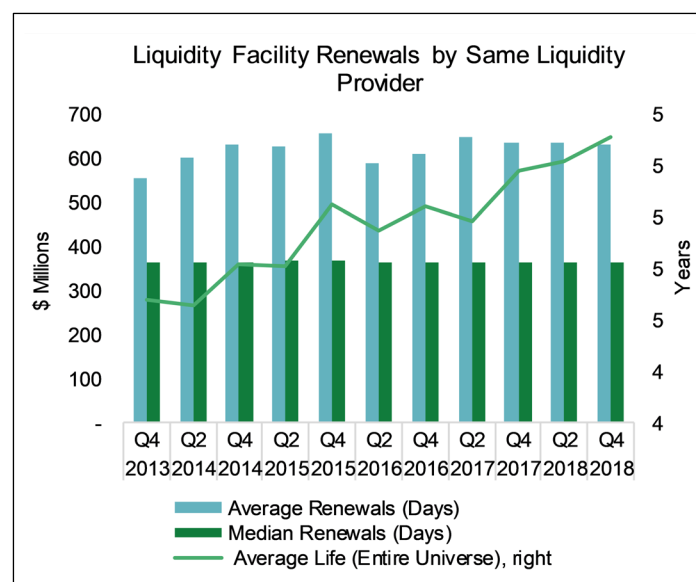
Issuance of variable-rate demand obligations (VRDOs), puttable long-term municipal bonds with interest rates that reset periodically, picked up slightly in the fourth quarter. A total of \$2.9 billion was issued in 4Q'18, a 47.8 percent increase q-o-q and an increase of 58.3 percent y-o-y. For the full year, VRDO issuance was \$7.5 billion, a 52.0 percent increase from the low of \$4.9 billion in 2017. Participants in the SIFMA Survey expect VRDO issuance to remain at 2017 lows in 2019 (\$5 billion), however.

<sup>4</sup> Figures from FINRA-registered broker-dealers. Does not include MSRB-only registered dealers.

Outstanding volumes continue to decline, with \$139.6 billion outstanding as of the end of December 2018, unchanged q-o-q and a decline of 4.1 percent from December 2017. On net, the only sectors to see growth y-o-y were general obligation (\$1.1 billion) and healthcare (\$968.4 million); however, since the peak of \$442.8 billion in November 2008, the VRDO market has over declined by 68.5 percent.



Source: EMMA MSRB, Bloomberg, SIFMA



The SIFMA Municipal Swap index, a seven-day high-grade market index comprised of tax-exempt VRDOs, ended December at 1.71 percent, averaging 1.63 percent throughout 4Q'18, 28 basis points wider than 3Q'18's average (1.35 percent) and 58 basis points wider than 4Q'17's average (1.05 percent). For the full year, the swap indexed average 1.41 percent, 57 basis points wider than 2017 (0.85 percent).

As of the end of December 2018, \$30.4 billion of VRDO liquidity facilities were scheduled to expire in 2019 with an additional \$25.3 billion in 2020 for a total of \$55.6 billion of liquidity facilities on 2,306 CUSIPs, a manageable rate given the relative stability of liquidity providers in this space: at the end of 2018, 133 bank providers provided liquidity to VRDOs compared to 141 in 2017, with several new US entrants in the market that previously only provided liquidity to municipal tender option bonds. VRDO liquidity facility renewals with the same liquidity provider on approximately 960 unique CUSIPS averaged 631.9 days from the original expiration date, falling from 634.4 days in 2Q'18. The median extension, however, continues to remain unchanged at 1 year (365 days). The average tenor of a liquidity facility of the entire universe of VRDOs was approximately 5.31 years, rising from the 5.22 year average in 2Q'18. However, excluding self-liquidity deals (which typically have an expiration date set to the bond maturity date), the average remaining tenor of liquidity facilities in the entire VRDO universe was 4.09 years, up slightly from the 4.02 years in 2Q'18.

Bank Liquidity Provider Rankings			
Then...	12/31/2017	...And Now	12/31/2018
Bank	%	Bank	%
BOA	12.1%	BOA	12.2%
JPM	11.1%	JPM	11.5%
WF	8.1%	TD	8.7%
TD	7.1%	WF	7.7%
US Bank	6.8%	US Bank	6.6%
Sumitomo Mitsui	4.9%	Sumitomo Mitsui	5.6%
Tokyo Mitsubishi UFJ	4.9%	Barclays	5.4%
Barclays	4.4%	State Street	4.7%
PNC	4.2%	Citi	4.3%
Citi	4.1%	PNC	4.1%
Landesbank Hessen-Thrgn	3.9%	Landesbank Hessen-Thrgn	4.0%
RBC	3.9%	Tokyo Mitsubishi UFJ	3.9%
BMO Harris	3.2%	Mizuho	2.9%
State Street	3.2%	BMO Harris	2.8%
Mizuho	3.0%	RBC	2.1%
Everyone Else	15.1%	Everyone Else	13.6%
# of Banks	141	# of Banks	133

Source: EMMA MSRB, Bloomberg, SIFMA

Floating rate bond issuance declined quarter over quarter with \$916.2 million issued in 4Q'18, a 40.8 percent decline q-o-q but a 17.3 percent increase y-o-y. For the full year, \$4.7 billion of floating rate bonds were issued, an increase from the \$3.7 billion issued in 2017. At end-December 2018, \$76.9 billion of floating rate bonds were outstanding, a decline of 1.1 percent q-o-q and a 2.7 percent decline y-o-y. Both the LIBOR and SIFMA swap index continue to remain popular benchmark indices for floating rate issuance, although the recent SOFR deals from the Triborough Bridge and Tunnel Authority may mark a shift toward the SOFR benchmark.

Auction rate securities (ARS) continue to remain in run off mode, with \$9.7 billion of ARS outstanding end-December, a decline of 11.4 percent q-o-q and 31.8 percent y-o-y. From its peak of \$205.6 billion in December 2007, the market has declined by 95.3 percent in size since then.



### State and Government Update

Fewer states and cities experienced rating actions in the fourth quarter compared to the prior quarter:

- October 23 - Moody's Investor Service downgraded the State of Vermont's GO bond ratings to Aa1 from Aaa due to low growth prospects and high leverage. Vermont was the only state GO rating to have a rating action in the fourth quarter.
- October 11<sup>th</sup> - Moody's downgraded Jacksonville, FL's issuer rating to A2 from Aa2 due to the Vogtle nuclear power plant project dispute between Jacksonville's electric utility, JEA, and Municipal Energy of Georgia (MEAG).
- October 18<sup>th</sup> - Standard and Poor's upgraded Atlantic City to B from CCC+ on improved fundamentals. Following S&P, Moody's upgraded Atlantic City to B2 from Caa3 on November 1<sup>st</sup>.
- November 27<sup>th</sup> - both Standard and Poor's and Fitch downgraded Westchester County, NY due to budget shortfalls and reduced reserves.
- December 19<sup>th</sup> - Fitch downgraded the IDR rating of San Antonio, TX to AA+ from AAA due to reduced financial flexibility on the passage of a city charter amendment in November 2018 permitting firefighters to call for binding arbitration during future collective bargaining agreement negotiations.

## Charts &amp; Data

## Long-Term Municipal State Issuance, 4Q'18

State	Total	Bond Type		Tax Type			Funding Type			
		G.O.	Revenue	AMT	Tax-Exempt	Taxable	New Financing	Refinancing	Refunding & New Refinancing	Refunding
Alabama	432.8	240.8	192.0	-	377.7	55.1	376.4	-	12.0	44.4
Alaska	83.3	83.3	-	12.1	71.2	-	83.3	-	-	-
American Samoa	50.3	-	50.3	-	50.3	-	50.3	-	-	-
Arizona	1,840.9	578.1	1,262.8	287.6	1,518.8	34.5	1,365.9	-	222.9	252.1
Arkansas	382.0	96.0	286.0	-	334.9	47.1	306.7	-	24.5	50.9
California	10,664.9	2,894.8	7,770.1	559.7	9,746.0	359.3	7,726.6	-	986.6	1,951.8
Colorado	1,910.9	707.1	1,203.8	16.0	1,756.4	138.5	1,495.0	-	267.0	149.0
Connecticut	1,495.6	359.3	1,136.3	9.2	1,457.5	28.9	593.4	-	850.1	52.0
District of Columbia	350.4	-	350.4	-	348.7	1.7	291.6	-	58.8	-
Delaware	246.6	37.0	209.6	-	246.6	-	169.9	-	-	76.7
Florida	3,601.2	22.5	3,578.7	360.6	3,059.5	181.2	2,732.9	-	32.7	835.7
Georgia	1,341.2	134.7	1,206.5	-	1,285.0	56.2	973.3	-	27.4	340.6
Guam	0.0	-	-	-	-	-	-	-	-	-
Hawaii	0.0	-	-	-	-	-	-	-	-	-
Idaho	166.2	43.3	122.9	-	166.2	-	143.8	-	-	22.5
Illinois	6,092.6	1,374.6	4,718.0	600.8	4,481.8	1,010.1	3,217.2	-	1,468.3	1,407.2
Indiana	1,235.3	204.6	1,030.7	-	1,167.4	67.9	1,090.2	-	54.6	90.5
Iowa	669.9	245.8	424.1	-	618.9	51.0	507.6	-	146.3	16.0
Kansas	681.9	386.9	295.0	-	677.2	4.6	661.5	-	18.3	2.1
Kentucky	1,285.0	57.0	1,228.0	-	1,270.2	14.7	1,279.9	-	-	5.0
Louisiana	642.3	32.8	609.5	-	604.9	37.3	383.7	-	-	258.6
Maine	305.0	77.4	227.6	-	305.0	-	250.8	-	54.2	-
Maryland	1,481.0	930.9	550.1	40.4	1,384.1	56.5	1,383.1	-	98.0	-
Massachusetts	999.6	470.1	529.5	3.6	873.0	123.0	790.3	-	79.3	130.0
Michigan	2,435.2	617.5	1,817.7	659.3	1,475.9	300.0	1,582.7	-	416.9	435.7
Minnesota	2,377.1	899.6	1,477.5	80.8	2,133.6	162.7	1,054.7	-	704.0	618.5
Mississippi	491.3	349.8	141.5	-	338.3	153.0	491.3	-	-	-
Missouri	1,034.3	323.9	710.4	-	1,025.4	8.9	566.1	-	165.5	302.8
Montana	50.6	10.6	40.0	-	50.6	-	50.6	-	-	-
Nebraska	864.5	153.3	711.2	-	849.3	15.2	740.9	-	59.6	64.0
Nevada	1,098.6	800.4	298.2	-	1,098.6	-	778.3	-	137.1	183.2
New Hampshire	176.9	85.2	91.7	-	94.4	82.6	176.9	-	-	-
New Jersey	3,624.8	506.4	3,118.4	-	3,554.2	70.6	773.0	-	1,078.0	1,773.8
New Mexico	322.5	17.8	304.7	-	322.5	-	310.6	-	-	11.8
New York	10,549.5	3,246.4	7,303.1	58.8	9,399.9	1,090.8	6,816.2	-	3,458.2	275.1
North Carolina	1,642.1	188.2	1,453.9	-	1,578.7	63.5	810.2	-	34.7	797.3
North Dakota	168.1	41.4	126.7	-	168.0	-	12.5	-	83.7	71.8
Ohio	2,117.4	952.1	1,165.3	-	2,033.7	83.7	1,670.1	-	318.0	129.3
Oklahoma	748.2	134.6	613.6	113.4	613.5	21.2	738.0	-	2.7	7.5
Oregon	1,017.8	566.3	451.5	-	803.0	214.9	670.2	-	201.6	146.0
Pennsylvania	1,857.9	549.8	1,308.1	-	1,771.4	86.5	1,654.1	-	122.7	81.1
Puerto Rico	0.0	-	-	-	-	-	-	-	-	-
Rhode Island	68.1	-	68.1	-	68.1	-	49.8	-	-	18.3
South Carolina	1,154.6	134.7	1,019.9	-	1,140.6	13.9	325.1	-	68.0	761.5
South Dakota	519.0	155.3	363.7	-	486.1	32.9	519.0	-	-	-
Tennessee	1,526.7	981.3	545.4	-	1,435.8	91.0	1,169.4	-	294.5	62.9
Texas	5,582.1	2,366.2	3,215.9	776.4	4,735.9	69.9	3,521.2	-	506.6	1,554.3
Utah	1,183.5	187.8	995.7	753.9	407.7	22.0	1,141.5	-	27.8	14.1
Vermont	58.8	15.7	43.1	5.1	49.0	4.8	58.8	-	-	-
Virgin Islands	0.0	-	-	-	-	-	-	-	-	-
Virginia	1,013.2	200.2	813.0	-	868.7	144.4	588.4	-	308.5	116.3
Washington	1,523.7	935.0	588.7	-	1,469.1	54.6	1,336.1	-	137.7	49.9
West Virginia	68.3	-	68.3	-	58.3	10.0	68.3	-	-	-
Wisconsin	1,967.4	547.3	1,420.1	-	1,828.0	139.4	1,126.6	-	578.7	262.1
Wyoming	0.0	-	-	-	-	-	-	-	-	-
ALL	81,201.1	23,943.8	57,257.3	4,337.7	71,659.6	5,204.1	54,674.0	0.0	13,105.5	13,422.4
QoQ	-2.1%	-16.1%	5.2%	5.0%	0.1%	-28.1%	0.5%	N/A	35.9%	-29.0%
YoY	-40.5%	-51.4%	-34.3%	-20.1%	-40.0%	-54.6%	0.6%	-100.0%	-46.6%	-76.5%

Source: Refinitiv

## Long-Term Municipal State Issuance, 4Q'18, continued

State	Total	Coupon Type						
		Convertible	Fixed Rate	Linked Rate	Variable Rate Long	Variable Rate No Put	Variable Rate Short (VRDO)	Zero
Alabama	432.8	-	432.8	-	-	-	-	-
Alaska	83.3	-	83.3	-	-	-	-	-
American Samoa	50.3	-	50.3	-	-	-	-	-
Arizona	1,840.9	-	1,745.3	50.5	45.1	-	-	-
Arkansas	382.0	-	382.0	-	-	-	-	-
California	10,664.9	-	9,439.8	82.4	906.5	-	129.9	106.3
Colorado	1,910.9	-	1,886.3	-	-	-	20.0	4.7
Connecticut	1,495.6	-	1,398.0	-	38.3	-	59.3	-
District of Columbia	350.4	-	350.4	-	-	-	-	-
Delaware	246.6	-	246.6	-	-	-	-	-
Florida	3,601.2	42.0	3,382.8	74.0	36.0	-	66.5	-
Georgia	1,341.2	-	1,142.0	-	71.0	-	128.2	-
Guam	0.0	-	-	-	-	-	-	-
Hawaii	0.0	-	-	-	-	-	-	-
Idaho	166.2	-	166.2	-	-	-	-	-
Illinois	6,092.6	-	5,883.1	51.4	27.3	-	130.8	-
Indiana	1,235.3	-	1,194.6	32.7	-	-	-	8.0
Iowa	669.9	-	440.2	-	-	-	229.7	-
Kansas	681.9	-	656.0	-	-	-	25.8	-
Kentucky	1,285.0	-	432.1	100.4	752.5	-	-	-
Louisiana	642.3	-	629.3	-	13.0	-	-	-
Maine	305.0	-	305.0	-	-	-	-	-
Maryland	1,481.0	-	1,470.2	6.1	4.7	-	-	-
Massachusetts	999.6	-	911.2	33.7	20.8	-	34.0	-
Michigan	2,435.2	-	2,435.2	-	-	-	-	-
Minnesota	2,377.1	-	1,860.3	35.0	74.9	20.0	387.0	-
Mississippi	491.3	-	457.3	-	34.0	-	-	-
Missouri	1,034.3	7.4	1,026.9	-	-	-	-	-
Montana	50.6	-	50.6	-	-	-	-	-
Nebraska	864.5	-	864.5	-	-	-	-	-
Nevada	1,098.6	-	1,098.6	-	-	-	-	-
New Hampshire	176.9	-	96.9	-	-	-	80.0	-
New Jersey	3,624.8	-	3,515.2	-	109.6	-	-	-
New Mexico	322.5	-	322.5	-	-	-	-	-
New York	10,549.5	-	9,939.3	-	184.0	-	411.3	15.0
North Carolina	1,642.1	-	1,226.5	100.0	115.6	-	200.0	-
North Dakota	168.1	-	168.0	-	-	-	-	-
Ohio	2,117.4	-	1,948.4	50.0	24.4	-	94.6	-
Oklahoma	748.2	-	735.6	-	12.5	-	-	-
Oregon	1,017.8	-	767.9	-	40.5	-	187.0	22.5
Pennsylvania	1,857.9	-	1,735.1	70.0	25.9	-	26.9	-
Puerto Rico	0.0	-	-	-	-	-	-	-
Rhode Island	68.1	-	68.1	-	-	-	-	-
South Carolina	1,154.6	-	972.0	-	7.5	-	175.0	-
South Dakota	519.0	-	519.0	-	-	-	-	-
Tennessee	1,526.7	-	1,486.8	-	40.0	-	-	-
Texas	5,582.1	-	4,992.6	30.0	233.6	-	325.0	0.9
Utah	1,183.5	-	1,183.5	-	-	-	-	-
Vermont	58.8	-	58.8	-	-	-	-	-
Virgin Islands	0.0	-	-	-	-	-	-	-
Virginia	1,013.2	-	963.1	-	50.0	-	-	-
Washington	1,523.7	-	1,261.4	200.0	62.4	-	-	-
West Virginia	68.3	-	68.3	-	-	-	-	-
Wisconsin	1,967.4	-	1,791.5	-	-	-	175.9	-
Wyoming	0.0	-	-	-	-	-	-	-
ALL	81,201.1	49.4	74,241.4	916.2	2,930.1	20.0	2,886.9	157.4
QoQ	-2.1%	N/A	-2.1%	-40.8%	-14.9%	N/A	47.8%	-22.3%
YoY	-40.5%	8.6%	-43.1%	17.3%	9.4%	-55.4%	58.3%	-72.7%

Source: Refinitiv

## Long-Term Municipal State Issuance, 2018

State	Total	Bond Type		Tax Type			Funding Type			
		G.O.	Revenue	AMT	Tax-Exempt	Taxable	New Financing	Refinancing	Refunding & New Refinancing	Refunding
Alabama	4,551.4	1,238.6	3,312.8	-	4,290.5	260.9	4,068.9	-	158.3	324.2
Alaska	547.8	380.0	167.8	12.1	445.7	90.0	251.1	-	296.8	-
American Samoa	50.3	-	50.3	-	50.3	-	50.3	-	-	-
Arizona	4,199.2	1,384.1	2,815.1	287.6	3,797.9	113.7	3,332.2	-	287.4	579.6
Arkansas	1,607.2	710.3	896.9	-	1,552.6	54.5	687.8	-	775.2	144.1
California	45,700.2	16,056.9	29,643.3	3,848.1	36,449.3	5,402.9	26,363.1	-	9,441.6	9,895.6
Colorado	9,752.4	2,661.8	7,090.6	2,379.0	6,778.3	595.2	4,883.1	-	1,153.0	3,716.3
Connecticut	6,431.6	3,555.4	2,876.2	170.5	5,646.8	614.3	3,926.9	-	1,201.0	1,303.7
District of Columbia	2,179.6	515.7	1,663.9	558.4	1,561.9	59.3	713.6	-	1,132.9	333.1
Delaware	831.0	278.6	552.4	-	584.8	246.2	717.9	-	20.6	92.4
Florida	10,262.7	966.7	9,296.0	418.2	8,722.2	1,122.3	6,818.6	-	839.0	2,605.1
Georgia	6,815.1	2,044.9	4,770.2	54.3	5,991.2	769.6	5,467.5	-	604.4	743.2
Guam	71.4	-	71.4	23.1	30.0	18.3	71.4	-	-	-
Hawaii	2,024.1	1,250.7	773.4	388.6	1,359.1	276.4	1,374.6	-	467.4	182.1
Idaho	980.6	224.9	755.7	-	743.3	237.3	534.7	-	165.5	280.4
Illinois	12,562.6	5,974.3	6,588.3	743.6	9,598.5	2,220.5	6,090.4	-	1,556.9	4,915.3
Indiana	3,532.8	528.5	3,004.3	6.3	3,396.6	129.8	2,925.2	-	110.5	497.0
Iowa	2,533.2	1,375.1	1,158.1	74.3	2,303.7	155.2	2,087.7	-	273.5	171.9
Kansas	2,325.5	1,272.6	1,052.9	-	2,296.5	29.1	1,919.8	-	183.2	222.5
Kentucky	5,020.9	217.6	4,803.3	17.9	4,752.9	250.1	4,405.9	-	353.4	261.7
Louisiana	1,505.2	213.9	1,291.3	58.3	1,345.4	101.4	905.6	-	237.7	361.8
Maine	1,240.5	446.6	793.9	10.0	1,184.2	46.3	1,183.0	-	54.2	3.3
Maryland	5,840.9	3,428.1	2,412.8	48.9	5,607.6	184.4	5,487.9	-	236.5	116.5
Massachusetts	7,637.3	4,189.1	3,448.2	160.0	7,135.2	342.2	5,649.1	-	977.1	1,011.0
Michigan	6,489.0	2,691.7	3,797.3	789.0	5,181.4	518.6	4,358.3	-	921.1	1,209.6
Minnesota	7,579.7	4,686.0	2,893.7	110.7	7,062.7	406.3	5,709.1	-	947.5	923.1
Mississippi	1,052.5	593.9	458.6	-	884.9	167.6	931.1	-	16.9	104.6
Missouri	3,369.9	1,090.0	2,279.9	-	3,251.6	118.3	2,233.1	-	485.9	651.0
Montana	726.9	244.1	482.8	-	673.1	53.9	499.4	-	207.7	19.8
Nebraska	2,115.4	422.6	1,692.8	32.0	2,067.1	16.3	1,704.0	-	204.6	206.7
Nevada	3,524.0	2,170.3	1,353.7	3.0	3,499.1	21.9	2,755.4	-	137.1	631.5
New Hampshire	689.2	201.0	488.2	106.8	496.9	85.4	437.0	-	-	252.1
New Jersey	11,212.3	2,197.0	9,015.3	430.5	10,464.6	317.1	3,579.0	-	4,299.6	3,333.7
New Mexico	1,674.0	409.2	1,264.8	2.5	1,658.3	13.2	1,010.3	-	225.8	437.9
New York	41,420.2	12,853.0	28,567.2	2,410.6	34,419.0	4,590.6	30,049.3	-	6,103.8	5,267.1
North Carolina	4,874.9	1,684.8	3,190.1	13.1	4,654.0	207.8	3,299.4	-	47.8	1,527.7
North Dakota	905.0	203.5	701.5	-	846.1	58.8	576.2	-	83.7	245.0
Ohio	7,721.4	3,397.5	4,323.9	103.6	7,272.6	345.2	6,134.5	-	744.9	841.9
Oklahoma	4,096.3	1,310.9	2,785.4	113.4	3,138.7	844.2	3,936.9	-	110.5	49.0
Oregon	3,608.2	2,063.3	1,544.9	240.3	3,095.5	272.4	3,103.2	-	315.8	189.2
Pennsylvania	12,950.5	4,224.8	8,725.7	23.5	12,036.4	890.6	9,363.5	-	1,235.5	2,351.5
Puerto Rico	0.0	-	-	-	-	-	-	-	-	-
Rhode Island	701.4	226.4	475.0	86.2	491.4	123.8	562.2	-	76.0	63.3
South Carolina	3,513.8	765.0	2,748.8	325.0	3,108.7	80.1	2,413.0	-	232.8	868.0
South Dakota	687.7	194.3	493.4	-	636.3	51.4	571.8	-	99.0	16.9
Tennessee	4,941.1	2,294.5	2,646.6	119.3	4,698.2	123.6	3,999.3	-	522.9	418.9
Texas	31,415.5	17,542.2	13,873.3	1,531.4	28,861.0	1,023.1	22,972.0	-	3,265.4	5,178.1
Utah	3,010.0	798.3	2,211.7	753.9	2,212.8	43.4	2,617.9	-	269.1	123.1
Vermont	233.2	98.5	134.7	42.2	148.4	42.6	198.2	-	35.0	-
Virgin Islands	0.0	-	-	-	-	-	-	-	-	-
Virginia	5,572.4	1,593.8	3,978.6	30.0	5,103.0	439.4	3,658.4	-	1,069.3	844.7
Washington	8,792.9	3,982.3	4,810.6	557.3	7,980.5	255.1	6,883.1	-	391.2	1,518.5
West Virginia	2,045.0	800.0	1,245.0	73.5	1,889.5	82.0	1,517.2	-	-	527.9
Wisconsin	7,288.7	3,240.5	4,048.2	16.1	6,684.6	588.0	4,832.5	-	1,301.1	1,155.0
Wyoming	152.0	-	152.0	-	152.0	-	74.6	-	77.3	-
ALL	320,566.6	120,893.8	199,672.8	17,173.1	278,292.9	25,100.6	219,896.2	0.0	43,953.4	56,716.6

Source: Refinitiv

## Long-Term Municipal State Issuance, 2018, continued

State	Total	Coupon Type						
		Convertible	Fixed Rate	Linked Rate	Variable Rate Long	Variable Rate No Put	Variable Rate Short (VRDO)	Zero
Alabama	4,551.4	-	2,298.7	571.3	1,681.4	-	-	-
Alaska	547.8	-	457.8	-	-	-	90.0	-
American Samoa	50.3	-	50.3	-	-	-	-	-
Arizona	4,199.2	-	4,103.6	50.5	45.1	-	-	-
Arkansas	1,607.2	-	1,591.1	-	16.0	-	-	-
California	45,700.2	59.8	42,613.2	679.7	1,230.1	-	885.8	231.8
Colorado	9,752.4	3.2	9,178.4	37.9	157.4	-	282.4	93.2
Connecticut	6,431.6	-	6,194.0	-	38.3	-	199.3	-
District of Columbia	2,179.6	-	2,145.2	-	34.4	-	-	-
Delaware	831.0	-	831.0	-	-	-	-	-
Florida	10,262.7	42.0	10,025.1	74.0	55.1	-	66.5	-
Georgia	6,815.1	-	4,516.1	665.0	1,496.3	-	137.7	-
Guam	71.4	-	71.4	-	-	-	-	-
Hawaii	2,024.1	-	2,024.1	-	-	-	-	-
Idaho	980.6	-	906.9	-	-	-	73.8	-
Illinois	12,562.6	-	12,302.2	51.4	32.3	-	160.8	15.9
Indiana	3,532.8	-	3,467.6	32.7	7.2	-	17.2	8.0
Iowa	2,533.2	-	2,255.9	35.0	12.6	-	229.7	-
Kansas	2,325.5	-	2,152.7	147.0	-	-	25.8	-
Kentucky	5,020.9	-	2,347.8	100.4	2,571.5	-	1.3	-
Louisiana	1,505.2	-	1,476.8	-	13.0	-	-	15.3
Maine	1,240.5	-	1,225.5	-	15.0	-	-	-
Maryland	5,840.9	-	5,821.6	6.1	4.7	-	8.5	-
Massachusetts	7,637.3	-	7,327.6	63.7	20.8	-	225.2	-
Michigan	6,489.0	-	6,348.8	-	-	-	140.2	-
Minnesota	7,579.7	-	6,815.7	70.0	181.5	20.0	387.0	105.5
Mississippi	1,052.5	-	941.6	-	41.0	-	70.0	-
Missouri	3,369.9	7.4	3,149.8	-	58.7	-	154.0	-
Montana	726.9	-	641.9	19.8	-	-	65.3	-
Nebraska	2,115.4	-	2,036.8	-	-	-	78.6	-
Nevada	3,524.0	-	3,449.2	-	-	-	-	74.8
New Hampshire	689.2	-	526.6	82.5	-	-	80.0	-
New Jersey	11,212.3	-	11,026.9	-	185.3	-	-	-
New Mexico	1,674.0	-	1,674.0	-	-	-	-	-
New York	41,420.2	-	38,975.6	100.0	831.3	-	1,498.3	15.0
North Carolina	4,874.9	-	4,443.8	100.0	131.1	-	200.0	-
North Dakota	905.0	-	895.5	-	-	-	9.4	-
Ohio	7,721.4	-	7,077.0	74.2	253.7	-	315.5	1.1
Oklahoma	4,096.3	-	4,061.0	-	35.4	-	-	-
Oregon	3,608.2	-	3,122.1	-	40.5	-	217.0	228.7
Pennsylvania	12,950.5	-	11,957.7	793.9	110.0	-	88.8	-
Puerto Rico	0.0	-	-	-	-	-	-	-
Rhode Island	701.4	-	701.4	-	-	-	-	-
South Carolina	3,513.8	-	2,502.2	100.3	736.4	-	175.0	-
South Dakota	687.7	-	687.7	-	-	-	-	-
Tennessee	4,941.1	-	4,115.4	-	703.8	-	121.9	-
Texas	31,415.5	-	29,669.8	279.1	886.6	-	575.0	5.0
Utah	3,010.0	-	2,860.0	-	100.0	-	50.0	-
Vermont	233.2	-	233.2	-	-	-	-	-
Virgin Islands	0.0	-	-	-	-	-	-	-
Virginia	5,572.4	-	5,023.1	-	294.7	-	254.6	-
Washington	8,792.9	-	8,273.2	428.8	62.4	-	28.6	-
West Virginia	2,045.0	-	1,833.1	-	73.5	-	138.5	-
Wisconsin	7,288.7	-	6,502.9	199.4	231.6	-	354.8	-
Wyoming	152.0	-	112.5	20.0	-	-	19.5	-
<b>ALL</b>	<b>320,566.6</b>	<b>112.4</b>	<b>295,043.1</b>	<b>4,782.7</b>	<b>12,388.7</b>	<b>20.0</b>	<b>7,426.0</b>	<b>794.3</b>

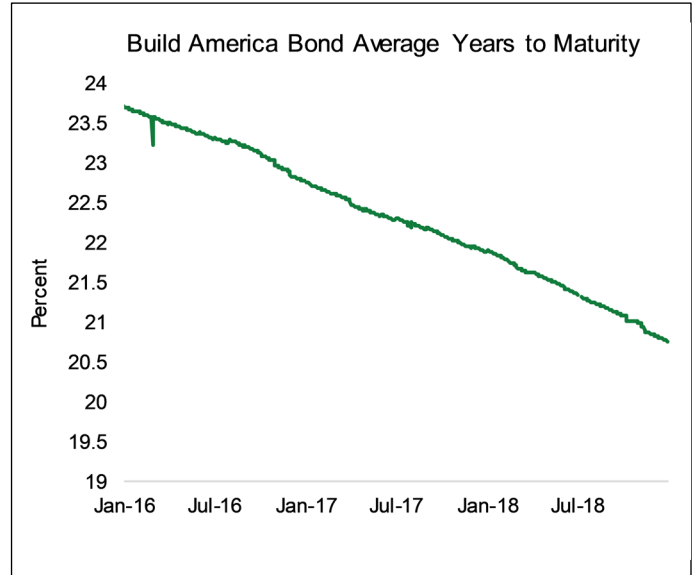
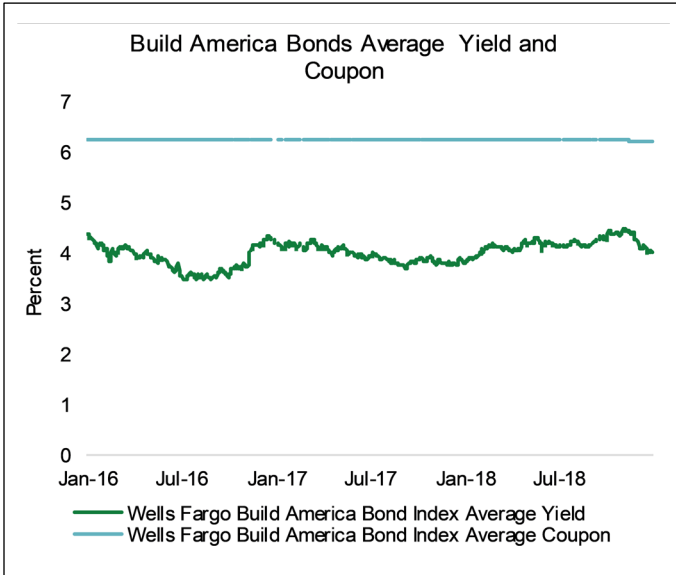
Source: Refinitiv

## Long Term Municipal Issuance by General Use of Proceeds

Use of Proceeds	4Q'17	3Q'18	4Q'18	Q-o-Q	Y-o-Y	2018
Airports	3,342.3	5,209.4	4,577.1	-12.1%	36.9%	16727.1
Assisted Living	544.6	82.9	479.3	478.2%	-12.0%	757.8
Bridges	1,040.3	1,015.7	578.1	-43.1%	-44.4%	2362.3
Childrens hospital	870.6				-100.0%	330.7
Churches Temples and Mosques			12.1			12.1
Civic & convention centers	760.5	2,329.1	711.5	-69.5%	-6.4%	3777.9
Combined utilities	217.6	98.2	586.0	496.7%	169.3%	1311.5
Cont Care Retirement Community	2,087.9	1,479.6	1,470.2	-0.6%	-29.6%	3871.4
Correctional facilities	479.8	373.0	361.4	-3.1%	-24.7%	1340.5
Economic development	4,554.8	1,324.9	1,555.4	17.4%	-65.9%	4951.3
Fire stations & equipment	65.2	66.4	194.8	193.4%	198.8%	444.8
Flood control	516.2	75.0	64.6	-13.9%	-87.5%	368.7
Gas	1,426.8	2,365.0	2,342.6	-0.9%	64.2%	9973.2
General acute care hospital	11,810.4	6,306.8	7,808.0	23.8%	-33.9%	21541.1
General Medical	250.2	115.1	40.4	-64.9%	-83.9%	168.6
General purpose /public improvement	35,647.3	21,059.8	18,602.6	-11.7%	-47.8%	81995.5
Government buildings	670.8	443.5	210.8	-52.5%	-68.6%	1584.4
Higher education	12,299.9	4,267.2	3,870.9	-9.3%	-68.5%	20835
Industrial development	777.3	88.9	237.6	167.3%	-69.4%	750.4
Libraries & museums	255.5	329.6	181.8	-44.8%	-28.8%	733.3
Mass transportation	8,226.8	2,041.6	4,238.2	107.6%	-48.5%	11935.3
Multi family housing	2,879.6	963.3	2,437.6	153.0%	-15.3%	6771.6
Nursing homes	12.5	10.3		-100.0%	-100.0%	50.8
Office buildings		302.4		-100.0%		324.9
Other education	295.1	70.3	48.0	-31.7%	-83.7%	500.5
Other recreation	49.9	162.3	195.4	20.4%	291.6%	561
Parking facilities	183.0	230.9	3.7	-98.4%	-98.0%	337.4
Parks, Zoos & Beaches	350.4	207.3	436.0	110.3%	24.4%	838.4
Police stations & equipment	24.8	38.4	12.7	-66.9%	-48.8%	168.1
Pollution control	208.8	417.1	138.2	-66.9%	-33.8%	836.2
Primary & secondary education	18,268.9	12,983.7	13,169.7	1.4%	-27.9%	57255.6
Public power	4,106.5	868.1	1,664.0	91.7%	-59.5%	5988.9
Sanitation	148.0	46.0	144.3	213.7%	-2.5%	286.5
Seaports /marine terminals	596.1	1,143.0	759.1	-33.6%	27.3%	3901.8
Single family housing	3,378.2	3,537.6	3,288.4	-7.0%	-2.7%	11080.9
Single speciality hospital	312.2	568.7	162.4	-71.4%	-48.0%	785.9
Solid waste	482.7	252.3	625.0	147.7%	29.5%	964.4
Stadiums & sports complexes	776.7	107.1	205.0	91.4%	-73.6%	1729.1
Student loans	167.0	259.1	149.5	-42.3%	-10.5%	1159.4
Telecommunications	79.1	32.4	0.6	-98.1%	-99.2%	201.2
Theatres	74.8	8.6		-100.0%	-100.0%	152.6
Toll roads, highways & streets	8,053.6	2,629.9	3,947.3	50.1%	-51.0%	15291.9
Veterans (excluding housing)		91.7		-100.0%		91.7
Water & sewer facilities	10,125.7	8,951.6	5,690.9	-36.4%	-43.8%	25514.4
<b>ALL</b>	<b>136,418.4</b>	<b>82,953.8</b>	<b>81,201.2</b>	<b>-2.1%</b>	<b>-40.5%</b>	<b>320,566.1</b>

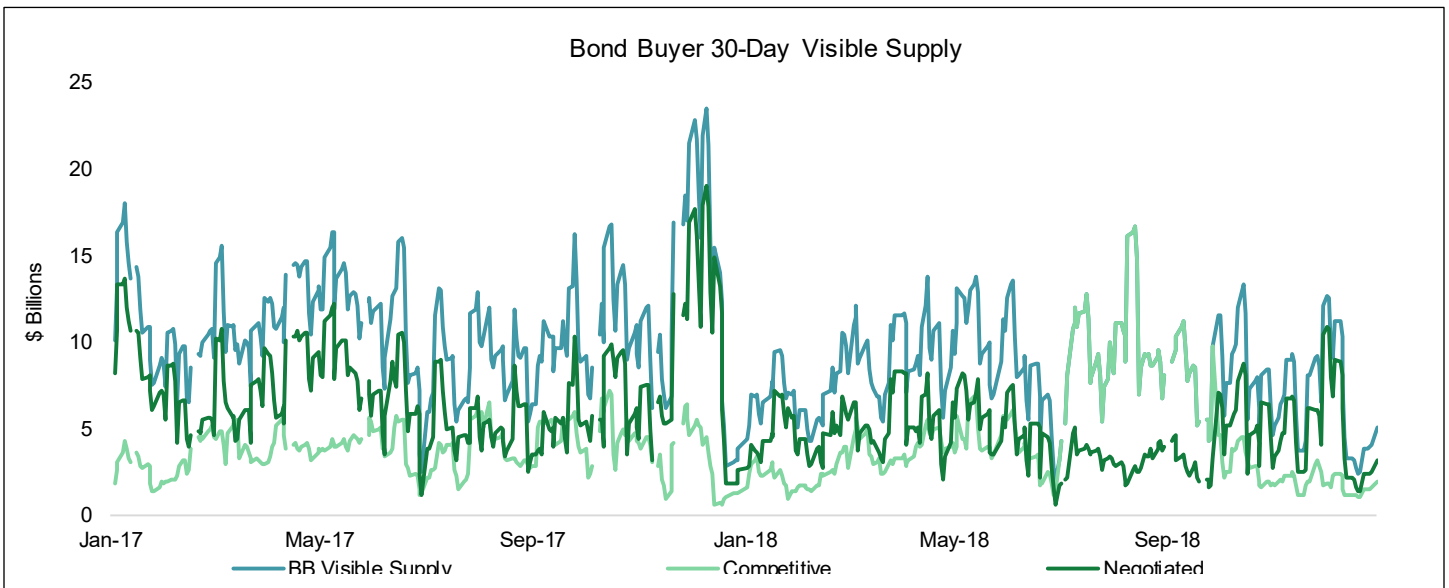
Source: Refinitiv

## Build America Bonds



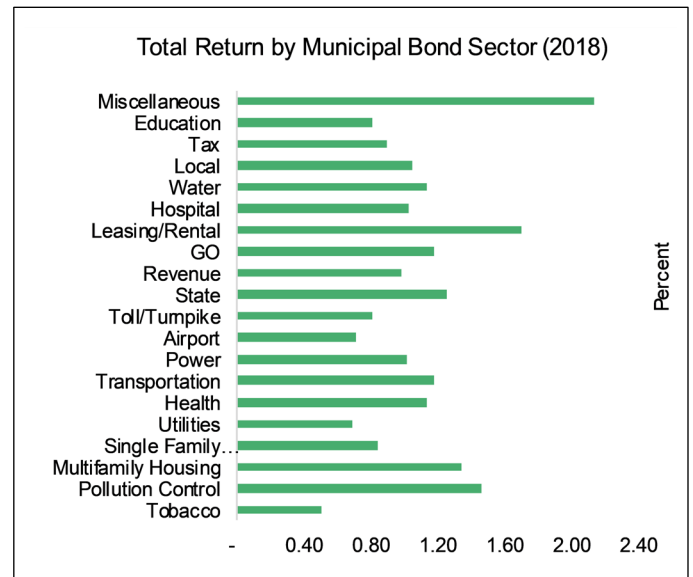
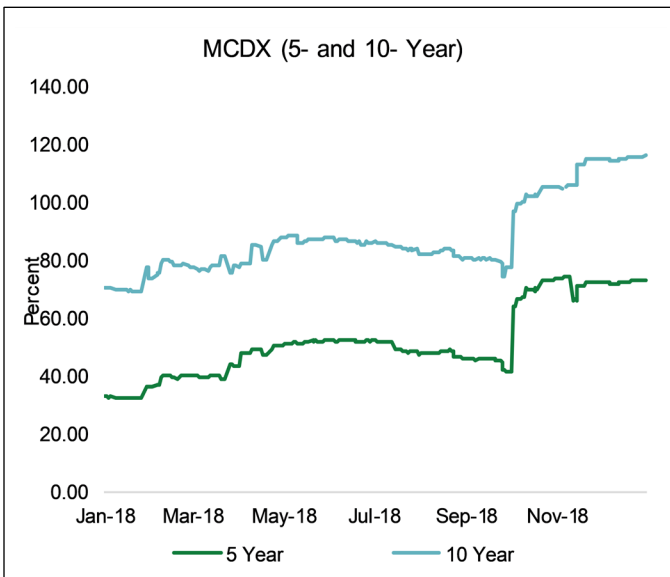
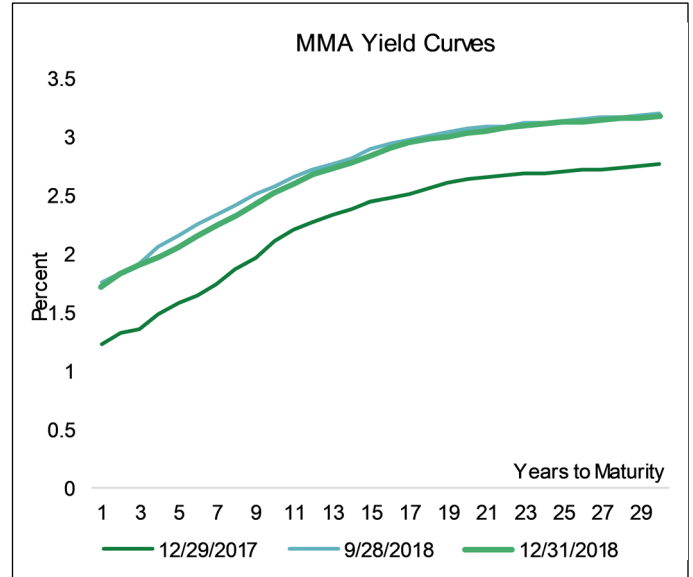
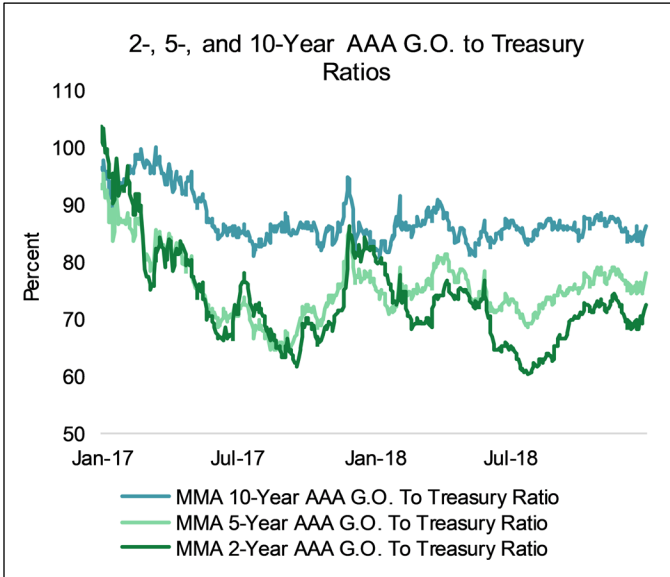
Source: Wells Fargo

## Supply, Yield Curves, Total Return, Spreads & Ratios



Source: Bond Buyer

Supply, Yield Curves, Total Return, Spreads & Ratios, continued



Source: MMA (top), Markit (bottom left), ICE BAML (bottom right)



## Trading Summary

### Total Number of Trades

	# of Trades				Par Amount (Millions)			
	Customer Bought	Customer Sold	Inter-Dealer Trade	All Trades	Customer Bought	Customer Sold	Inter-Dealer Trade	All Trades
2018:Q3	944,571	520,394	925,959	2,390,924	\$ 367,099	\$ 224,460	\$ 126,305	\$ 717,864
2018:Q4	1,007,238	607,515	982,657	2,597,410	\$ 374,323	\$ 245,504	\$ 129,197	\$ 749,024
%Change	6.63%	16.74%	6.12%	8.64%	1.97%	9.38%	2.29%	4.34%

	# of Trades				Par Amount (Millions)					
	0 - 100,000	100,001 - 500,000	500,001 - 1,000,000	1,000,000+	All Trades	0 - 100,000	100,001 - 500,000	500,001 - 1,000,000	1,000,000+	All Trades
2018:Q3	81%	13%	2%	4%	2,390,924	9%	10%	6%	75%	\$ 717,864.00
2018:Q4	80%	14%	2%	4%	2,597,410	9%	11%	7%	73%	\$ 749,024.00

	# of Trades				Par Amount (Millions)			
	Customer Bought	Customer Sold	Inter-Dealer Trade	All Trades	Customer Bought	Customer Sold	Inter-Dealer Trade	All Trades
2017	3,920,928	2,102,913	3,821,367	9,845,208	\$ 1,319,730	\$ 857,224	\$ 523,759	\$ 2,700,713
2018	3,935,555	2,319,330	3,888,595	10,143,480	\$ 1,439,786	\$ 963,782	\$ 522,239	\$ 2,925,807
%Change	0.37%	10.29%	1.76%	3.03%	9.10%	12.43%	-0.29%	8.33%

	# of Trades					Par Amount (Millions)				
	0 - 100,000	100,001 - 500,000	500,001 - 1,000,000	1,000,000+	All Trades	0 - 100,000	100,001 - 500,000	500,001 - 1,000,000	1,000,000+	All Trades
2017	81%	13%	3%	4%	9,845,208	10%	12%	7%	71%	\$ 2,700,713.00
2018	81%	13%	2%	4%	10,143,480	9%	11%	7%	73%	\$ 2,925,807.00

### Trades by Sector

	Education	Health	Utility	Various Purpose	Transportation	Tax-Revenue	Other	Total (Millions)
2018:Q3	15%	10%	11%	10%	8%	9%	33%	\$717,864.00
2018:Q4	16%	12%	11%	10%	10%	9%	32%	\$749,024.00

	Education	Health	Utility	Various Purpose	Transportation	Tax-Revenue	Other	Total (Millions)
2017	19%	11%	11%	11%	9%	9%	30%	\$2,700,713.00
2018	16%	11%	11%	11%	8%	9%	34%	\$2,925,807.00

### Trades by Maturity

	1 Year or Less	1+ Year to 5 Years	5+ Years to 10 Years	10+ Years to 20 Years	20+ Years	Total (Millions)
2018:Q3	9%	12%	13%	32%	33%	\$717,864.00
2018:Q4	8%	11%	14%	33%	33%	\$749,024.00

	1 Year or Less	1+ Year to 5 Years	5+ Years to 10 Years	10+ Years to 20 Years	20+ Years	Total (Millions)
2017	5%	11%	15%	35%	33%	\$2,700,713.00
2018	7%	11%	15%	33%	34%	\$2,925,807.00

### Trades by Source of Repayment

	Revenue	General Obligation	Double Barrel	Not Available	Total (Millions)
2018:Q3	67%	25%	2%	6%	\$717,864
2018:Q4	69%	24%	2%	5%	\$749,024

	Revenue	General Obligation	Double Barrel	Not Available	Total (Millions)
2017	69%	28%	2%	0%	\$2,700,713
2018	69%	26%	2%	3%	\$2,925,807

### Trades by Coupon Type

	Fixed Rate	Variable Rate	Zero Coupon	Not Available	Total (Millions)
2018:Q3	64%	34%	2%	0%	\$717,864
2018:Q4	68%	30%	2%	0%	\$749,024

	Fixed Rate	Variable Rate	Zero Coupon	Not Available	Total (Millions)
2017	63%	33%	4%	0%	\$2,700,713
2018	64%	34%	2%	0%	\$2,925,807

Source: EMMA MSRB

## Municipal CDS Yield Curve as of December 31, 2018

	6M	1Y	2Y	3Y	4Y	5Y	7Y	10Y	QoQ 6M % Change	QoQ 10Y % Change
CA California	12.6	14.9	19	21.8	26.5	32	43.6	58.4	18%	2%
CT Connecticut	38.2	51.8	64.2	74	83.4	96.2	123.6	158.9	0%	0%
DE Delaware	17.7	20.7	25.3	27	28.4	29.8	37.8	49.9	3%	1%
FL Florida	6.8	10.2	15.9	22.3	28.4	34.2	45.3	57.4	6%	-2%
MA Massachusetts	12.1	13.9	18.1	22.9	28.5	35.1	48.1	61.5	4%	-8%
MD Maryland	7.2	9.8	14.9	22	29.5	36	45	53.3	-4%	-4%
MI Michigan	4	6.1	11.9	19.5	27.5	35.5	51.8	69	-25%	-4%
MN Minnesota	12.6	14.2	18.4	21.4	26.3	32.1	42.7	50.5	-3%	-13%
NC North Carolina	16.8	18.7	24.5	29.3	31.4	34.2	44.3	63.4	1%	0%
NJ New Jersey	15.5	23.3	40.8	51.4	32.2	71.6	86.6	101.4	-4%	-3%
NV Nevada	16.6	19.4	25.3	31	35.6	42.2	54.2	63.4	2%	2%
NY New York	9.3	12.8	17.6	22	26.9	32.2	42.6	51.9	16%	-2%
OH Ohio	11	13.1	18	24.6	29.5	34.5	44.9	55	-11%	-9%
PA Pennsylvania	22.5	27.7	40.5	50.3	56.1	64.6	84.2	113.9	-6%	-5%
RI Rhode Island	11.6	18	30.4	36	37.9	43.3	61.4	86	15%	-3%
SC South Carolina	5.6	9.7	14.9	21.7	27.4	31.5	40.2	49	-2%	-2%
TX Texas	4.6	5.4	11.5	19.5	27	35.2	49.7	68.1	-50%	6%
UT Utah	10.3	13.7	18.9	23.1	27.7	31.7	38.9	44.7	21%	4%
VA Virginia	19.8	21.4	24.4	27	29.2	31.8	39.8	55.3	1%	0%
WA Washington	10.1	13.3	18.9	26.1	32.1	36.5	45.9	56.7	-10%	-8%
WI Wisconsin	19.3	19.1	22.9	28.2	33.4	40.5	54.8	68.9	21%	16%
New York City	11.3	15.8	21.6	27.1	33.4	40.5	52.2	62.2	8%	-7%
Los Angeles	6.7	9.9	15.6	22.4	29.4	36.4	48	60.1	0%	-1%
Chicago	103.4	125.1	163.1	207.7	244.1	271.5	323.5	400.3	34%	39%

Source: CMA Datavision

## Current State General Obligation Rating

State	Moody's	S&P	Fitch	KBRA
Alabama	Aa1	AA	AA+	
Alaska	Aa3	AA	AA	
American Samoa				
Arizona				
Arkansas	Aa1	AA		
California	Aa3	AA-	AA-	
Colorado				
Connecticut	A1	A	A+	AA-
District of Columbia	Aaa	AA+	AA+	
Delaware	Aaa	AAA	AAA	AAA
Florida	Aaa	AAA	AAA	
Georgia	Aaa	AAA	AAA	
Guam		BB-		
Hawaii	Aa1	AA+	AA	
Idaho				
Illinois	Baa3	BBB-	BBB	
Indiana				
Iowa				
Kansas				
Kentucky	Aa3	A+		
Louisiana	Aa3	AA-	AA-	
Maine	Aa2	AA		
Maryland	Aaa	AAA	AAA	
Massachusetts	Aa1	AA	AA+	
Michigan	Aa1	AA	AA	
Minnesota	Aa1	AAA	AAA	
Mississippi	Aa2	AA	AA	
Missouri	Aaa	AAA	AAA	

State	Moody's	S&P	Fitch	KBRA
Montana	Aa1	AA	AA+	
Nebraska				
Nevada	Aa2	AA	AA+	
New Hampshire	Aa1	AA	AA+	
New Jersey	A3	A-	A	A
New Mexico	Aa2	AA		
New York	Aa1	AA+	AA+	AA+
North Carolina	Aaa	AAA	AAA	
North Dakota				
Ohio	Aa1	AA+	AA+	
Oklahoma	Aa2	AA		
Oregon	Aa1	AA+	AA+	
Pennsylvania	Aa3	A+	AA-	
Puerto Rico	Ca	D	D	
Rhode Island	Aa2	AA	AA	
South Carolina	Aaa	AA+	AAA	
South Dakota				
Tennessee	Aaa	AAA	AAA	
Texas	Aaa	AAA	AAA	AAA
Utah	Aaa	AAA	AAA	
Vermont	Aa1	AA+	AAA	
Virgin Islands				
Virginia	Aaa	AAA	AAA	
Washington	Aa1	AA+	AA+	
West Virginia	Aa2	AA-	AA	
Wisconsin	Aa1	AA	AA+	
Wyoming				AA+

Source: Moody's, Standard and Poor's, Fitch Ratings, KBRA

## Outstanding Municipal Debt

Outstanding by Type, Maturity and Security Type<sup>5</sup>  
\$ Millions

State	Total Outstanding	G.O.	Revenue	Due in 13 Months	Long-Term	2018:Q3 Total Outstanding	% Change
AK Alaska		2,405.3	7,777.4	458.0	9,724.7	10,279.6	-0.9%
AL Alabama	37,492.8	7,042.6	30,450.3	1,672.5	35,820.3	37,757.3	-0.7%
AR Arkansas	14,300.8	6,438.4	7,862.3	608.3	13,692.5	14,600.0	-2.0%
AS American Samoa	124.1		124.1		124.1	73.8	68.2%
AZ Arizona	53,179.1	11,122.8	42,056.2	3,174.8	50,004.3	52,763.0	0.8%
CA California	573,912.9	218,276.9	355,636.0	25,034.2	548,878.8	579,945.2	-1.0%
CO Colorado	68,923.2	16,974.9	51,948.3	3,112.1	65,811.2	70,669.8	-2.5%
CT Connecticut	52,074.3	27,198.7	24,875.7	3,701.8	48,372.6	52,129.7	-0.1%
DC District of Columbia	31,027.6	4,831.7	26,195.9	587.2	30,440.4	32,206.5	-3.7%
DE Delaware	7,604.7	2,930.2	4,674.5	330.7	7,274.0	7,716.2	-1.4%
FL Florida	141,254.1	15,600.3	125,653.8	6,985.3	134,268.8	145,055.1	-2.6%
GA Georgia	74,582.1	16,895.4	57,686.7	4,346.8	70,235.3	74,750.7	-0.2%
GU Guam	3,255.7	234.4	3,021.3	70.4	3,185.3	3,300.3	-1.4%
HI Hawaii	20,770.1	13,299.3	7,470.8	1,053.5	19,716.6	21,387.9	-2.9%
IA Iowa	21,978.2	6,913.5	15,064.7	1,308.1	20,670.1	21,631.7	1.6%
ID Idaho	7,181.7	2,122.4	5,059.3	780.1	6,401.6	7,335.8	-2.1%
IL Illinois	169,070.1	79,735.3	89,334.8	8,812.5	160,257.5	171,862.5	-1.6%
IN Indiana	47,099.8	1,437.3	45,662.5	3,265.5	43,834.3	47,367.4	-0.6%
KS Kansas	26,094.9	12,337.4	13,757.5	1,736.3	24,358.6	26,470.9	-1.4%
KY Kentucky	36,522.2	1,999.8	34,522.5	2,102.7	34,419.6	36,273.0	0.7%
LA Louisiana	36,354.9	7,720.1	28,634.8	2,270.4	34,084.5	37,245.3	-2.4%
MA Massachusetts	103,955.3	41,977.4	61,977.9	7,622.5	96,332.8	106,678.0	-2.6%
MD Maryland	60,286.0	33,065.5	27,220.5	3,721.1	56,565.0	60,117.9	0.3%
ME Maine	8,458.0	2,161.7	6,296.3	515.4	7,942.6	8,805.5	-3.9%
MI Michigan	75,715.4	24,506.4	51,209.0	4,156.2	71,559.2	76,481.2	-1.0%
MN Minnesota	56,172.0	29,581.1	26,590.9	3,845.7	52,326.3	55,476.1	1.3%
MO Missouri	48,513.1	10,569.4	37,943.7	2,254.7	46,258.4	48,930.6	-0.9%
MS Mississippi	17,500.0	6,621.6	10,878.4	830.4	16,669.6	17,486.1	0.1%
MT Montana	4,258.4	1,516.6	2,741.9	180.9	4,077.6	4,307.1	-1.1%
NC North Carolina	52,077.9	12,479.3	39,598.6	2,843.2	49,234.7	52,517.7	-0.8%
ND North Dakota	6,309.1	2,167.8	4,141.2	303.4	6,005.6	6,388.3	-1.2%
NE Nebraska	20,858.7	6,036.4	14,822.3	1,212.9	19,645.8	20,626.2	1.1%
NH New Hampshire	8,122.5	2,223.0	5,899.5	476.6	7,645.9	8,174.7	-0.6%
NJ New Jersey	117,780.9	25,094.3	92,686.5	12,693.2	105,087.7	119,436.9	-1.4%
NM New Mexico	13,928.0	3,447.6	10,480.4	1,018.6	12,909.4	13,795.7	1.0%
NV Nevada	26,876.9	14,358.5	12,518.4	1,037.5	25,839.4	26,186.6	2.6%
NY New York	408,195.6	75,793.3	332,402.3	26,775.7	381,419.9	410,067.3	-0.5%
OH Ohio	110,103.3	32,785.3	77,318.0	5,833.0	104,270.3	112,619.6	-2.2%
OK Oklahoma	22,222.7	4,231.9	17,990.8	1,943.9	20,278.8	21,856.6	1.7%
OR Oregon	42,019.7	24,281.5	17,738.2	1,908.3	40,111.4	42,463.5	-1.0%
OT Other Territories	10,163.8	50.0	10,113.8	559.2	9,604.5	10,899.1	-6.7%
PA Pennsylvania	136,697.9	46,181.3	90,516.6	6,622.6	130,075.3	138,288.7	-1.2%
PR Puerto Rico	97,442.8	12,128.8	85,314.0	3,074.9	94,367.9	99,022.7	-1.6%
RI Rhode Island	11,266.1	1,811.7	9,454.5	517.8	10,748.4	11,399.8	-1.2%
SC South Carolina	39,598.0	10,200.5	29,397.5	2,846.4	36,751.7	40,267.4	-1.7%
SD South Dakota	6,039.5	1,321.5	4,718.0	237.7	5,801.8	5,690.7	6.1%
TN Tennessee	42,612.1	17,229.2	25,383.0	2,498.2	40,113.9	43,636.4	-2.3%
TT Trust Territories	103.4	69.7	33.7		103.4	105.0	-1.5%
TX Texas	369,155.7	184,612.0	184,543.7	20,861.3	348,294.4	371,104.0	-0.5%
UT Utah	25,080.2	6,719.1	18,361.1	1,192.4	23,887.8	24,519.0	2.3%
VA Virginia	67,421.6	14,800.4	52,621.1	3,191.0	64,230.6	68,558.8	-1.7%
VI Virgin Islands	2,115.1		2,115.1	61.2	2,053.9	2,193.7	-3.6%
VT Vermont	4,290.6	748.1	3,542.5	158.4	4,132.2	4,431.7	-3.2%
WA Washington	90,495.4	45,145.6	45,349.8	4,685.2	85,810.2	92,170.0	-1.8%
WI Wisconsin	59,754.8	26,498.3	33,256.5	3,778.3	55,976.5	59,032.8	1.2%
WV West Virginia	11,712.9	1,409.4	10,303.5	514.3	11,198.6	12,002.7	-2.4%
WY Wyoming	2,196.3	108.6	2,087.6	56.9	2,139.3	2,269.4	-3.2%
TOTAL (12/31/2018)	3,612,485.9	1,177,449.3	2,435,036.6	201,439.9	3,411,046.0	3,648,829.0	-1.0%
TOTAL (9/30/2018)	3,648,829.0	1,190,030.4	2,458,798.6	208,976.2	3,439,852.8		
% Change	-1.0%	-1.1%	-1.0%	-3.6%	-0.8%		

Source: Bloomberg

<sup>5</sup> Data prior to 1Q'17 excludes refunded debt from general totals. "Due in 13 months" looks at original maturity and will not include securities with short puts unless original maturity is within 13 months. Differences between this data and the Federal Reserve Flow of Funds are due to underlying database differences (Fed: Mergent; these tables: Bloomberg) as well as the growth of the municipal direct loan market. Fixed rate debt does not include those multimodal bonds that are currently in long-term fixed rate mode.

## Outstanding by Tax Status and Coupon

\$ Millions

State	Total Outstanding	Tax-Exempt	BQ	AMT	Taxable	Fixed	Zero	FRN	Other
AK Alaska		8,568.0	35.6	346.5	1,232.6	7,905.7	157.4	344.7	1,774.9
AL Alabama	37,492.8	29,658.2	3,526.7	773.7	3,534.3	28,053.3	949.2	908.4	7,581.9
AR Arkansas	14,300.8	9,864.8	3,102.5	260.2	1,073.4	13,195.1	240.1	528.2	337.4
AS American Samoa	124.1	94.5			29.6	124.1			-
AZ Arizona	53,179.1	47,256.6	784.0	1,474.6	3,663.9	47,150.1	29.8	706.4	5,292.8
CA California	573,912.9	459,185.3	9,420.2	20,278.3	85,029.1	436,566.1	67,289.2	9,494.8	60,562.8
CO Colorado	68,923.2	53,330.1	2,539.2	4,683.7	8,370.1	56,271.4	5,166.1	1,686.2	5,799.5
CT Connecticut	52,074.3	40,732.6	1,388.9	1,279.9	8,673.0	43,932.0	454.9	1,756.9	5,930.7
DC District of Columbia	31,027.6	24,410.9	2.0	3,373.8	3,240.8	21,497.0	5,575.6	733.3	3,221.7
DE Delaware	7,604.7	5,773.7	62.0	183.8	1,585.2	6,278.2			1,326.5
FL Florida	141,254.1	114,430.7	920.6	11,266.9	14,635.9	121,763.0	2,892.1	2,140.8	14,458.2
GA Georgia	74,582.1	59,624.4	1,219.4	3,084.3	10,654.0	56,503.9	1,975.4	1,701.3	14,401.5
GU Guam	3,255.7	3,025.2		187.0	43.5	3,140.2	115.5		-
HI Hawaii	20,770.1	16,577.4		1,393.9	2,798.8	20,004.4	6.5	464.7	294.6
IA Iowa	21,978.2	14,924.3	4,597.5	552.3	1,904.1	18,499.0	551.8	659.8	2,267.6
ID Idaho	7,181.7	5,594.8	306.1	175.8	1,105.0	6,502.4	32.8	359.5	287.1
IL Illinois	169,070.1	118,847.5	10,120.7	5,463.0	34,638.8	137,967.6	19,705.9	1,651.1	9,745.4
IN Indiana	47,099.8	35,465.1	3,262.1	3,356.2	5,016.4	38,078.7	748.0	789.3	7,483.8
KS Kansas	26,094.9	18,512.3	3,761.6	305.2	3,515.9	24,894.3	264.3	198.2	738.0
KY Kentucky	36,522.2	26,943.8	3,681.6	1,263.1	4,633.8	29,308.6	345.1	1,664.2	5,204.4
LA Louisiana	36,354.9	29,371.4	1,476.1	1,948.1	3,559.3	30,125.8	1,037.4	1,178.3	4,013.5
MA Massachusetts	103,955.3	88,718.6	3,403.9	3,363.2	8,469.4	90,702.1	1,009.3	2,555.6	9,688.3
MD Maryland	60,286.0	51,782.3	175.2	1,469.1	6,859.4	55,229.3	118.8	26.1	4,911.8
ME Maine	8,458.0	6,676.6	573.6	421.3	786.5	8,039.8		15.0	403.2
MI Michigan	75,715.4	56,933.1	4,302.6	2,940.3	11,539.5	58,949.9	6,689.2	2,953.5	7,122.9
MN Minnesota	56,172.0	41,737.5	7,397.2	1,234.5	5,802.7	49,644.2	938.8	698.3	4,890.7
MO Missouri	48,513.1	32,643.7	5,233.1	711.2	9,925.0	38,032.6	779.2	4,045.5	5,655.7
MS Mississippi	17,500.0	12,469.6	1,514.9	193.4	3,322.1	13,141.4	3.0	225.1	4,130.6
MT Montana	4,258.4	3,151.6	570.8	132.2	403.9	3,582.8	8.9	342.5	324.3
NC North Carolina	52,077.9	44,755.3	286.9	935.0	6,100.6	44,071.8	274.6	2,429.5	5,301.9
ND North Dakota	6,309.1	4,767.0	937.3	117.8	487.0	5,990.8		42.7	275.6
NE Nebraska	20,858.7	15,373.2	3,366.5	519.6	1,599.4	18,621.8	5.9	205.9	2,025.1
NH New Hampshire	8,122.5	5,848.4	288.6	513.5	1,471.9	6,658.1	61.7	631.7	771.1
NJ New Jersey	117,780.9	91,221.9	5,729.7	5,599.2	15,230.0	99,330.3	11,587.2	1,581.5	5,281.8
NM New Mexico	13,928.0	11,671.6	781.7	302.2	1,172.6	11,840.4	5.5	1,034.4	1,047.6
NV Nevada	26,876.9	22,456.4	197.2	1,462.1	2,761.2	22,667.2	1,182.5	146.7	2,880.5
NY New York	408,195.6	329,317.2	6,805.6	18,610.0	53,462.9	341,312.5	15,490.3	6,295.9	45,096.9
OH Ohio	110,103.3	84,067.9	5,967.0	2,282.1	17,786.3	86,623.8	8,389.9	883.5	14,206.1
OK Oklahoma	22,222.7	16,714.7	1,496.7	826.2	3,185.1	20,881.2	45.5	654.6	641.4
OR Oregon	42,019.7	29,715.4	1,314.5	1,152.5	9,837.3	35,863.6	3,933.9	340.7	1,881.5
OT Other Territories	10,163.8	5,582.6		4,534.3	46.9	911.4			9,252.4
PA Pennsylvania	136,697.9	106,195.0	11,707.7	4,860.5	13,934.7	116,608.9	3,741.6	5,423.9	10,923.5
PR Puerto Rico	97,442.8	80,781.5		203.9	16,457.4	53,620.7	37,196.1	1,656.9	4,969.2
RI Rhode Island	11,266.1	9,526.1	203.6	586.1	950.3	8,861.1	1,542.3	555.8	307.0
SC South Carolina	39,598.0	33,811.0	619.1	1,224.6	3,943.4	32,966.3	2,377.7	1,908.4	2,345.5
SD South Dakota	6,039.5	4,329.8	773.7	121.6	814.5	5,751.0		136.5	152.1
TN Tennessee	42,612.1	33,714.3	2,526.9	966.0	5,404.9	36,317.9	396.7	749.0	5,148.5
TT Trust Territories	103.4	69.7		33.7	-	103.4			-
TX Texas	369,155.7	287,769.5	25,445.6	16,045.2	39,895.4	310,392.5	14,705.8	9,003.5	35,053.9
UT Utah	25,080.2	18,044.2	590.1	1,741.8	4,704.2	20,934.8	110.3	2,041.8	1,993.3
VA Virginia	67,421.6	55,214.4	208.0	2,797.0	9,202.2	61,105.7	1,429.0	131.3	4,755.6
VI Virgin Islands	2,115.1	1,991.8		23.0	100.3	2,067.0	48.1	1,343.7	(1,343.7)
VT Vermont	4,290.6	3,223.2	20.7	352.1	694.5	3,576.5		959.7	(245.6)
WA Washington	90,495.4	73,172.4	2,877.3	4,156.0	10,289.6	84,143.3	1,563.3	877.5	3,911.3
WI Wisconsin	59,754.8	42,642.5	7,604.8	1,722.9	7,784.6	54,032.1	1,222.7	50.2	4,449.7
WV West Virginia	11,712.9	7,425.0	313.4	626.2	3,348.3	8,323.7	2,042.5	20.0	1,326.7
WY Wyoming	2,196.3	1,619.2	52.1	378.8	146.2	1,516.5			679.8
TOTAL (12/31/2018)	3,612,485.9	2,837,325.8	153,492.9	144,809.5	476,857.6	2,960,177.4	224,437.2	76,932.8	350,938.5
TOTAL (9/30/2018)	3,648,829.0	2,867,355.9	156,282.3	145,045.2	480,145.5	2,991,479.6	228,815.3	77,771.1	350,763.0
% Change	-1.0%	-1.0%	-1.8%	-0.2%	-0.7%	-1.0%	-1.9%	-1.1%	0.1%

Source: Bloomberg, Thomson Reuters, EMMA

## Addendum Tables – Build America Bonds, Prerefunded, Derivatives and Insured (\$ Millions)

State	Total Outstanding	BAB Only	VRDO Only	ARS Only	Prerefunded Only	All Refunded	Derivatives Only	Insured
AK Alaska		346.7	1,607.9		640.6	754.2	130.9	455.6
AL Alabama	37,492.8	543.0	2,236.4	342.2	1,780.8	2,133.7	757.7	6,286.2
AR Arkansas	14,300.8	22.4	292.0		276.3	323.0		1,609.3
AS American Samoa	124.1							
AZ Arizona	53,179.1	1,860.5	1,591.5	89.7	3,058.9	4,428.0	1,136.7	5,801.9
CA California	573,912.9	37,040.8	18,634.0	1,078.3	33,360.6	48,784.9	18,180.1	78,017.8
CO Colorado	68,923.2	3,917.8	2,404.8	104.0	3,062.8	6,123.1	3,687.9	6,282.6
CT Connecticut	52,074.3	1,793.8	1,830.8	262.9	1,213.5	1,860.6	1,179.0	3,243.2
DC District of Columbia	31,027.6	1,810.4	1,175.9	120.0	664.8	988.5	1,380.1	2,200.6
DE Delaware	7,604.7	473.2	484.7	2,290.9	523.8	655.6	410.4	78.5
FL Florida	141,254.1	5,301.9	4,735.4	108.5	8,772.1	11,348.0	5,341.9	12,950.1
GA Georgia	74,582.1	3,592.6	3,038.5		4,513.4	6,982.7	1,916.6	6,043.3
GU Guam	3,255.7				646.8	653.4	29.0	410.9
HI Hawaii	20,770.1	1,125.9	19.8		2,841.1	3,484.2	319.9	159.7
IA Iowa	21,978.2	429.8	1,776.0	88.4	1,483.7	1,775.5	397.9	1,282.2
ID Idaho	7,181.7	154.9	289.5		297.7	406.3	91.3	238.8
IL Illinois	169,070.1	9,170.1	5,775.7	41.4	6,212.2	15,127.6	7,468.4	28,497.9
IN Indiana	47,099.8	1,728.9	2,415.8		2,321.8	3,066.0	1,113.9	3,471.5
KS Kansas	26,094.9	1,364.7	501.4	45.0	1,580.6	2,453.4	347.7	2,770.7
KY Kentucky	36,522.2	1,840.6	1,107.4		1,884.4	2,227.6	398.6	3,242.6
LA Louisiana	36,354.9	574.5	2,977.2	265.3	2,952.5	4,568.5	684.8	5,539.9
MA Massachusetts	103,955.3	4,773.6	4,534.2	551.0	7,837.3	8,867.2	3,664.7	6,731.9
MD Maryland	60,286.0	3,122.5	2,007.6	13.4	5,047.9	6,138.3	1,039.9	781.6
ME Maine	8,458.0	62.0	315.7		355.0	609.2	25.3	356.7
MI Michigan	75,715.4	1,365.8	3,126.7		1,791.8	2,960.1	3,130.2	9,583.6
MN Minnesota	56,172.0	865.3	2,027.5	125.5	2,512.1	3,977.7	365.6	1,268.7
MO Missouri	48,513.1	2,707.7	1,949.0	330.5	1,227.4	2,662.6	1,885.3	2,426.4
MS Mississippi	17,500.0	764.9	3,077.1		1,439.1	1,512.4	92.3	1,574.5
MT Montana	4,258.4	26.2	39.8		103.3	113.1	256.6	80.2
NC North Carolina	52,077.9	1,400.8	2,593.3	45.6	4,367.7	5,468.9	1,045.6	2,322.7
ND North Dakota	6,309.1	18.0	141.2		101.0	127.8	83.4	558.5
NE Nebraska	20,858.7	877.4	592.4		1,053.5	1,808.8	457.7	306.6
NH New Hampshire	8,122.5	343.4	534.9		881.3	892.4	110.9	295.6
NJ New Jersey	117,780.9	6,480.0	1,389.8	69.5	5,275.1	8,278.0	3,475.4	21,126.7
NM New Mexico	13,928.0	195.7	260.6		509.8	666.6	299.6	414.9
NV Nevada	26,876.9	2,102.8	1,606.3		713.8	1,292.7	983.0	1,913.8
NY New York	408,195.6	20,226.3	30,911.5	1,199.1	15,466.9	24,570.4	14,451.7	21,923.6
OH Ohio	110,103.3	6,471.4	4,457.6	235.2	5,884.3	7,001.5	2,294.5	6,011.7
OK Oklahoma	22,222.7	493.0	165.5	66.9	829.8	927.1	274.2	852.6
OR Oregon	42,019.7	912.2	819.7	235.0	2,611.7	2,861.3	293.0	4,961.9
OT Other Territories	10,163.8						7,656.5	100.0
PA Pennsylvania	136,697.9	4,775.4	3,891.0	22.5	10,966.9	13,450.2	5,330.9	25,611.5
PR Puerto Rico	97,442.8	765.3			12.9	3,379.6	1,084.4	22,263.6
RI Rhode Island	11,266.1		452.2		731.3	974.9	59.5	1,393.2
SC South Carolina	39,598.0	822.5	512.7		2,598.8	3,431.7	1,325.9	2,147.2
SD South Dakota	6,039.5	270.9	104.0	10.0	283.7	484.0	108.5	117.3
TN Tennessee	42,612.1	1,744.4	1,736.1		2,322.7	3,252.7	711.3	2,379.0
TT Trust Territories	103.4							
TX Texas	369,155.7	16,255.9	12,067.1	1,529.9	20,113.4	26,594.3	6,976.8	30,676.0
UT Utah	25,080.2	2,803.0	1,372.3	391.1	1,703.0	2,627.7	706.4	1,639.6
VA Virginia	67,421.6	3,303.2	1,789.3	15.1	6,731.4	8,337.3	998.2	888.0
VI Virgin Islands	2,115.1	37.3						285.6
VT Vermont	4,290.6	115.4	74.0		168.9	172.2	16.6	118.6
WA Washington	90,495.4	5,677.5	1,732.2		6,296.6	6,948.5	2,027.6	3,093.6
WI Wisconsin	59,754.8	1,376.1	1,252.6		5,232.5	7,049.0	1,787.7	3,517.6
WV West Virginia	11,712.9	88.2	589.3		376.9	446.2	67.9	625.5
WY Wyoming	2,196.3	121.6	574.1		56.9	59.6	20.0	94.8
TOTAL (12/31/2018)	3,612,485.9	164,458.1	139,591.8	9,676.9	193,693.0	276,088.9	108,079.5	347,026.8
TOTAL (9/30/2018)	3,648,829.0	166,281.0	139,644.2	10,927.0	220,019.7	334,559.0	103,127.7	361,980.5
% Change	-1.0%	-1.1%	0.0%	-11.4%	-12.0%	-17.5%	4.8%	-4.1%

Source: Bloomberg

## Addendum Tables – Sector<sup>6</sup>

(\$ Millions)

Industry	2018Q4	2018Q3	QoQ Change	YoY Change
Other	536.5	622.53	-13.8%	-2.7%
Appropriations	102,756.4	108,812.56	-5.6%	-10.1%
Airport	101,570.2	104,081.45	-2.4%	4.0%
Airport Tax-Guaranteed	97.6	85.82	13.8%	12.9%
Assisted Living	2,207.1	2,146.81	2.8%	12.6%
Ad Valorem Backed Lease Revenue	9,045.0	8,349.43	8.3%	28.7%
Bond Bank	11,734.9	11,969.93	-2.0%	-8.8%
Continuing Care Retirement	32,875.8	32,474.69	1.2%	5.3%
Community Development	7,192.3	6,931.99	3.8%	5.1%
Charter Schools	16,350.3	15,386.63	6.3%	13.4%
Community College District	40,478.6	40,192.63	0.7%	-0.2%
Other	7.2	7.20	0.0%	0.0%
Economic/Industrial Development	84,892.8	81,292.55	4.4%	-3.5%
Secondary Education	29,263.6	30,687.24	-4.6%	3.3%
Secondary Education - Lease Backed	54,798.0	54,253.30	1.0%	0.4%
Gas Contract	28,167.6	26,413.88	6.6%	43.1%
General Obligation	674,684.9	689,230.25	-2.1%	-2.9%
General Obligation Districts (Other)	25,546.3	25,473.38	0.3%	-4.0%
General Obligation Hospital	8,061.2	7,551.06	6.8%	9.3%
Government Paid Lease	88,646.9	88,500.75	0.2%	3.1%
General Revenue Tax-Guaranteed	14,740.9	15,671.79	-5.9%	-10.8%
Higher Education	238,247.2	243,170.84	-2.0%	-3.2%
Healthcare (General) Tax-Guaranteed	2,128.6	1,928.82	10.4%	6.9%
Hospital	252,994.3	258,376.70	-2.1%	-3.8%
Hotel Occupancy	6,907.5	6,524.13	5.9%	29.3%
Housing Tax- Guaranteed	1,098.3	1,173.00	-6.4%	-4.7%
Intergovernmental Lease	5,258.9	5,308.36	-0.9%	-3.3%
Income Tax	78,590.5	77,306.30	1.7%	7.3%
Independent Living	8.1	8.10	0.0%	0.0%
Correctional Facilities	2,408.9	2,538.59	-5.1%	-9.3%
Local multifamily housing	35,375.0	34,343.86	3.0%	1.8%
Loan Pool	20,552.9	20,168.58	1.9%	51.6%
Lottery	4,376.7	4,075.71	7.4%	-9.2%
Local Single Family Housing	2,098.1	2,165.99	-3.1%	-10.9%
Metro Development	6,013.0	5,555.34	8.2%	26.0%
Mellorooos	11,895.1	11,891.80	0.0%	-1.6%
Miscellaneous	39,232.3	38,711.72	1.3%	-6.6%
Miscellaneous Tax	58,977.1	60,183.42	-2.0%	-13.0%
Mobile Home	714.3	717.44	-0.4%	-3.3%
Tobacco	85,624.0	85,636.45	0.0%	-0.4%
Municipal Utilities	57,467.6	56,922.10	1.0%	-7.6%
Not for Profit Cultural	6,816.1	7,034.27	-3.1%	-11.8%
Not for Profit Foundation	1,072.1	1,118.26	-4.1%	0.6%
Not for Profit Human Service Provider	3,527.4	3,574.35	-1.3%	-14.3%
Not for Profit Membership Organization	491.0	483.33	1.6%	-7.4%
Not for Profit Research	3,468.0	3,536.68	-1.9%	5.6%
Non-Toll Highway	38,563.8	43,202.61	-10.7%	-1.4%
Nuclear Power	16,438.0	16,643.88	-1.2%	-3.2%
Nursing Home	2,529.6	2,566.23	-1.4%	-15.4%
Pension	17,810.6	18,023.57	-1.2%	-4.9%
Payment in Lieu of Taxes	7,648.5	8,033.27	-4.8%	-5.2%
Parking Facility	3,169.8	3,246.47	-2.4%	-0.3%
Parking Facility - Guaranteed	1,110.9	1,162.54	-4.4%	-5.3%
Port/Marinas	40,512.0	41,330.46	-2.0%	2.0%
Public Power Systems	78,101.9	83,395.55	-6.3%	-8.4%
Public Transportation	37,472.0	39,021.20	-4.0%	0.3%
Private Religious School	2,300.4	2,329.06	-1.2%	-13.1%
Sales	111,488.8	110,309.88	1.1%	3.9%
School Districts	412,880.5	412,457.16	0.1%	0.0%
Self Appropriation	19,446.7	14,567.62	33.5%	80.5%
Shell Record	1,092.5	1,091.92	0.1%	-1.6%
State Multifamily Housing	39,946.2	39,421.05	1.3%	2.4%
Solid Waste	5,379.2	5,583.21	-3.7%	17.2%
Special Assessment	5,690.7	5,657.80	0.6%	8.3%
State Single-family Housing	44,529.6	43,642.48	2.0%	4.8%
Student Housing	12,312.1	11,240.91	9.5%	16.3%
Student Loan Revenue	21,153.0	22,139.48	-4.5%	-13.7%
Telecom	1,056.9	1,065.69	-0.8%	-0.8%
Tax Increment Financing	28,411.2	29,186.99	-2.7%	-12.1%
Toll Roads	132,184.8	129,641.13	2.0%	-0.8%
Indian Tribal	1,294.3	1,158.73	11.7%	-6.0%
Municipal Utility District	10,504.5	10,162.79	3.4%	4.0%
Water & Sewer Guaranteed	3,096.7	3,222.13	-3.9%	-9.6%
Water & Sewer	257,363.4	266,735.19	-3.5%	-6.1%
Total	3,612,485.9	3,648,829.0	-1.0%	-1.4%

Source: Bloomberg

<sup>6</sup> Rating based on the lowest long-term rating assigned to the bond by Fitch Ratings, Moody's Investor Services, or Standard and Poor's; split-rated debt are therefore included in the HY category.

## Addendum Tables – Rating<sup>7</sup>

(\$ Millions)

State	Total Outstanding	Rated	AAA	AA	A	BBB	HY
AK Alaska		8,902.6	245.3	5,731.2	2,497.8	146.0	282.4
AL Alabama	37,492.8	33,327.1	778.3	17,860.3	10,935.7	1,058.5	2,694.3
AR Arkansas	14,300.8	12,288.7	216.5	9,285.8	2,160.2	573.9	52.3
AS American Samoa	124.1	-	-	-	-	-	-
AZ Arizona	53,179.1	44,103.2	1,785.4	29,340.1	9,255.9	2,127.7	1,594.1
CA California	573,912.9	471,811.0	15,778.7	316,835.4	98,127.9	29,715.8	11,353.2
CO Colorado	68,923.2	53,897.0	3,057.3	30,953.5	12,265.0	6,994.3	627.0
CT Connecticut	52,074.3	48,093.7	10,436.6	6,058.3	29,079.5	2,262.4	256.9
DC District of Columbia	31,027.6	23,633.3	261.7	16,018.8	4,473.5	2,493.2	386.0
DE Delaware	7,604.7	6,806.6	2,379.7	2,382.5	882.8	1,082.4	79.3
FL Florida	141,254.1	111,275.1	12,611.0	37,093.2	55,608.3	5,137.2	825.4
GA Georgia	74,582.1	57,061.3	14,906.5	23,005.2	10,621.1	8,352.8	175.8
GU Guam	3,255.7	2,459.1	-	-	-	1,343.2	1,115.9
HI Hawaii	20,770.1	16,887.7	136.9	13,544.5	2,634.9	462.0	109.4
IA Iowa	21,978.2	18,216.3	2,380.9	7,477.2	5,405.1	403.3	2,549.8
ID Idaho	7,181.7	5,508.0	600.3	2,683.9	1,994.1	165.2	64.6
IL Illinois	169,070.1	147,968.9	5,137.9	36,582.1	37,917.5	51,895.2	16,436.2
IN Indiana	47,099.8	38,565.5	4,191.8	20,013.7	11,826.0	1,852.4	681.6
KS Kansas	26,094.9	21,512.3	2,048.7	11,790.4	7,023.4	468.8	181.1
KY Kentucky	36,522.2	32,272.4	989.1	6,514.3	20,326.9	3,072.0	1,370.1
LA Louisiana	36,354.9	29,154.3	1,127.8	10,308.2	14,665.9	2,422.0	630.4
MA Massachusetts	103,955.3	88,786.8	10,973.9	65,320.1	7,339.9	4,587.3	565.6
MD Maryland	60,286.0	49,822.2	24,622.0	16,472.3	5,647.4	2,685.8	394.6
ME Maine	8,458.0	7,744.4	111.4	4,989.7	1,905.3	50.0	687.9
MI Michigan	75,715.4	62,337.0	4,053.9	38,076.6	16,049.1	1,445.4	2,712.0
MN Minnesota	56,172.0	47,319.7	11,817.3	27,708.0	6,350.4	931.6	512.4
MO Missouri	48,513.1	39,541.3	2,877.8	24,378.8	9,991.4	1,569.7	723.6
MS Mississippi	17,500.0	14,340.2	224.6	10,652.9	1,968.0	1,312.2	182.6
MT Montana	4,258.4	3,890.3	119.1	1,854.5	1,757.1	159.5	-
NC North Carolina	52,077.9	43,271.4	13,166.0	19,947.9	8,243.2	1,892.4	21.8
ND North Dakota	6,309.1	5,476.0	343.6	3,160.9	1,224.8	685.0	61.7
NE Nebraska	20,858.7	16,085.3	333.2	9,801.2	4,404.4	1,522.8	23.8
NH New Hampshire	8,122.5	6,819.5	658.8	3,671.3	1,657.4	589.7	242.3
NJ New Jersey	117,780.9	101,453.1	7,414.9	18,470.4	30,664.8	42,771.2	2,131.9
NM New Mexico	13,928.0	12,951.2	1,330.4	9,851.7	1,123.3	638.2	7.6
NV Nevada	26,876.9	22,219.9	194.4	13,606.8	7,246.3	755.5	416.9
NY New York	408,195.6	346,655.1	22,133.9	242,262.5	63,625.1	15,515.7	3,117.9
OH Ohio	110,103.3	85,309.2	9,172.1	43,818.3	22,124.9	4,265.2	5,928.6
OK Oklahoma	22,222.7	19,031.7	2,453.3	8,795.1	5,339.8	952.6	1,490.9
OR Oregon	42,019.7	37,802.6	3,397.9	29,911.2	3,860.2	562.2	71.1
OT Other Territories	10,163.8	8,942.4	1,963.1	6,788.2	27.7	163.3	-
PA Pennsylvania	136,697.9	115,855.4	3,039.5	30,114.2	72,868.4	6,516.6	3,316.8
PR Puerto Rico	97,442.8	74,518.0	143.2	60.7	-	84.9	74,229.3
RI Rhode Island	11,266.1	9,864.4	783.1	4,430.8	2,110.8	820.9	1,718.8
SC South Carolina	39,598.0	30,955.4	1,503.2	12,437.6	16,464.7	446.9	103.0
SD South Dakota	6,039.5	5,327.2	1,395.1	2,054.6	1,810.5	15.9	51.1
TN Tennessee	42,612.1	35,869.7	3,373.6	22,185.4	6,265.5	4,013.4	31.8
TT Trust Territories	103.4	33.7	-	-	-	-	33.7
TX Texas	369,155.7	309,714.5	139,559.3	96,255.6	53,635.1	16,021.0	4,243.4
UT Utah	25,080.2	21,007.6	6,594.2	10,138.8	3,893.0	296.2	85.5
VA Virginia	67,421.6	55,865.1	14,931.9	31,874.1	2,854.7	3,719.8	2,484.6
VI Virgin Islands	2,115.1	1,561.8	-	-	95.9	189.7	1,276.2
VT Vermont	4,290.6	3,811.1	48.4	2,282.7	1,280.2	183.8	16.0
WA Washington	90,495.4	80,936.1	4,653.8	63,868.1	10,225.7	2,043.6	144.9
WI Wisconsin	59,754.8	44,877.6	2,114.9	32,369.9	7,992.4	1,760.8	639.7
WV West Virginia	11,712.9	10,309.0	246.8	1,701.1	4,399.1	1,399.5	2,562.5
WY Wyoming	2,196.3	2,123.0	196.8	983.6	871.3	44.6	26.8
TOTAL (12/31/2018)	3,612,485.9	3,006,297.1	375,015.9	1,513,774.1	723,019.2	242,640.9	151,722.8
TOTAL (9/30/2018)	3,648,829.0	2,990,522.3	377,753.3	1,477,371.3	741,294.5	232,876.2	161,153.2
% Change	-1.0%	0.5%	-0.7%	2.5%	-2.5%	4.2%	-5.9%

Source: Bloomberg

<sup>7</sup> Rating based on the lowest long-term rating assigned to the bond by Fitch Ratings, Moody's Investor Services, or Standard and Poor's; split-rated debt are therefore included in the HY category.

## Credits

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### Authors

*SIFMA Research Group*

Katie Kolchin, CFA

Sharon Sung

Justyna Podziemska

[research@sifma.org](mailto:research@sifma.org)

### Contributors

*SIFMA Municipal Division*

Leslie Norwood

Michael Decker

[lnorwood@sifma.org](mailto:lnorwood@sifma.org)

[mdecker@sifma.org](mailto:mdecker@sifma.org)