CPIM
CENTER FOR PUBLIC INVESTMENT MANAGEMENT

A PROGRAM BROUGHT TO YOU BY:
ROBERT SPRAGUE
OHIO TREASURER

General Session: Current Trends in Public Finance

Ohio Treasurer's CPIM Academy

Disclaimer

RBC Capital Markets, LLC (“RBC CM”) is providing the information contained in this document for discussion purposes only and not in connection with RBC CM serving as Underwriter, Investment Banker, municipal advisor, financial advisor or fiduciary to a financial transaction participant or any other person or entity. RBC CM will not have any duties or liability to any person or entity in connection with the information being provided herein. The information provided is not intended to be and should not be construed as “advice” within the meaning of Section 15B of the Securities Exchange Act of 1934. The financial transaction participants should consult with its own legal, accounting, tax, financial and other advisors, as applicable, to the extent it deems appropriate.

This presentation was prepared exclusively for the benefit of and internal use by the recipient. This presentation is confidential and proprietary to RBC Capital Markets, LLC (“RBC CM”) and may not be disclosed, reproduced, distributed or used for any other purpose by the recipient without RBCCM’s express written consent.

By acceptance of these materials, and notwithstanding any other express or implied agreement, arrangement, or understanding to the contrary, RBC CM, its affiliates and the recipient agree that the recipient (and its employees, representatives, and other agents) may disclose to any and all persons, without limitation of any kind from the commencement of discussions, the tax treatment, structure or strategy of the transaction and any fact that may be relevant to understanding such treatment, structure or strategy, and all materials of any kind (including opinions or other tax analyses) that are provided to the recipient relating to such tax treatment, structure, or strategy.

The information and any analyses contained in this presentation are taken from, or based upon, information obtained from the recipient or from publicly available sources, the completeness and accuracy of which has not been independently verified, and cannot be assured by RBC CM. The information and any analyses in these materials reflect prevailing conditions and RBC CM’s views as of this date, all of which are subject to change.

To the extent projections and financial analyses are set forth herein, they may be based on estimated financial performance prepared by or in consultation with the recipient and are intended only to suggest reasonable ranges of results. The printed presentation is incomplete without reference to the oral presentation or other written materials that supplement it.

IRS Circular 230 Disclosure: RBC CM and its affiliates do not provide tax advice and nothing contained herein should be construed as tax advice. Any discussion of U.S. tax matters contained herein (including any attachments) (i) was not intended or written to be used, and cannot be used, by you for the purpose of avoiding tax penalties; and (ii) was written in connection with the promotion or marketing of the matters addressed herein. Accordingly, you should seek advice based upon your particular circumstances from an independent tax advisor.

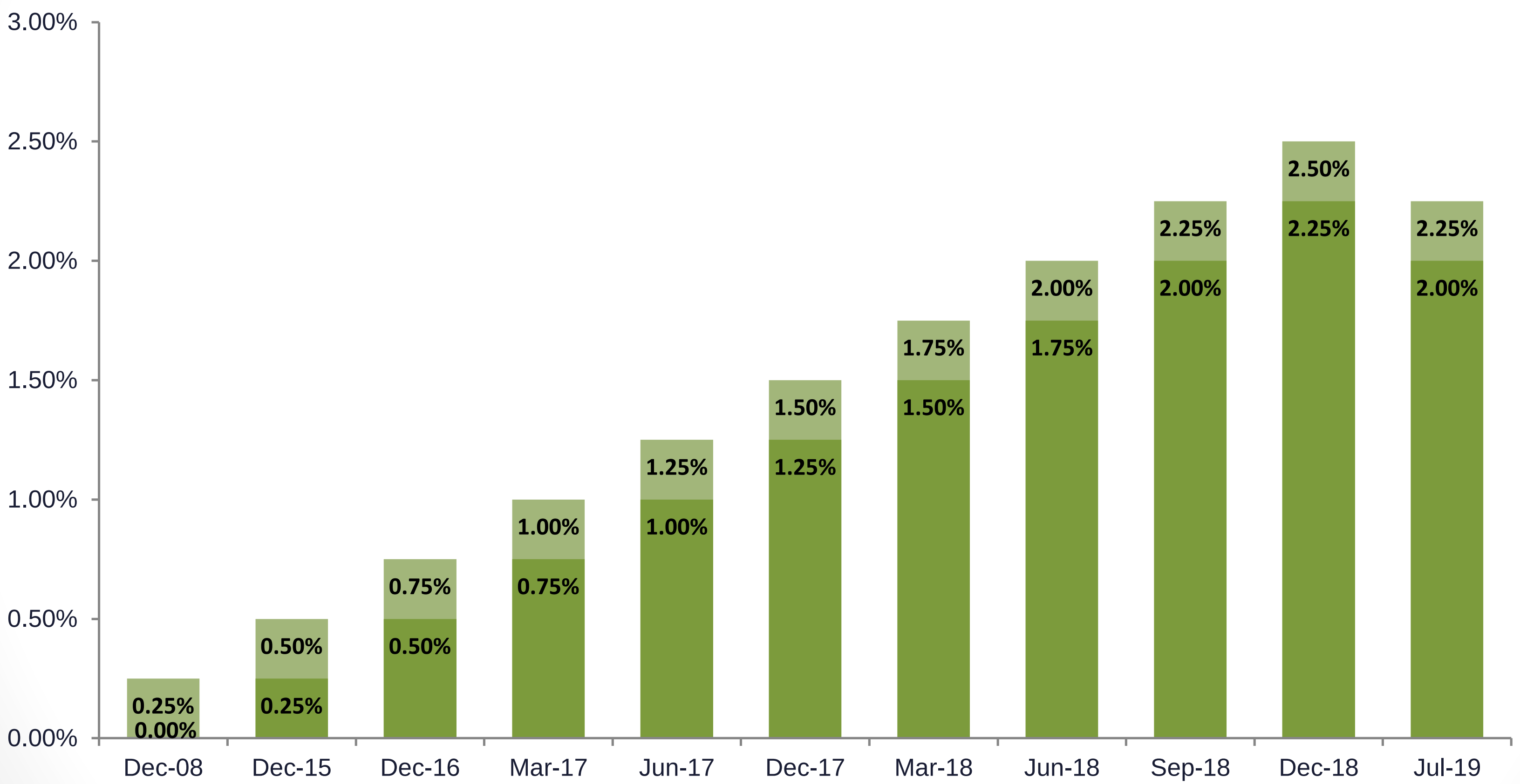
Presenters

Eileen Stanic, CTP
Sr. Public Funds Advisor
Meeder Investment Management
6125 Memorial Drive
Dublin, OH 43017
440-662-8268
estanic@meederinvestment.com

Andrew Laskey
Vice President
RBC Capital Markets
255 E 5th St.
Cincinnati, OH 45202
513-826-0582
andrew.laskey@rbccm.com

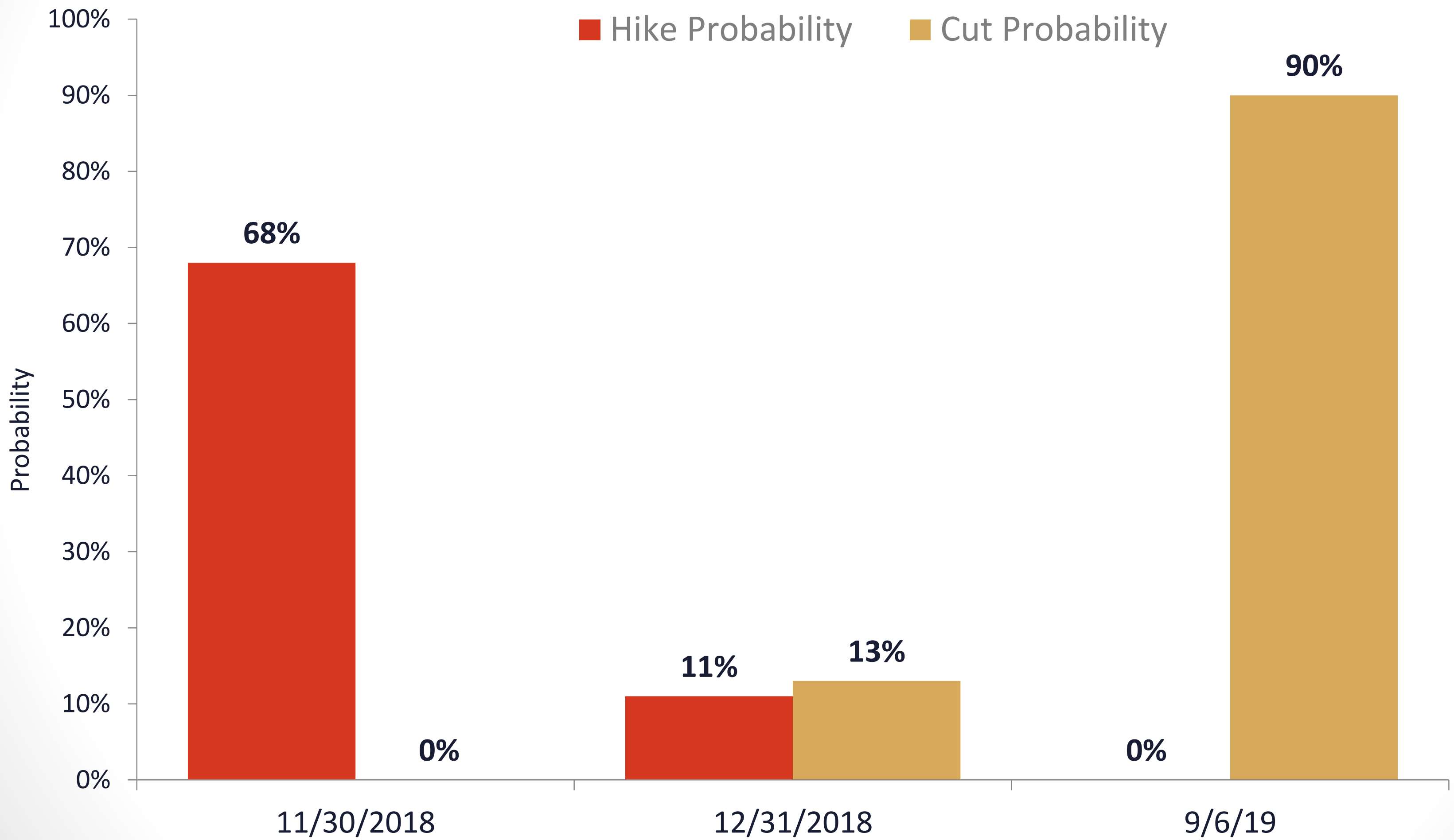
Current Issues Impacting Investments

Historical Fed Funds Target Range



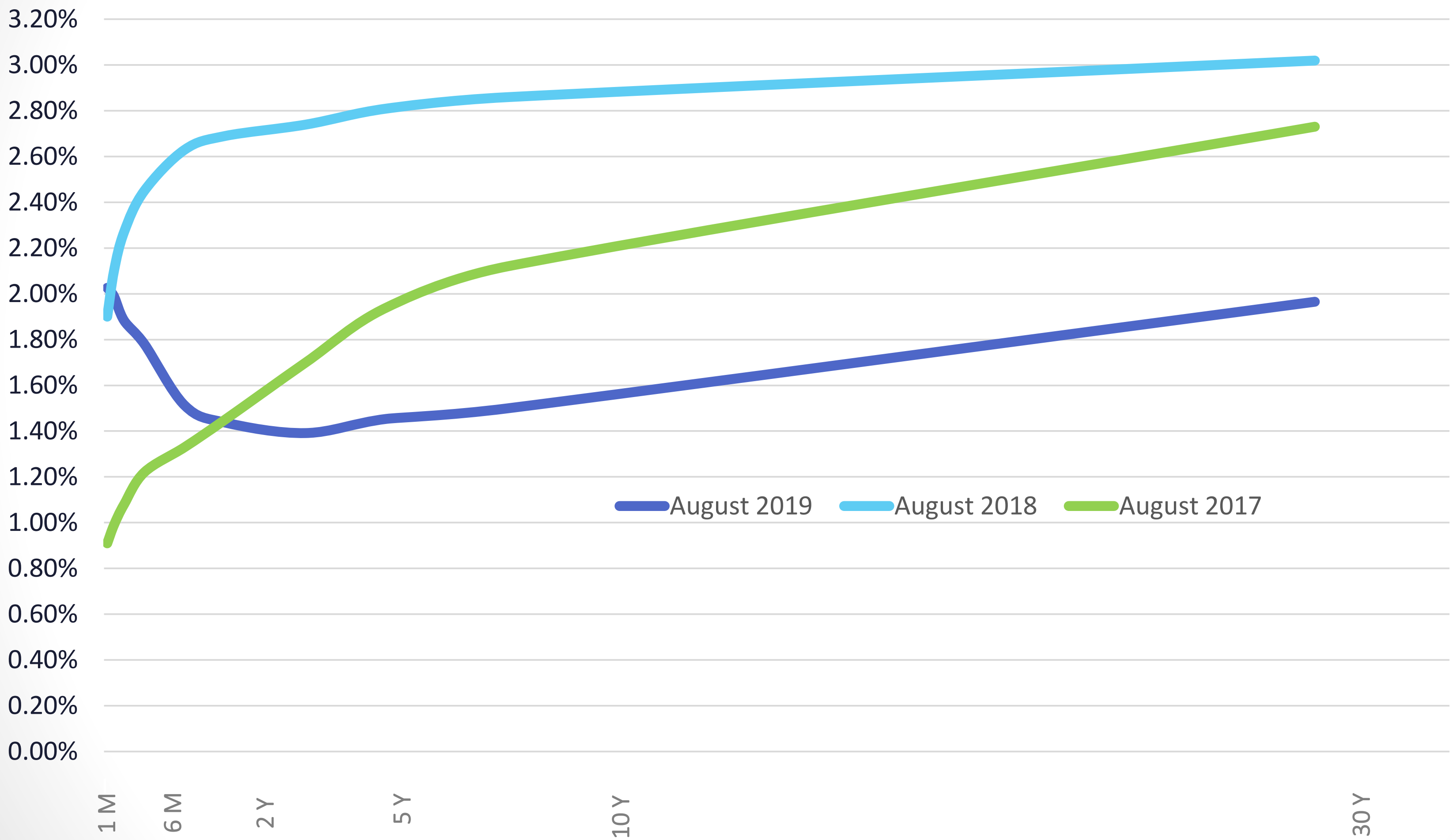
Source Federal Reserve Board of Governors

Hike or Cut?



Source Bloomberg

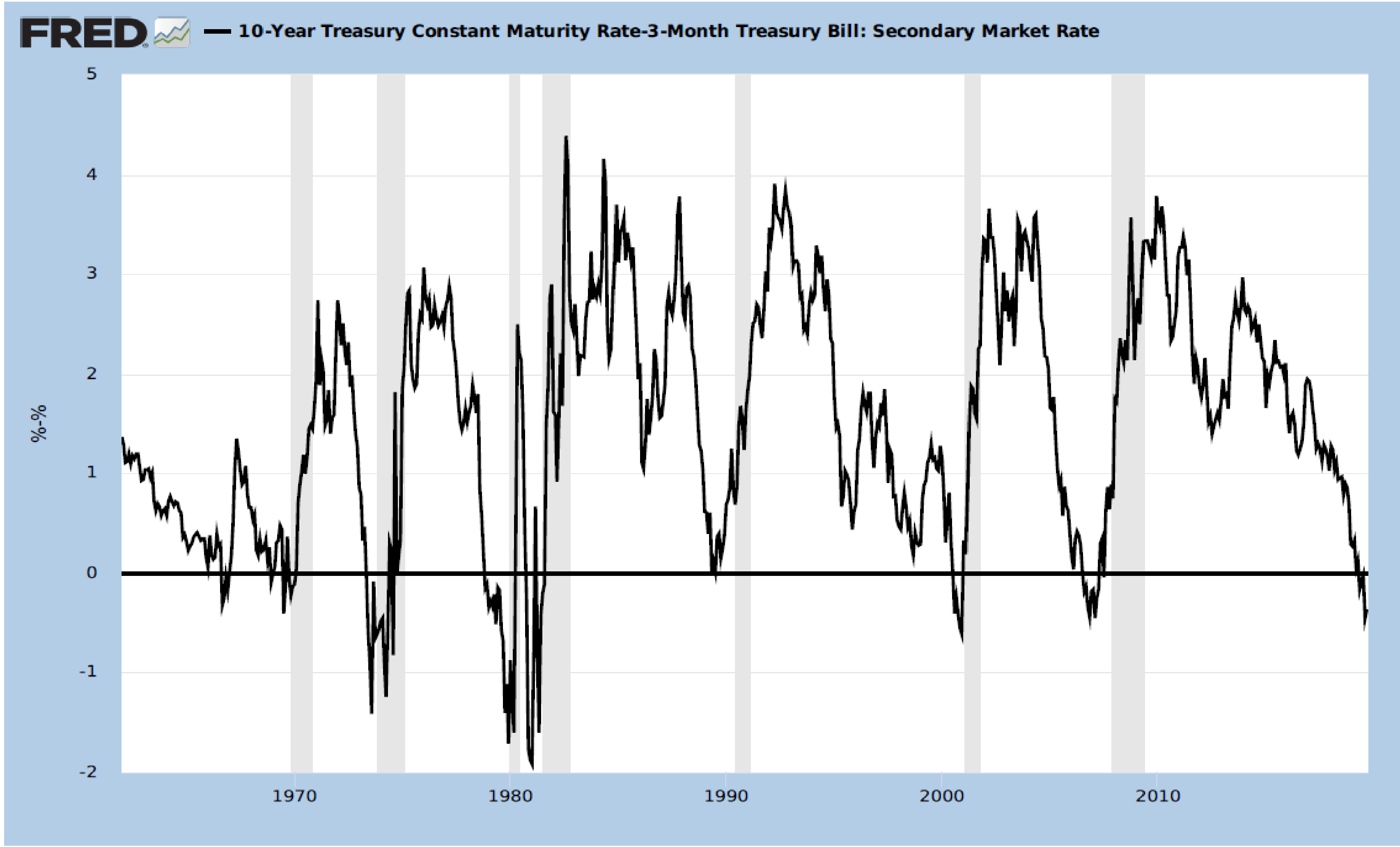
Yield Curve Comparison



Source: Bloomberg

Ohio Treasurer's CPIM Academy

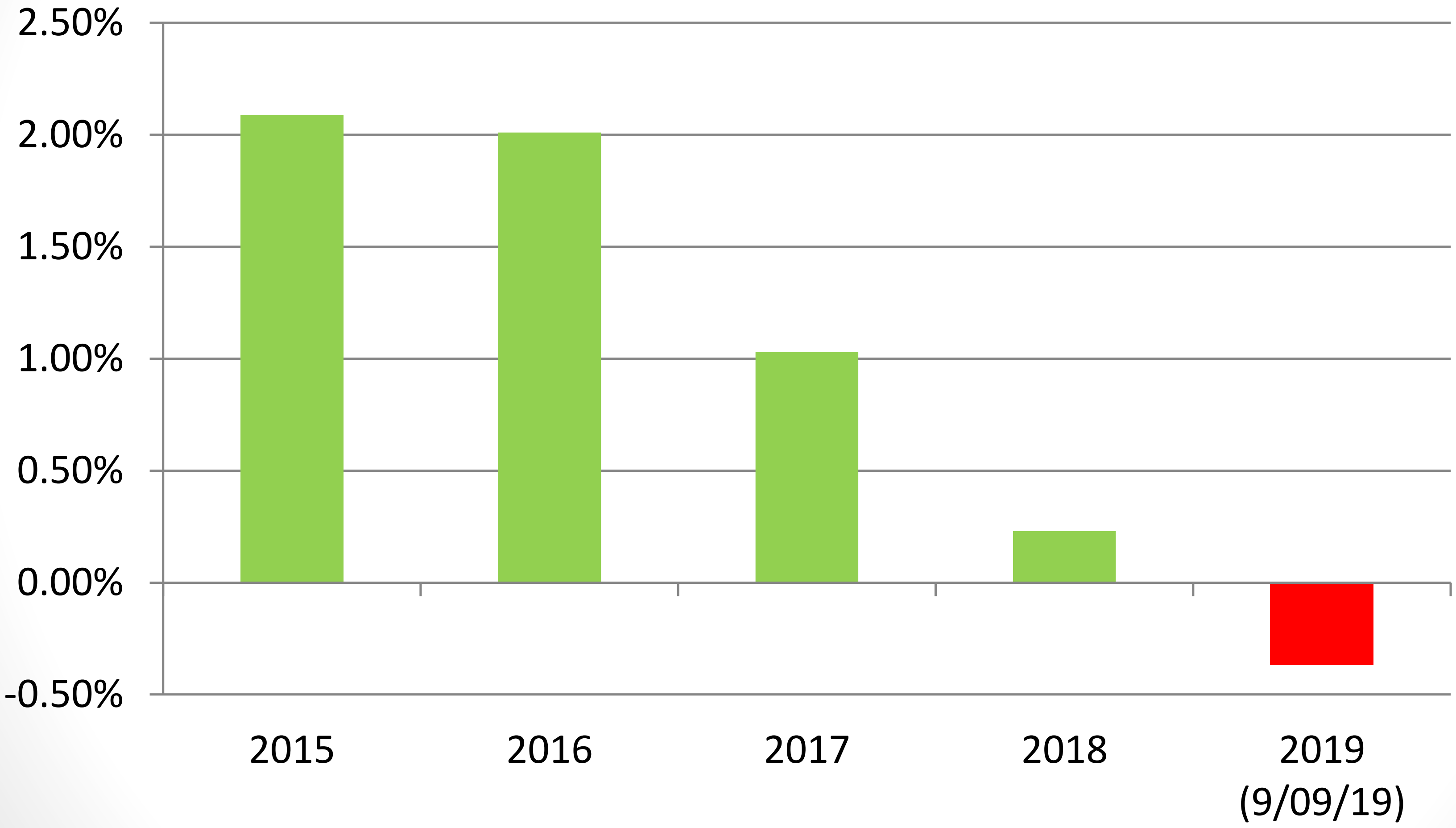
Recession Indicator



Note: Gray bars indicate NBER recession dates.

Source: Federal Reserve Bank of St. Louis

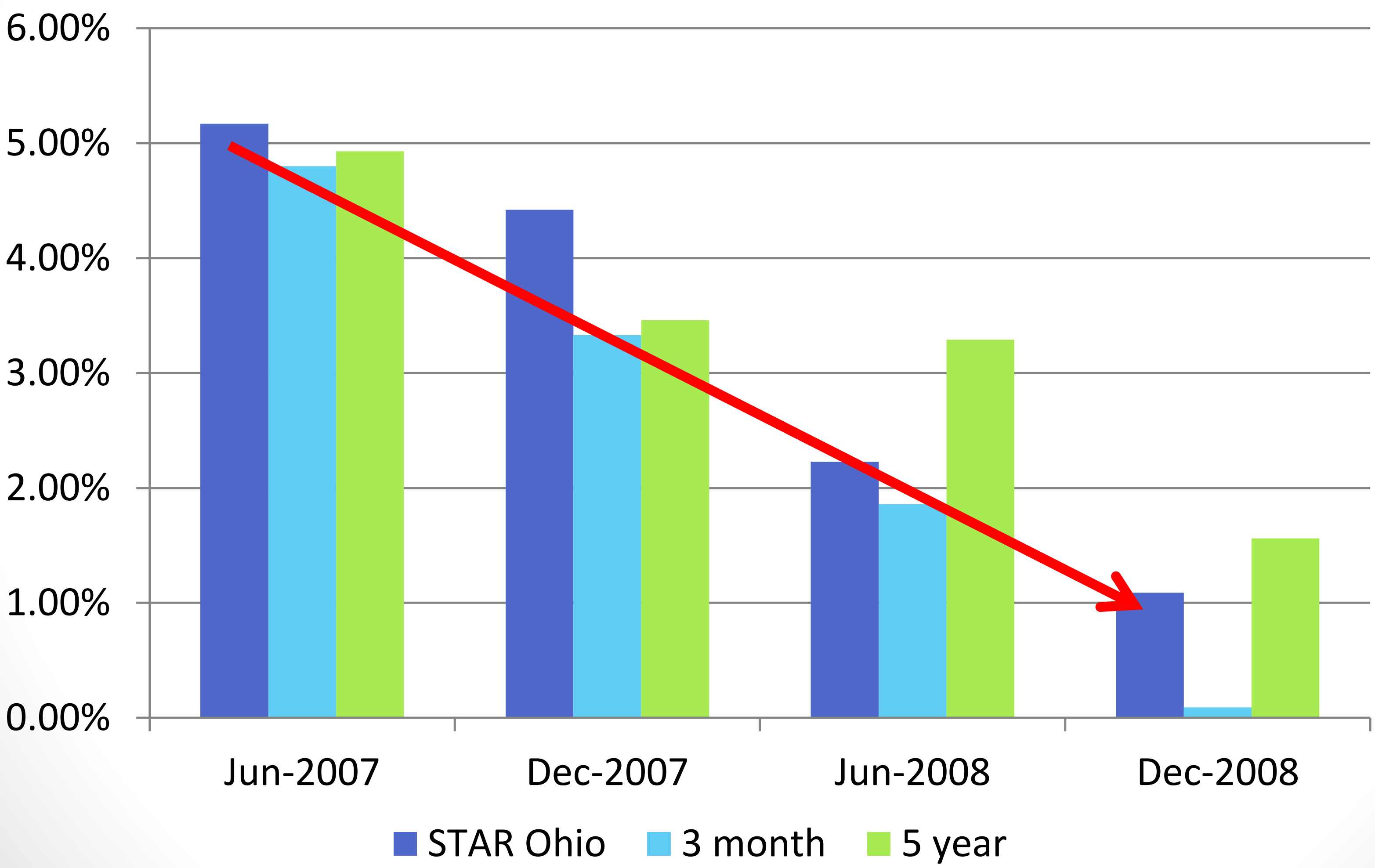
Term Spreads
3 month versus 10 year



Source: Bloomberg

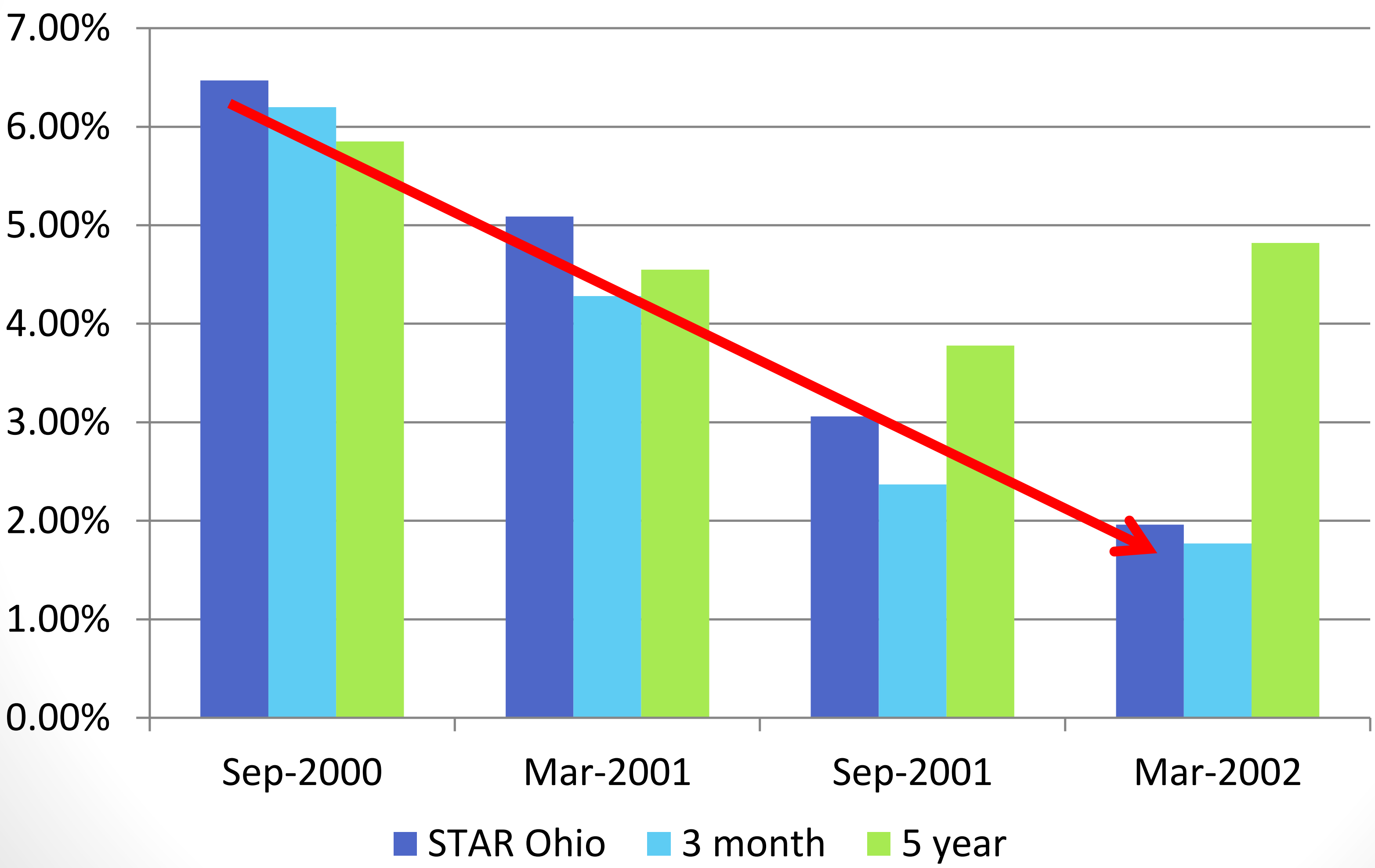
Past Recessions

Great Recession December 2007



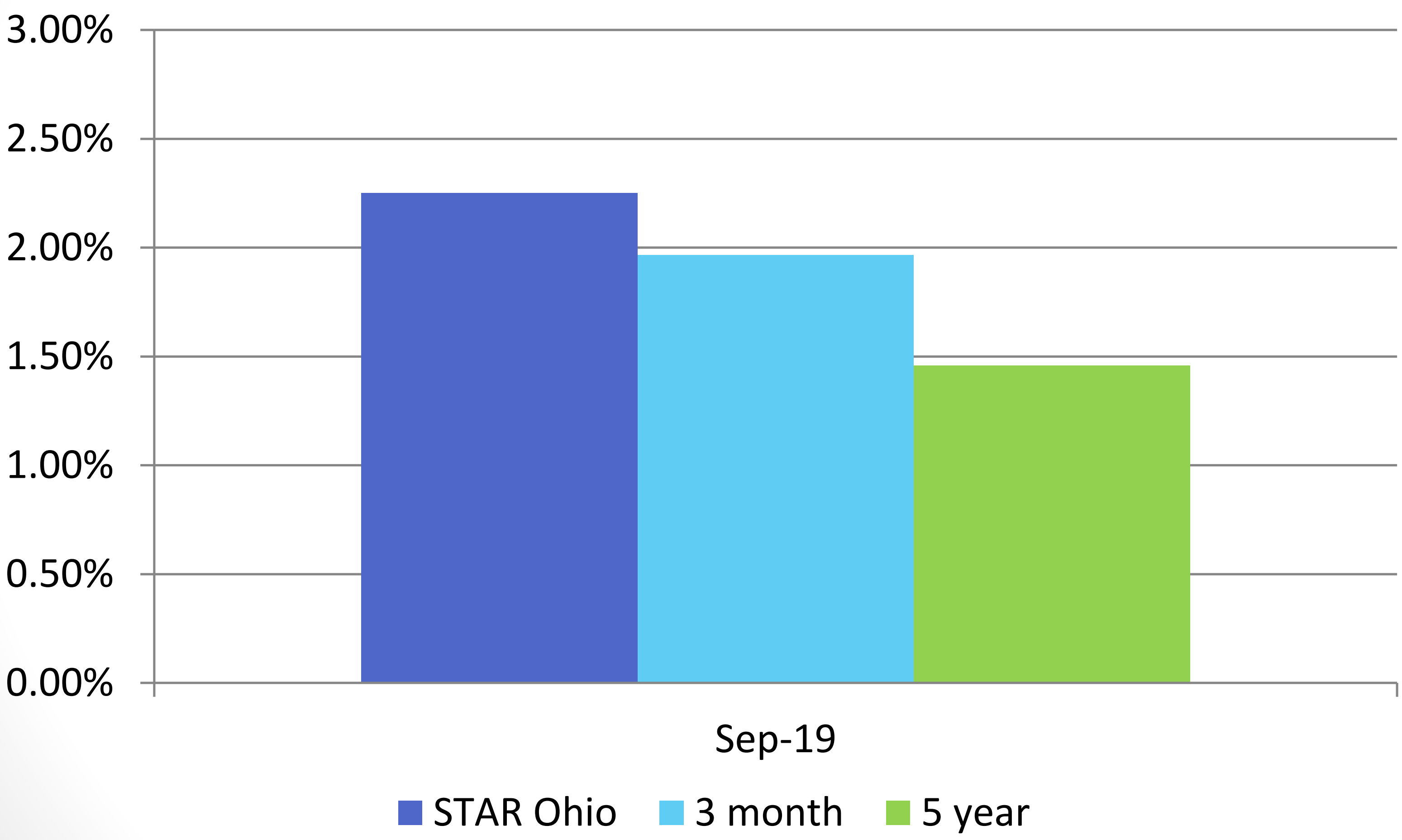
Past Recessions

March 2001



Preserving Your Interest Income

September 2019



Ohio Treasurer's CPIM Academy

Comprehensive Strategy

Cash Flow

- Core Portfolio
- Bank Balances

Duration

- Extend or shorten

Asset Allocation

- US Treasuries
- Agencies
- CDs
- Commercial paper

THANK YOU…….

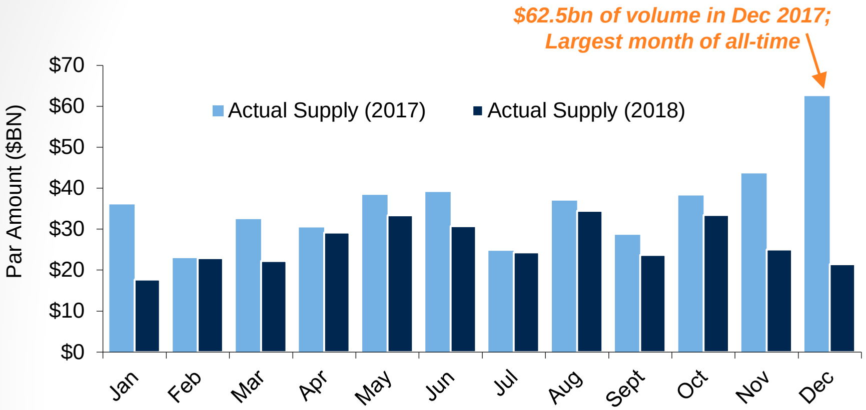
DO YOU HAVE ANY QUESTİONS ?

2018 Year in Review | Municipal Bond Market Characterized by Consistent Buyer Demand

Strong demand in municipal market coupled with modest supply created favorable conditions for issuers

Municipal Bond Issuance

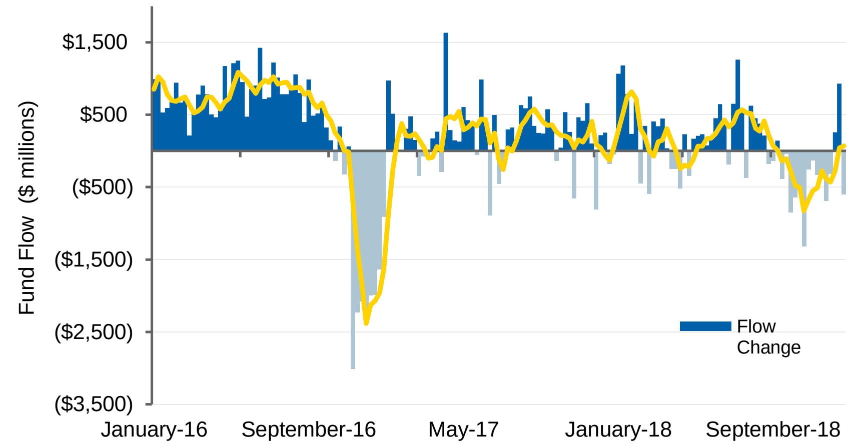
Issuance decreased dramatically in 2018, primarily due to tax law changes that eliminated advanced refunding



Source: Thomson Reuters SDC Platinum

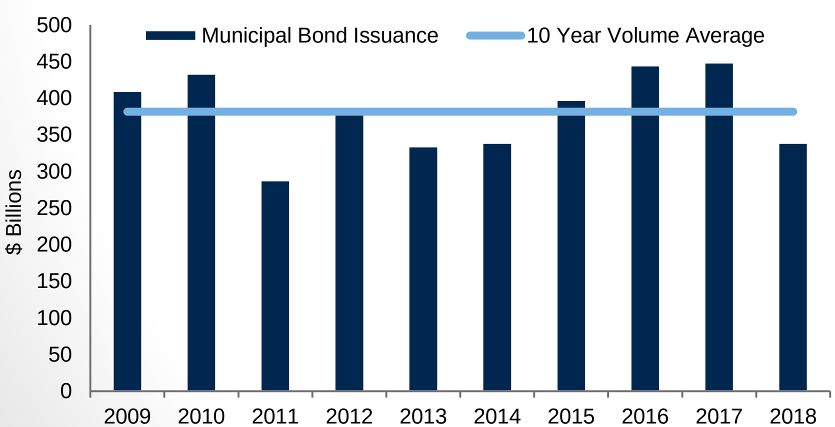
Municipal Bond Fund Flows

Bond funds experienced net inflows in 29 weeks during 2018



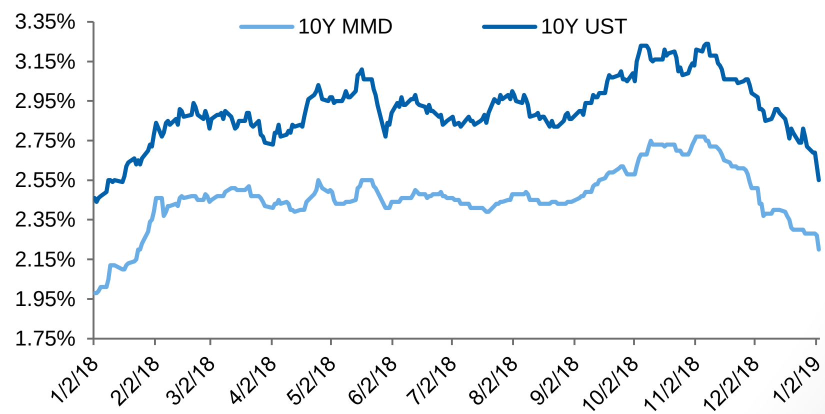
Source: Lipper

Municipal Volume over Last 10 Years



Source: Bond Buyer Decade of Municipal Bond Finance

10 Year MMD and 10 Year UST

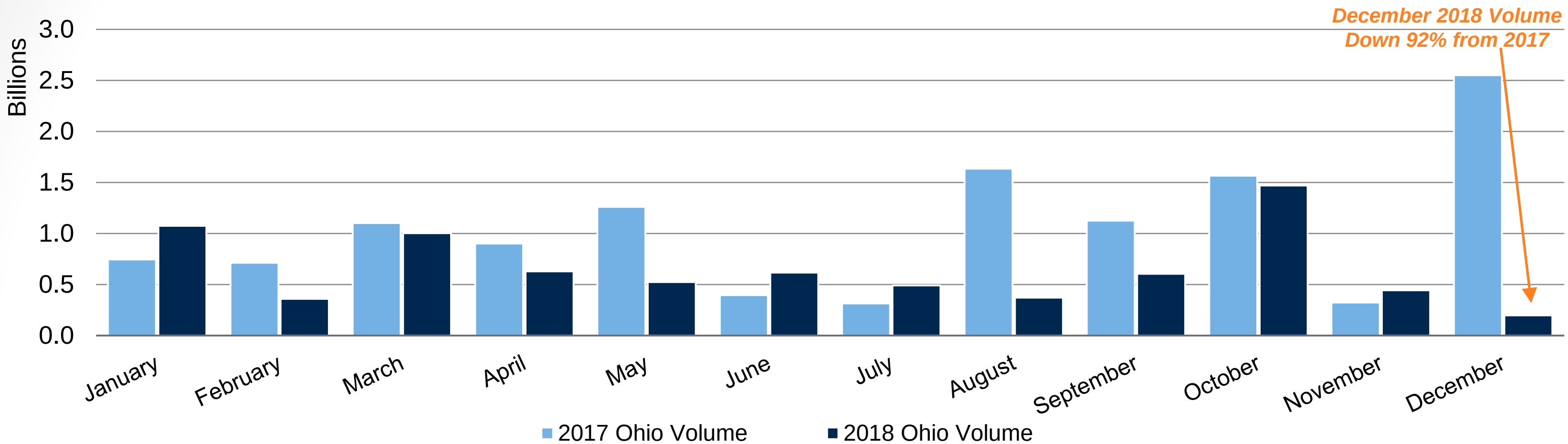


Source: Thomson Reuters – The Municipal Market Monitor (TM3), as of January 4, 2019

2018 Ohio Volume

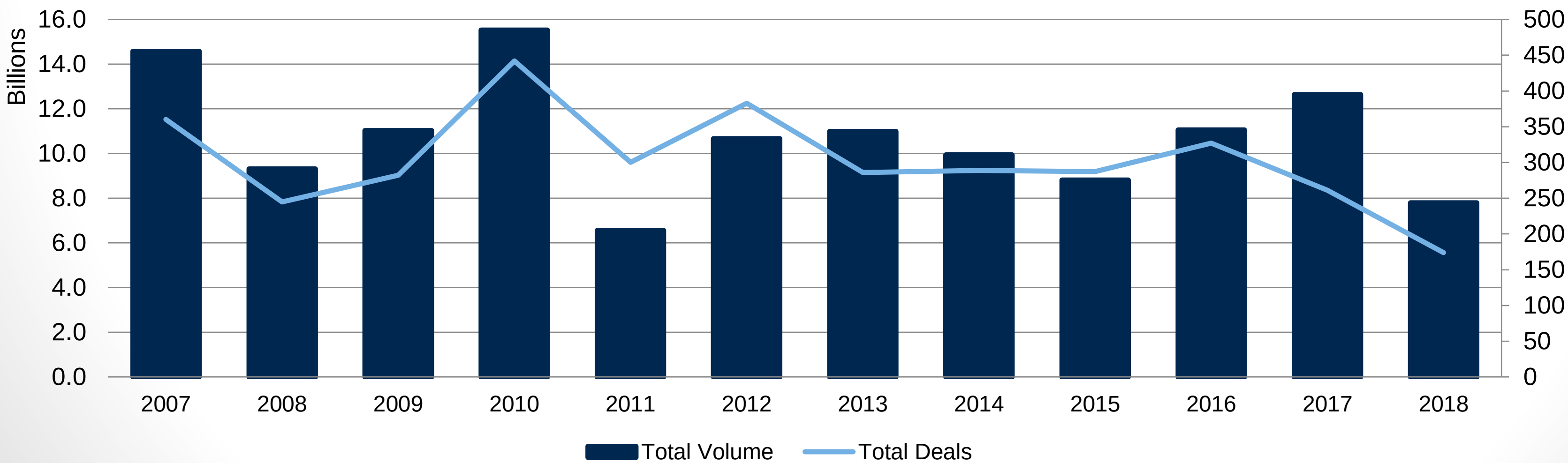
In 2018 Ohio Volume Was Down over 38% Primarily Due to Accelerated 2017 and Reduced 2018 Refunding Volume

Ohio Municipal Bond Issuance by Month 2017 & 2018



Source: Bloomberg

Municipal Volume over Last 12 Years



Source: Bloomberg

Tax Cuts and Jobs Act of 2017

- The Tax Cuts and Job Act of 2017 eliminated the use of tax-exempt bonds for the purposes of advance refunding outstanding tax-exempt bonds
  - The elimination of advance refundings was a major factor that contributed to a 22.4% reduction in municipal issuance in 2018
  - Private Activity Bonds (PABs) were preserved under the Act but survived. They could potentially be a target again as revenue raising may be a priority in future budget discussions.

- December 2017 issuance set an all-time monthly record with over $60 billion of tax-exempt issuance brought to market
  - Much of December issuance was advance refunding transactions to close by the December 31 deadline

- Wall Street forecasts for 2019 call for a moderate increase in municipal issuance, with RBC projecting $340 to $350 billion in debt issuance in 2019 (other Wall Street bank estimates range from $358-$385 billion)

- The reduction in the corporate tax rate to 21% impacted certain key investors (primarily banks and insurance companies) appetite for holding tax-exempt debt
  - Through the third quarter of 2018 banks reduced their municipal holdings by approximately $40 billion compared to end of year 2017 holdings
  - On the positive side, the minor reduction in the maximum individual tax rate to 37% did not appear to lessen demand from individual investors for tax-exempt debt

- **While the full impact of the Tax Cuts and Job Act of 2017 on the municipal market is yet to be determined, the combination of significantly lower debt issuance combined with the expected strong demand from individual investors should allow the municipal market to perform well in the new environment**

- The Federal Reserve interest rate tightening program that began in December 2015 has resulted in nine hikes to date but relatively little change in long-term interest rates
  - In December, 2018 Fed policymakers forecast two rate hikes in 2019, down from its previous estimate of three, but fed fund futures markets were pricing in just one move. There have been a great deal of revisions and volatility among forecasts from Wall Street banks.
  - Additionally the Fed is still in the early stages of the reversal of its quantitative easing program that resulted in the huge build up of its balance sheet
  - The unwind that began in 2017 increased from $10 billion to $20 billion a month in 2018. Currently the Fed is allowing up to $30 billion of US Treasury securities and up to $20 billion of Agency MBS to mature each month
  - The Tax Cuts and Job Act of 2017 was a stimulus for the economy with average US GDP growth of 3.27% through the first 3 quarters of 2018

Source: Bond Buyer, US Bureau of Economic Analysis, Bloomberg "Muni-Bond Sales to Range Between $340B to $350B in '19, RBC Says" , Federal Open Market Committee

Summary of Major Tax Reform Provisions and Effect on Municipal Buyers

Issue/Affected Party	2018 Tax Plan
Individuals	▪ Adjusts individual income tax rates and thresholds, creating six rates of 10%, 12%, 24%, 32%, 35% and 37% ▪ Increases the standard deduction to $12,000 / $18,000 / $24,000 ▪ $10,000 cap on property tax and state and local income taxes (SALT) paid deduction
Corporations	▪ Lowers the corporate income tax rate to 21%
Property and Casualty Insurance Companies	▪ Replaces the fixed 15% *reduction in the reserves* deduction with a fixed 26.25% *reduction in the reserves* deduction – Keeps it consistent with current law by adjusting the rate proportionately to the decrease in the corporate tax rate ▪ The proration rule imposes a partial tax on tax-exempt interest earned by P&Cs, and the change in the bill would increase that tax relative to P&Cs general tax rate

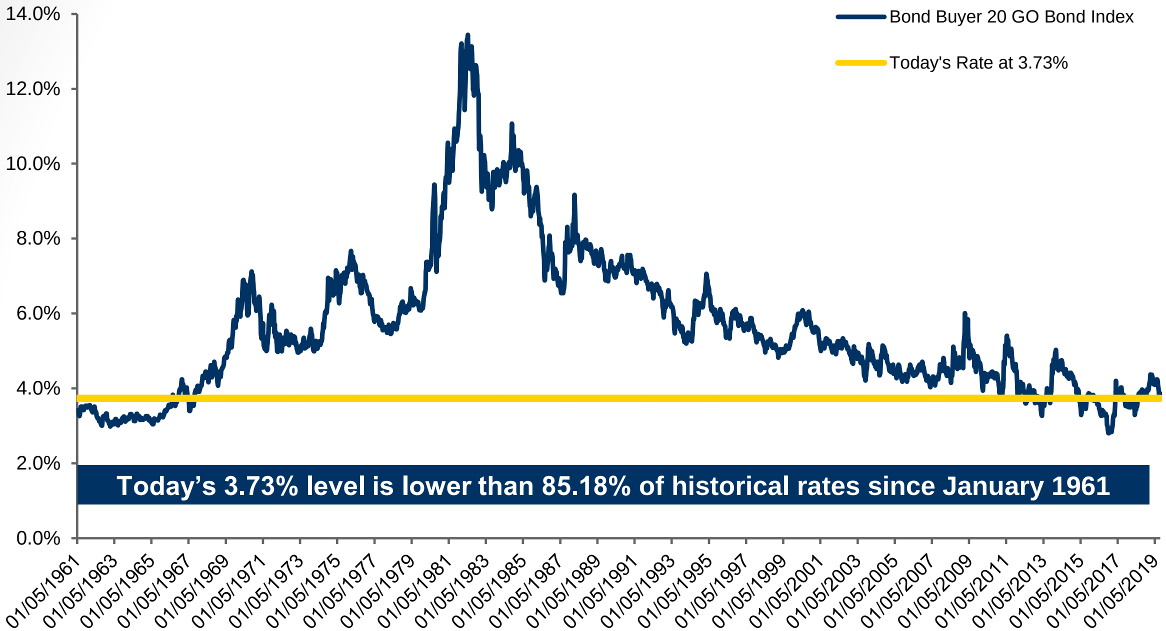
Issue/Affected Party	2018 Tax Plan
Private Activity Bonds	▪ Permitted
Advance Refundings	▪ Prohibits tax-exempt advance refundings
Alternative Minimum Tax	▪ Corporate AMT is eliminated ▪ Individual AMT exemption amount is raised from $84,500 to $109,400 (married filing jointly) ▪ The exemption amount phase-out will be increased to $1,000,000
Tax Credit Bonds	▪ All rules for issuance of tax credit bonds repealed
Professional Sports Facilities Bonds	▪ Permitted

Source: taxfoundation.org, KPMG Tax News Flash Report, Sullivan & Cromwell LLP U.S. Tax Reform: Insurance Company Provisions Report, and Forbes.

Economic Conditions and Market Update

Economic Update

Bond Buyer 20 GO Bond Index Since 1961

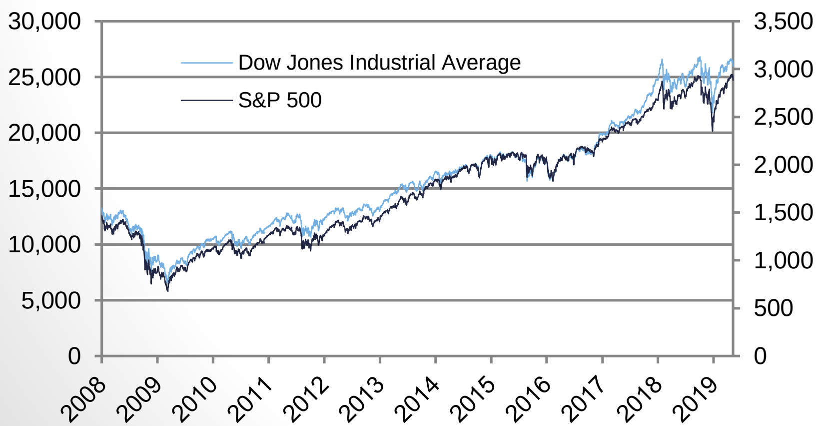


% of Time in Each Range Since 1961

Yield Range	
Less than 3.50%	9.95%
3.50% - 4.00%	10.84%
4.01% - 4.50%	11.53%
4.51% - 5.00%	9.92%
5.01% - 5.50%	13.83%
5.51% - 6.00%	9.63%
6.01% - 6.50%	7.46%
6.51% - 7.00%	6.80%
7.01% - 7.50%	6.14%
7.51% - 8.00%	3.61%
Greater than 8.00%	10.28%
Total	**100.00%**

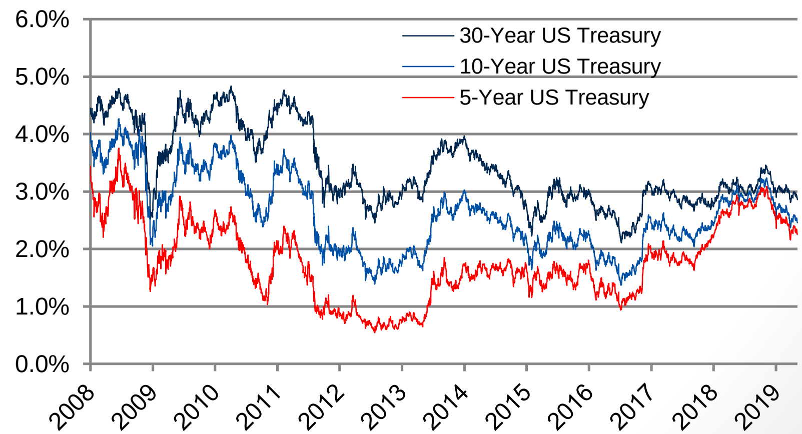
Source: Bloomberg as of May 6, 2019. Weekly yields and indexes released by the Bond Buyer. Updated every Thursday at approximately 6:00pm EST. 20 Bond General Obligation Yield with 20 year maturity, rated Aa2 by Moody's Arithmetic Average of 20 bonds' yield to maturity

U.S. Equity Market



Source: Bloomberg

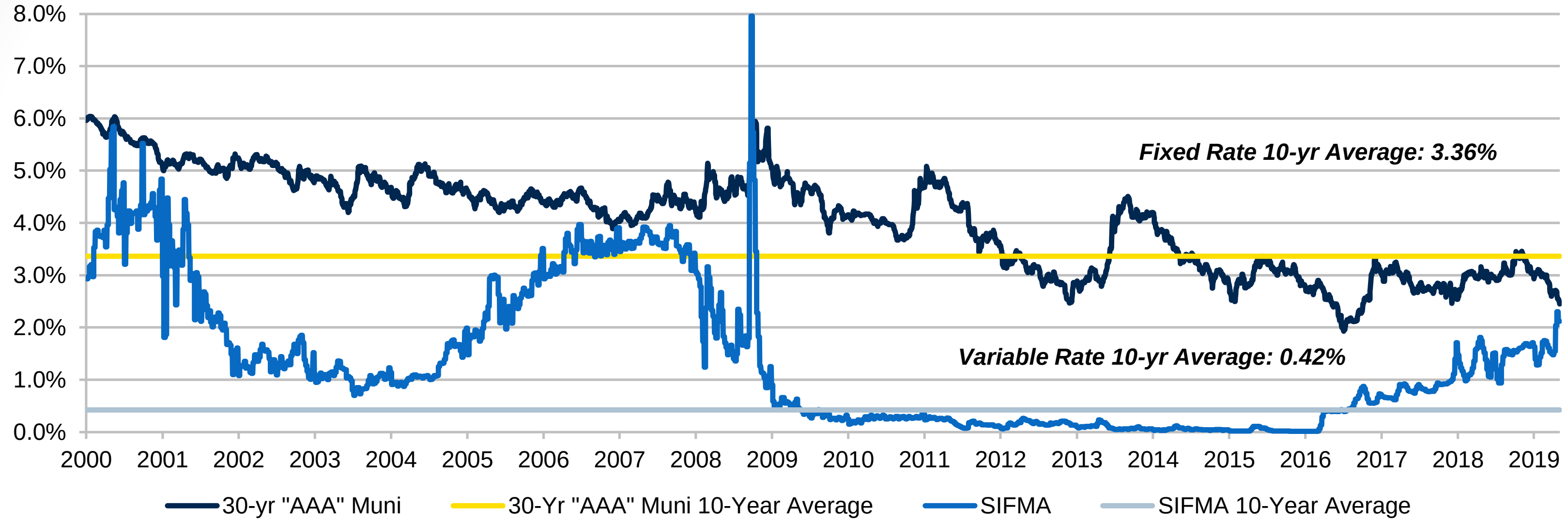
U.S. Treasury Rates



Source: Thomson Reuters

Current Capital Market Conditions | Tax-Exempt Marketplace

Long-Term View: Short-Term and 30-Year Tax-Exempt Yields Since 2000…



Source: Thomson Reuters – The Municipal Market Monitor (TM3), Bloomberg

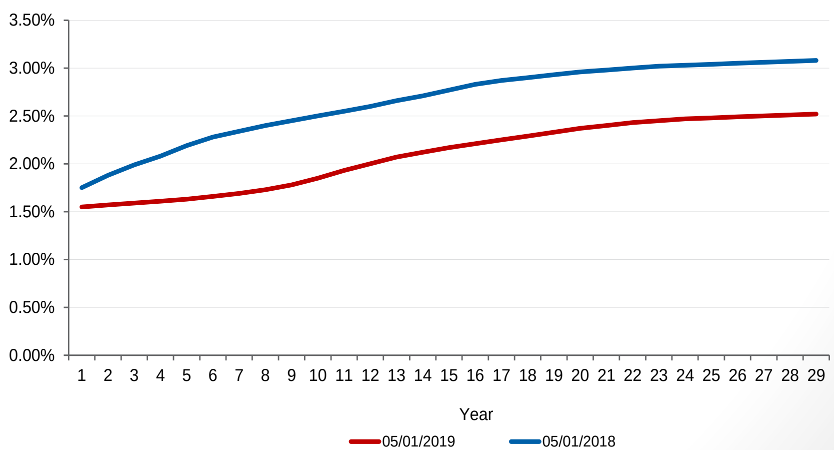
Long Term Yields Below 10-year Average

- 30-year "AAA" MMD currently **2.45%**
  - 52bps off all-time low of 1.93%
  - 91bps below 10-year average of 3.36%
  - 30-year Tsy Yield currently 2.86%
  - Muni-to-Tsy ratio at 85.66%
- SIFMA Index currently **212bps**
  - 10-year average is 0.42%

Source: Thomson Reuters – The Municipal Market Monitor (TM3), Bloomberg

Current yields as of May 8, 2018

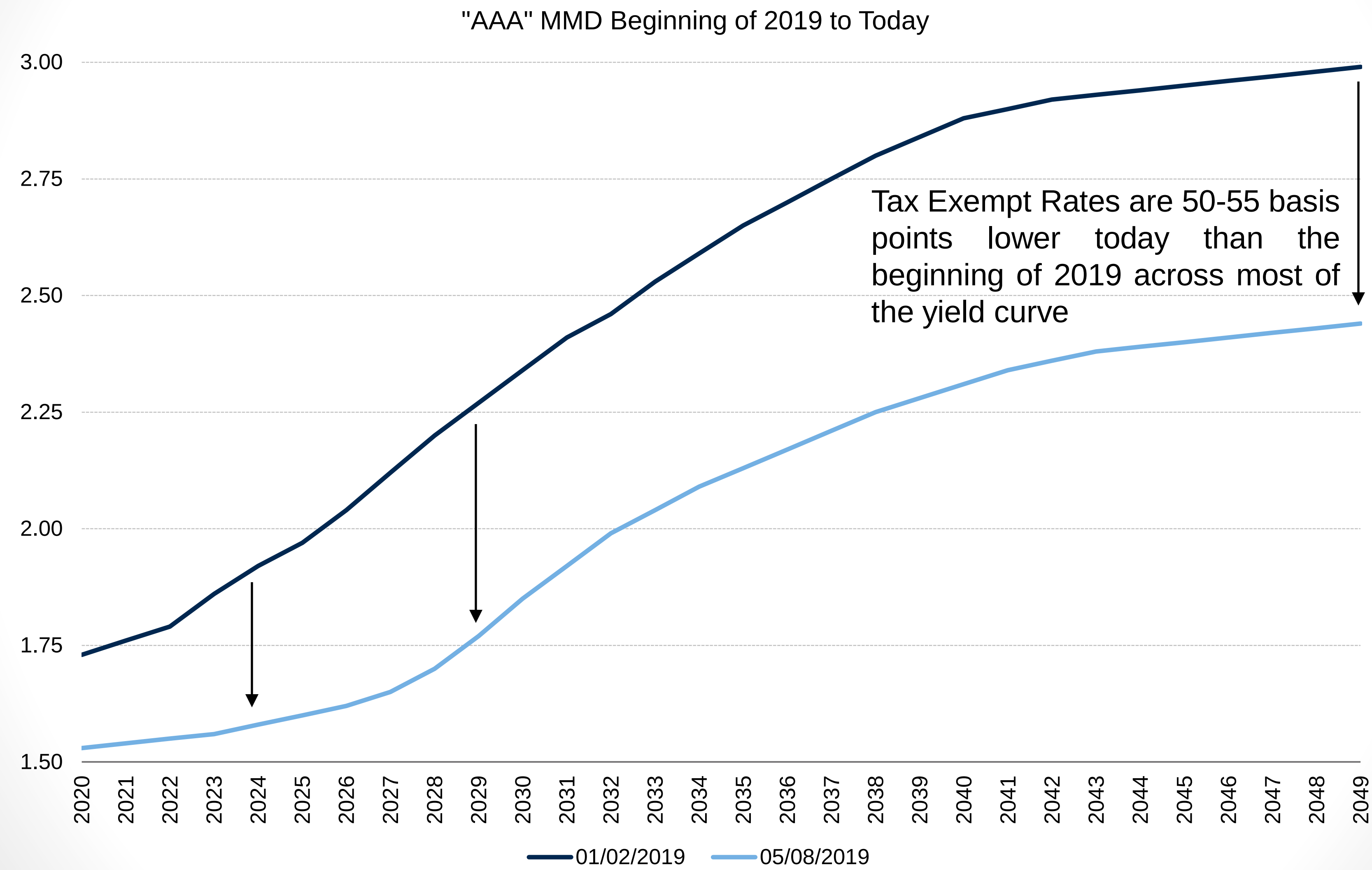
Municipal GO "AAA" MMD Yield Curve YOY



Source: Thomson Reuters – The Municipal Market Monitor (TM3)

Current Market Conditions

Tax Exempt Interest Rates Have Declined Substantially Thus Far in 2019



Source: "AAA" tax exempt bond index as published by Thomson Reuters on January 2, 2019 and May 8, 2019. Borrowing rates vary based on the individual factors of the borrower. For informational purposes only.

Industry-Wide Estimates Projecting Municipal Issuance Will Increase Modestly In 2019

Recent market developments should make tax-exempt bonds attractive to investors

- The Tax and Job Cut's elimination of Advance Refunding Bonds diminished supply of new tax-exempt bonds
- Decreased supply could cause bonds trade at lower ratios to taxable bonds
- Increased economic activity and the Fed's policies may guide rates higher; municipal bonds tend to price at lower ratios in rising rate environments

2019 Municipal Issuance

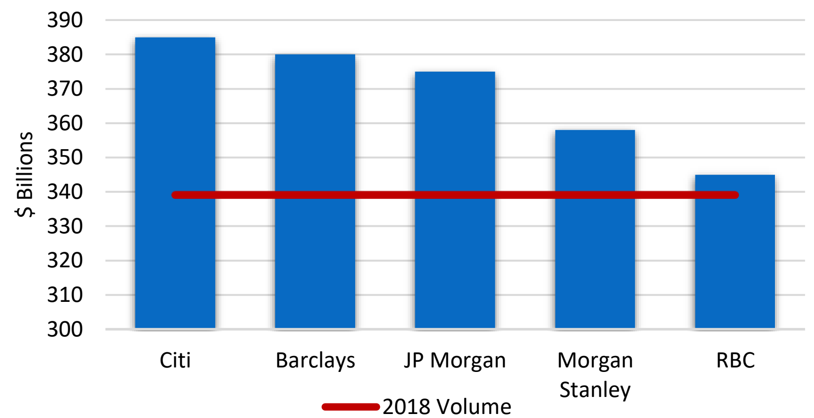
- 2019 YTD Volume: $112.47bn, up 8% year over year from 2018
- 2018 Volume: $339bn, down 22.4% from 2017
- 2017 Volume: $449bn, up 0.9% from 2016

Average Weekly Supply:

- 2019: $5.93bn
- 2018: $6.52bn
- 2017: $8.63bn

Sources: The Bond Buyer and RBCCM.

2019 Projected Municipal Issuance



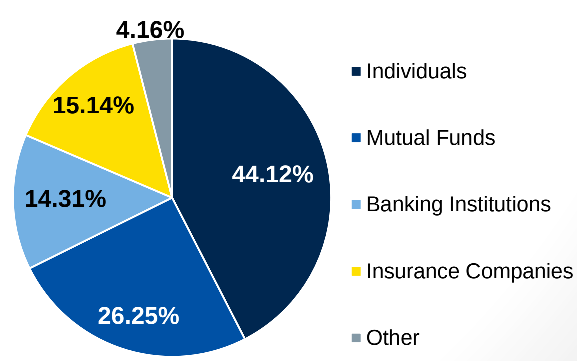
Source: Bloomberg, "Wall Street's Municipal-Bond Bankers Expect Brighter Year Ahead," December 4, *2018*

With the passage of tax reform, new issue purchases by the major asset classes were impacted as follows:

- Individual and Professional Retail – **increased** demand
- Mutual Funds – **increased** demand
- Banking institutions – a general **reduction** in overall demand with highest impact at the shorter-end and among the highest credit grades
- Property and casualty insurers- a general **reduction** in overall demand with the highest impact at the shorter end among the highest credit grades

Source: RBC Capital Markets

Q4 2018 Holders of U.S. Municipal Securities



Source: SIFMA

Current Capital Market Conditions | Week of May 6, 2019

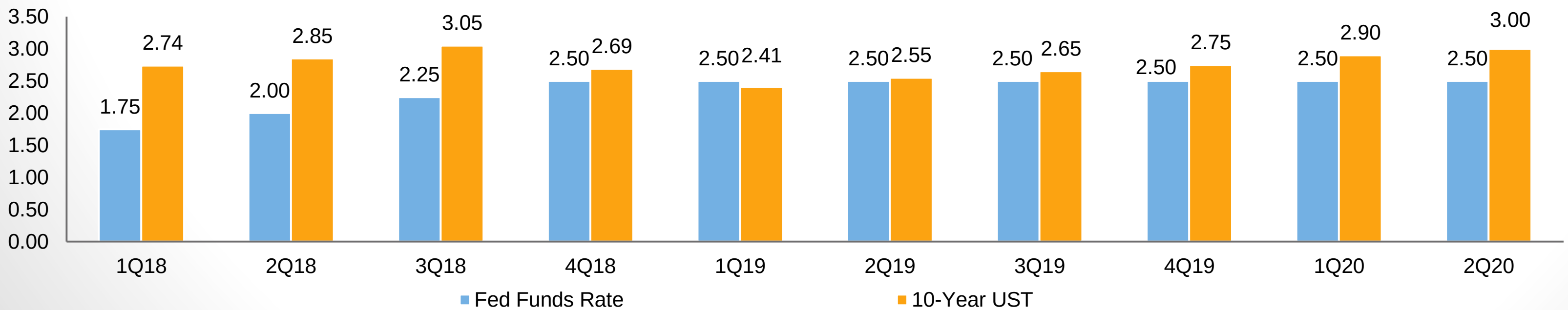
Market Commentary

- US equities advanced last week, pushing the S&P500 and Nasdaq to new closing highs on Friday.
- Credit markets remain firm, and the Bloomberg US Aggregate index closed 1bp off the 2019 tights on Friday.
- Treasury yields declined 4-10bp last week, led by the 2-year note; municipals out-performed in 10 and 30 years.
- First-quarter GDP grew at an annualized rate of 3.2%, outpacing expectations; core PCE inflation rose 1.6%.
- The FOMC meets this week, and Interest on Excess Reserves will be a closely-monitored discussion topic.
- Chair Powell will host a press conference after Wednesday's meeting; Fed funds futures are pricing in a cut for 2019.
- April payrolls come out on Friday; consensus calls for a 188k rise in non-farm payrolls and unchanged 3.8% u-rate.
- Economic highlights: ISM, personal income/spending, consumer confidence, ADP, jobless claims, durable goods.
- Municipal supply totaled nearly $5bn last week and is expected to remain light this week at $5.8bn.
- Municipal bond funds reported net inflows of $1.6bn, marking the 16th consecutive week of inflows.
- The SIFMA index spiked 26bp to 2.30% last Wednesday; SIFMA levels are expected to remain elevated into May.

Source: *RBC Capital Markets;* https://www.rbccm.com/assets/rbccm/docs/uploads/2017/RBCCM_Muni_Markets_Weekly_Newsletter.pdf

RBCCM Interest Rate Forecast

	Actual					Forecast				
Period	**1Q18**	**2Q18**	**3Q18**	**4Q18**	**1Q19**	**2Q19**	**3Q19**	**4Q19**	**1Q20**	**2Q20**
Fed Funds Rate	1.75	2.00	2.25	2.50	2.50	2.50	2.50	2.50	2.50	2.50
2-Year UST	2.27	2.52	2.81	2.48	2.27	2.40	2.45	2.50	2.55	2.55
5-Year UST	2.56	2.73	2.94	2.51	2.23	2.40	2.50	2.60	2.70	2.75
10-Year UST	2.74	2.85	3.05	2.69	2.41	2.55	2.65	2.75	2.90	3.00
30-Year UST	2.97	2.98	3.19	3.02	2.81	2.95	3.00	3.10	3.20	3.40
Spread (30-yr to 2-yr)	**70**	**46**	**38**	**54**	**54**	**55**	**55**	**60**	**65**	**85**



Source: RBC on April 4, 2019 http://www.rbc.com/economics/economic-reports/pdf/financial-markets/rates.pdf

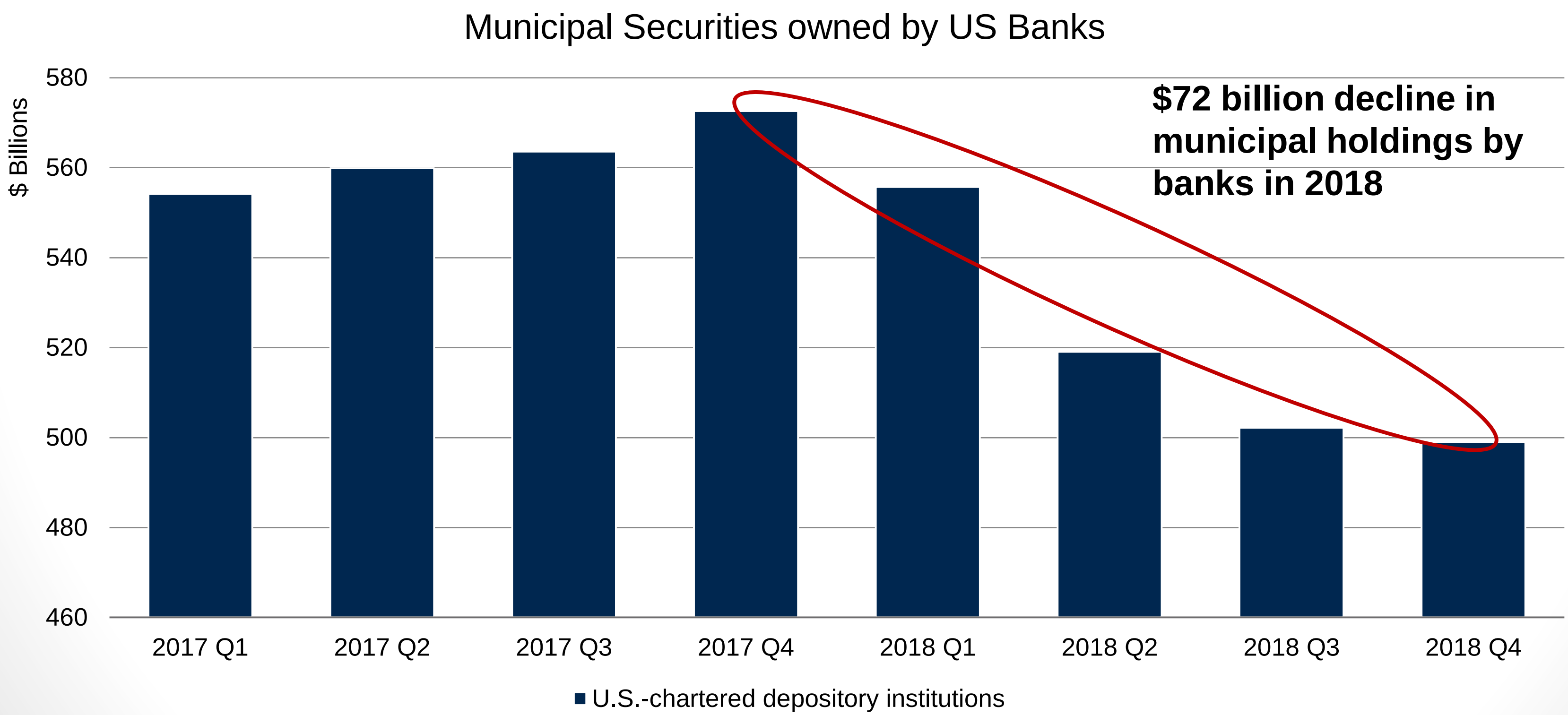
Bank Qualification Definition & Updates

- Prior to 1986, banks were a major purchaser of all sizes of municipal bonds
- In 1986, with the passage of the Tax Reform Act of 1986, banks could no longer deduct the carrying cost of tax-exempt bonds
- An exception in the Code allowed banks to deduct 80% of the carrying cost of a "qualified tax-exempt obligation" also commonly referred to as "bank qualified bonds"
- In order for a bond issue to be a "qualified tax-exempt obligation" the bonds must be (i) issued by a "qualified small issuer," (ii) issued for public purposes, and (iii) designated as "qualified tax-exempt obligations."
- For the District's proposed financing, any issue (or combination of issues) that are not reasonably expected to exceed $10 million in a calendar year would qualify as bank qualified (subject to review and approval by Bond Counsel)
  - Current refundings of existing debt do not count toward the $10 million limit
  - If BANs are issued in 2018, they could be currently refunded in 2019 and not count toward the BQ limit
- Bank qualified bonds have historically carried a substantial pricing benefit in the municipal market due to the increased demand for these bonds from banks
- The Tax Cuts and Jobs Act of 2017 reduced the corporate tax rate from 35% to 21%, which reduces the benefit of tax exemption for banks and all other corporations
  - Because of this and other factors, the pricing benefits of bank qualified bonds compared to non-bank qualified bonds have decreased in 2018 for the majority of the yield curve

Source: RBC Capital Markets research and analysis (Bank Qualification determination subject to Bond Counsel review and approval)

US Banks Have Been One of The Largest Sellers of Municipal Securities

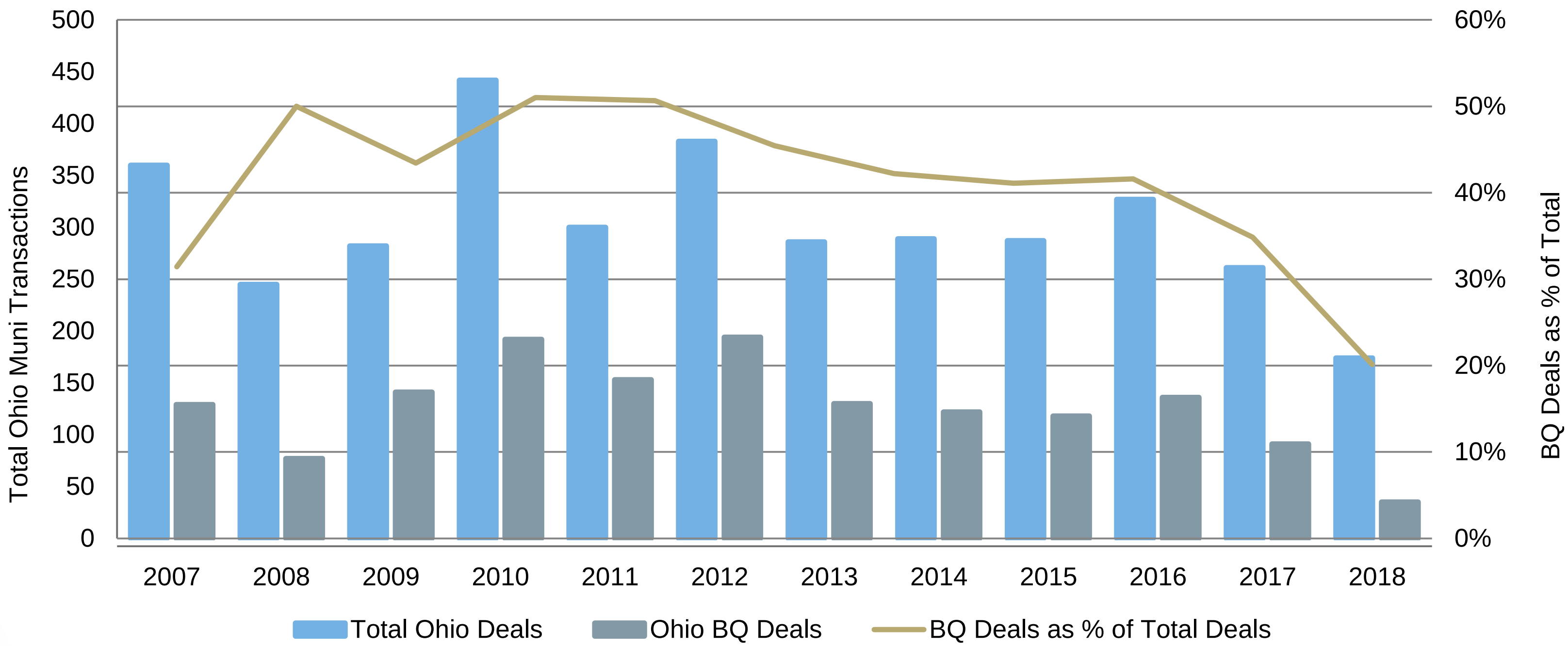
- In March 2019 the Federal Reserve released the fourth quarter 2018 table of municipal holdings
- Within this report, US banks showed the largest decline in municipal holdings across all investor classes, reducing holdings by $72 billion since the end of 2017
- This selling combined with a lower corporate tax rate has played a role in the decreasing benefit of bank qualified issuance



Source: Federal Reserve (updated quarterly); https://www.federalreserve.gov/apps/fof/DisplayTable.aspx?t=l.212

Bank Qualified Issuance as Percentage of The Ohio Market Reached an All Time Low in 2018

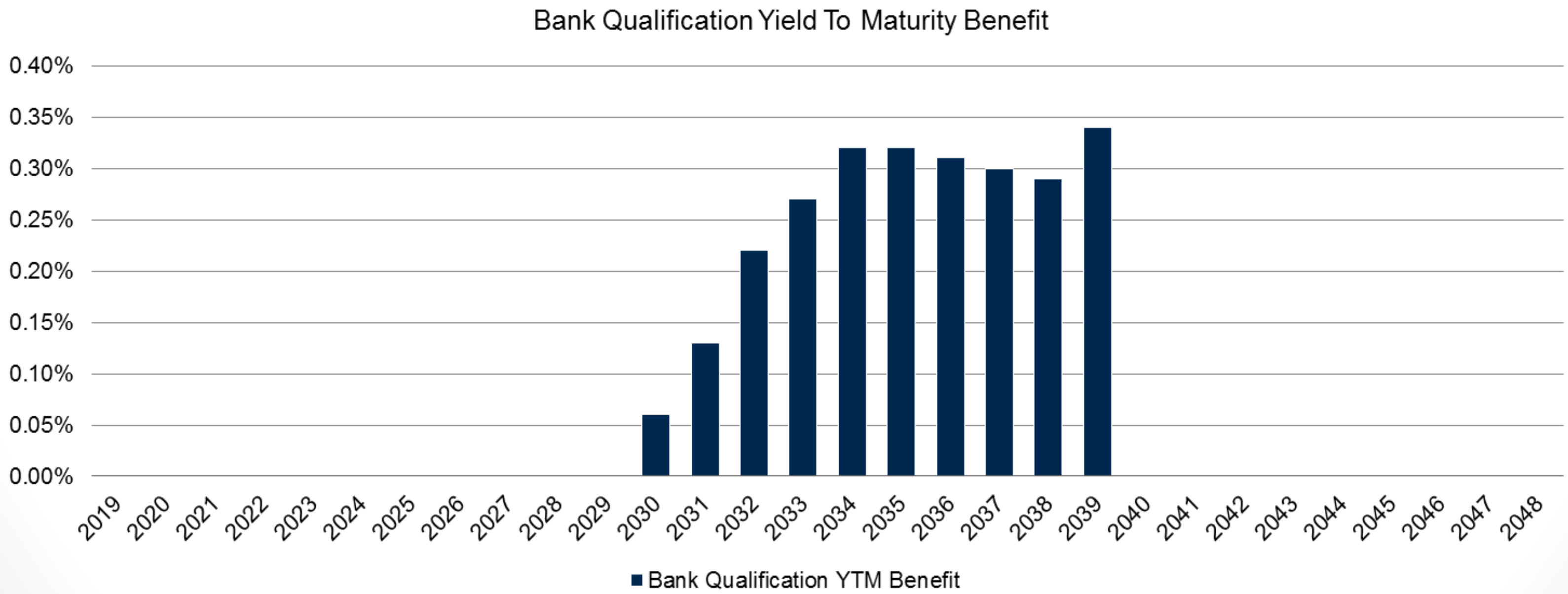
Ohio Bank Qualified Percentage of Deals over the Past 12 Years



Source: Bloomberg

Bank Qualification Benefits & Example

- In order to maximize the benefit of bank qualification, we typically recommend issuing bank qualified (BQ) debt primarily in the years where the BQ benefit is greatest when compared to non-bank qualified debt
- The exact maturities that produce the greatest relative savings varies over time, but currently the greatest benefit is 2033-39
- If the District does delay a BQ portion of the voter authorized issuance until 2020 the 2019 bonds maturing in 2030 through 2039 would currently produce substantial savings
- The following sample table shows the currently estimated yield to maturity benefit attributable to bank qualification by maturity date. As you can see, bank qualification currently only provides a yield to maturity pricing benefit in years 2030-39, with the majority of that benefit concentrated in years 2033-39.



Source: RBCCM preliminary pricing information as of May 8, 2019 for an example Aa2 rated Ohio school district. Subject to change based on market conditions

Cash Market Alternatives

Taxable Bonds	▪ Taxable bonds may be used to advance refund tax-exempt bonds with an escrow to the call date ▪ Negative arbitrage in the escrow is a factor just like tax-exempt advance refundings ▪ Issue taxable bonds with a call to allow for future tax-exempt refundings
Forward Delivery Bonds	▪ Bonds are sold today with a delayed delivery period ▪ Forward premium estimated at 4 to 6 basis points per month ▪ May work best for bonds with call dates within a year but could go as long as 2 years
Other Alternatives	▪ Cinderella Bonds ▪ Swap-Based Alternatives

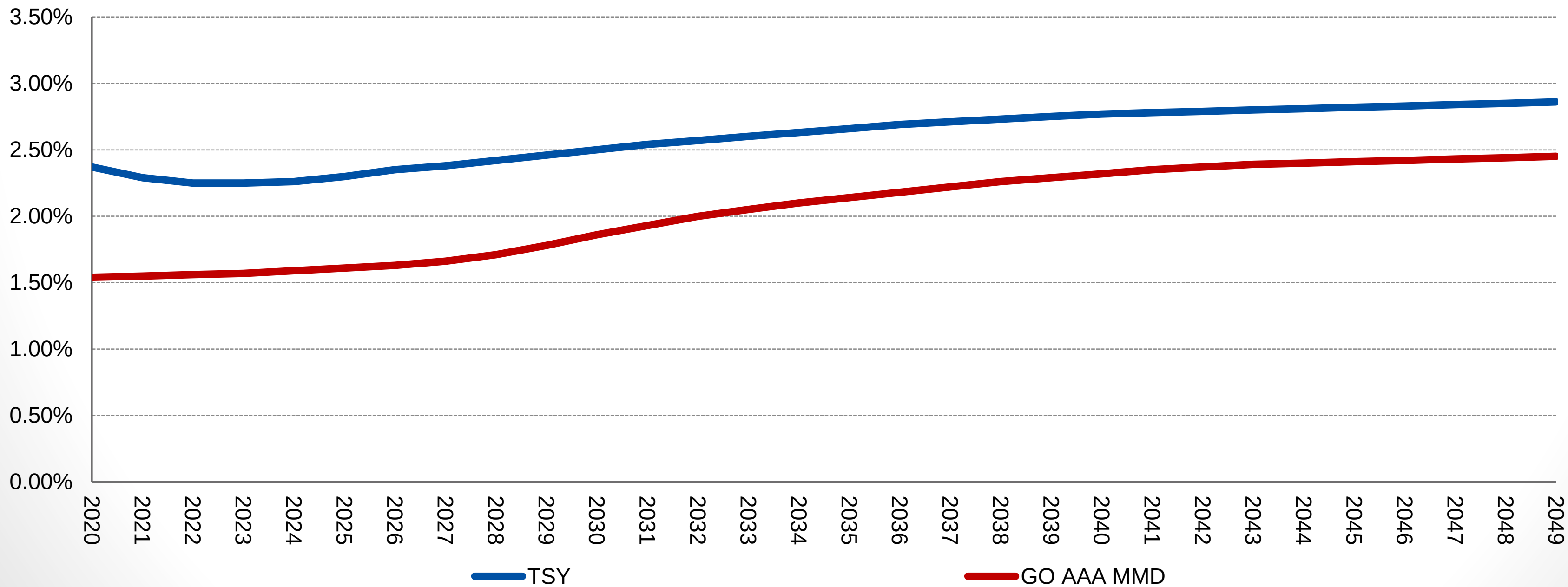
Advance Refundings with Taxable Bonds

Taxable bonds can be used to advance refund bonds with an escrow to the call date

Mechanics

- Long-term taxable bonds can be issued which are not subject to the yield restriction and arbitrage rebate rules accompanying tax-exempt bonds
  - Negative arbitrage in the escrow would still be a factor, just like in tax-exempt advance refundings
- Short-term taxable bonds can be issued which mature or are callable not earlier than 90 days before the call date of the refunded bonds
  - Once the these bonds are callable or mature, they can be refunded (or remarketed) at market tax-exempt interest rates
- Shape of the US Treasury yield curve is a factor in determining the economic viability of this structure
  - The current yield curve is relatively flat, providing a potential for substantial PV debt service savings
- Taxable yields are almost always higher than tax-exempt yields, especially on the short and intermediate parts of the yield curve, potentially reducing the savings compared to those realized in a tax-exempt advance refunding

US Treasury and MMD Yield Curves



Source: Thomson Reuters – The Municipal Market Monitor (TM3), as of May 8, 2019

Ohio Treasurer's CPIM Academy

Forward Delivery Bonds

Bonds are sold today with a long delivery period in the future

Mechanics

- Forward refunding is accomplished by entering into a bond purchase agreement or rate lock agreement with a bond purchaser for the purchase of tax exempt bonds to be issued not earlier than 90 days before the refunded bonds' call date
    - Due to credit and settlement risk, 12-18 months is typically the maximum forward period
- Forward premium is estimated at 4 to 6 basis points per month, but this eliminates future market risk on the refunding bonds
    - This forward premium, however, is an additional cost over current market yields for current delivery bonds
- This structure is best suited for bonds that have a call date within one year of entering into the rate lock agreement

Forward Delivery Timeline

Today — Approval and Documentation — **6/1/2019** — Forward Period — **12/1/2019**

1 **Today**

Begin refunding transaction and draft purchase/rate agreement

2 **Price Refunding Bonds**

Issue forward refunding bonds and sign documents (including purchase/rate agreement)

3 **Settlement**

Delivery of Funds / Refunding Bonds

Source: RBC Capital Markets

Taxable Build America Bonds Refunding Update

- The American Recovery and Reinvestment Act allowed state and local governments to issue taxable Build America Bonds ("BAB") that would receive federal subsidies to offset a portion (35%) of their interest cost
  - However, the subsidy is subject to sequestration reduction, i.e. the FY 2019 sequestration rate of 6.2% reduces the effective BAB interest rate subsidy to 32.83%
- Issuers can execute a tax-exempt advance refunding of the outstanding BABs to generate savings and eliminate exposure to federal sequestration
  - *While the Tax Cut and Jobs Act eliminates the advance refunding of outstanding tax-exempt bonds, it does not eliminate the ability to advance refund a taxable bond (when the original purpose of the bonds would qualify for tax-exempt financing)*
  - As long as the subsidy is "turned off," Treasury Department Associate Tax Legislative Counsel, John Cross, does not believe that this will trigger any tax issues; guidance from the Treasury is expected soon

Refunding Considerations:

- **Base Case – Future Current Refunding:** The District can wait until the call date to refund the BABs
  - This is the baseline scenario to use in the evaluation of alternative scenarios
- **Alternative I – Advance Refunding Today:** Assuming the preliminary conclusion on advance refunding BABs, the District could execute a tax-exempt advance refunding
  - The BAB subsidy payments *are not expected* to remain in effect once the BABs are legally defeased

Source: RBC Capital Markets

Short Call Option Considerations

- The passage of the Tax Cuts and Jobs Act eliminated the ability to advance refund tax exempt bonds
  - An advance refunding is defined as a refunding issue that closes greater than 90 days in advance of the stated call date of a bond issue
  - Tax exempt municipal issuers were permitted one advance refunding over the life of a bond issue

- A logical market adaptation could be the use of call options shorter than the typical 10 year call option

- RBC served on a number of Ohio local government transactions with shorter than typical call options in 2018

- Four of these transactions that would be of note are:
  - 5 Year Call Option - $36,700,000 Series 2018A & $9,825,000 Series 2018B Brunswick CSD UTGO School Construction Bonds (Priced 3/28/18 and 4/12/18)
  - 5 Year Call Option - $57,100,000 Series 2018A & $5,900,000 Series 2018B Highland LSD (Medina County) (Priced 4/10/18 and 5/1/18)
  - 5 Year Call Option - $6,750,000 Series 2018 Refunding bonds Richfield Joint Recreation District (Priced 8/28/18)
  - 8 Year Call Option - $22,000,000 Series 2018 COPS Cincinnati Public Schools (Priced 9/6/18)

- These transactions received substantial interest from investors and at yields lower than comparable 10 year call option bonds

- Some examples of major investors of long dated bonds with short call options have included:
  - Vanguard
  - Boston Company
  - Eaton Vance TABS
  - Franklin Funds
  - State Farm

Source: RBC Capital Markets

Ohio Ratings Update

- Moody's: Maintains 577 underlying ratings on counties, cities and school districts in Ohio
  - Approximately 66% of those Ohio local governments pass tax increases in May 2017
  - Ohio county sales tax grow revenue but at a slowing rate compared to 2015 and 2016 rates
  - School districts continue to rely on levy elections to grow revenue in September 2017 due to a decade of declining state aid for 75% of districts statewide

- S&P : Maintains 239 underlying ratings on counties, cities and school districts in Ohio
  - "stable in recent years" with "moderate tax revenue growth and good financial management" allowing "governments to build and maintain strong budgetary reserves"
  - "Despite cuts to state-shared revenue in recent years, most local governments in Ohio have addressed these cuts without credit deterioration. Overall, S&P Global Ratings has taken more positive than negative rating actions during the past few years."
  - The loss of sales tax revenue from Medicaid managed care services is the biggest risk for Ohio counties in the next few years.
  - Cities with weaker economies remain most vulnerable to credit pressure in light of lower state-shared revenue.
  - The recently approved state biennium budget holds funding relatively flat for most school districts.

Sources: Moody's Ohio based research publications in May, June and September, 2017
"Medians and Credit Factors: Ohio Local Government and School Districts" S&P September 19, 2017

Moody's Rating Agency Methodology

Moody's develops a scorecard comprised of 4 factors:

This indicative score can be further “notched” upward or downward based on qualitative factors, other pertinent statistics, or extreme results in any single statistic

Factor 1: Economy/Tax Base

Why it Matters
The ultimate basis for repaying debt is the strength and resilience of the local economy. The size, diversity, and strength of a local government’s tax base and economy drive its ability to generate financial resources. The taxable properties within a tax base generate the property tax levy. The retail sales activity dictates sales tax receipts. The income earners living or working in the jurisdiction shape income tax receipts. The size, composition, and value of the tax base, the magnitude of its economic activity, and the income levels of its residents are therefore all crucial indicators of the entity’s capacity to generate revenues.

Factor 2: Finances

Why it Matters
A local government’s fiscal position determines its cushion against the unexpected, its ability to meet existing financial obligations, and its flexibility to adjust to new ones. Financial structure reflects how well a local government’s ability to extract predictable revenues adequate for its operational needs are matched to its economic base.

Factor 3: Management

Why it Matters
Both the legal structure of a local government and the practical environment in which it operates influence the government’s ability to maintain a balanced budget, fund services, and continue tapping resources from the local economy. The legal and practical framework surrounding a local government shapes its ability and flexibility to meet its responsibilities.

Factor 4: Debt/Pensions

Why it Matters
Debt and pension burdens are measures of the financial leverage of a community. Ultimately, the more leveraged a tax base is, the more difficult it is to service existing debt and to afford additional debt, and the greater the likelihood that tax base or financial deterioration will result in difficulties funding fixed debt service expenditures.

*Description of “Why it Matters” from Moody’s Investors Service US Local Government G.O. Debt Rating Methodology

Adjustments or Mitigating Factors

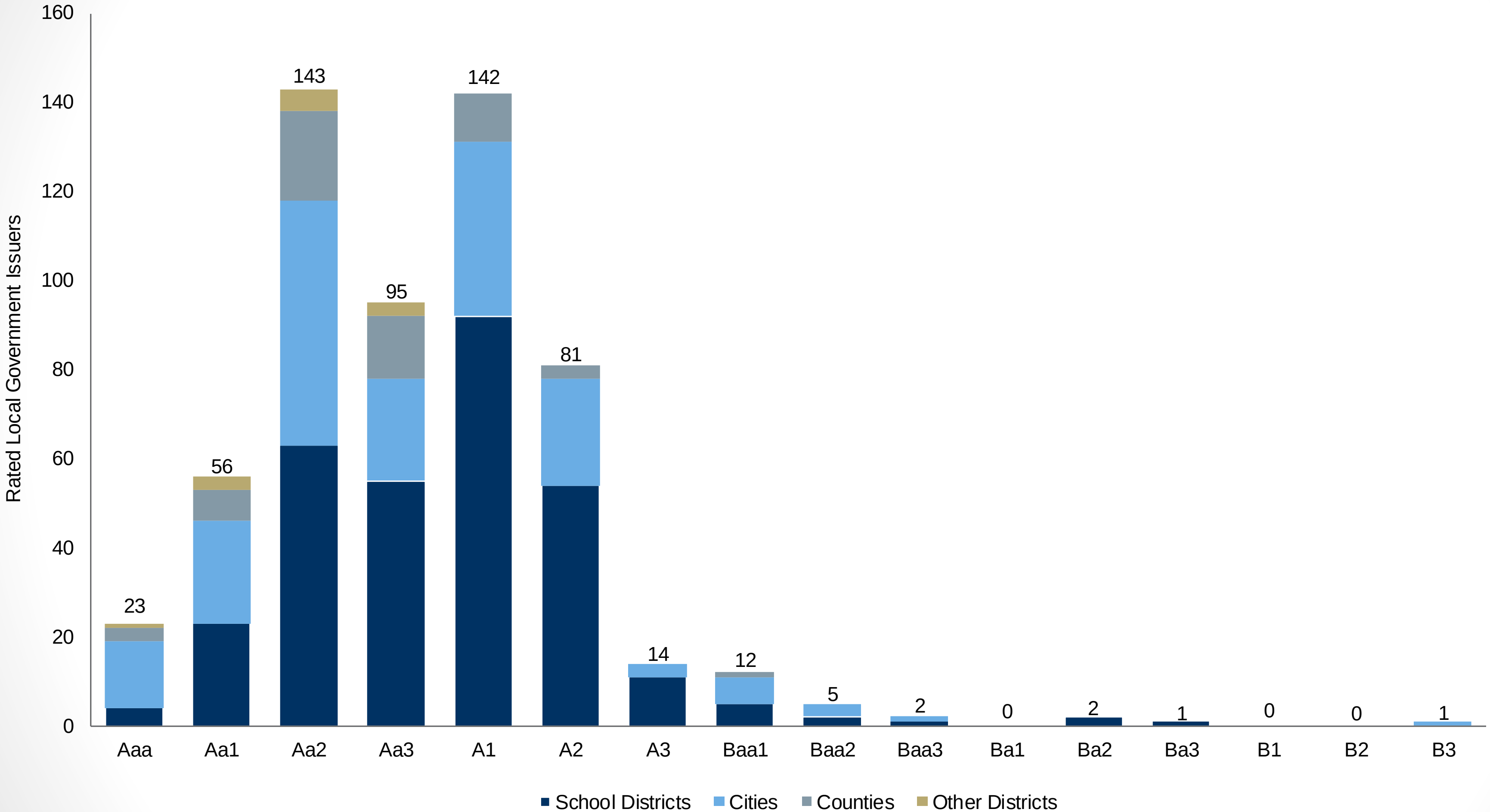
- The scorecard provides a grounds for discussion on certain quantifiable metrics used in the rating process, but the process still involves a significant degree of judgment
  - It is not a calculator. There are many qualitative factors that cannot be measured and overriding factors that are very important when making the final rating decision.
  - Below are some examples of adjustments that may be made to the rating:

+	−
Economy/Tax Base • Institutional presence • Regional economic center **Management** • Unusually strong budgetary management and planning **Debt/Pensions** • Unusually strong security features	**Economy / Tax Base** • Economic concentration • Outsized unemployment or poverty levels **Finances** • Outsized contingent liability risk • Unusually volatile revenue structure Management • Unusually weak budgetary management and planning **Debt / Pensions** • Unusually weak security features • Unusual risk poised by debt/pension structure • History of missed debt service payments

The analyst takes many factors into considerations, for both upward and downward adjustments
- State oversight or support
- Credit event/trend not yet reflected in existing data sets

Source: Moody's Investors Service, December 2018

Moody's Ohio Local Government Credit Rating Distribution

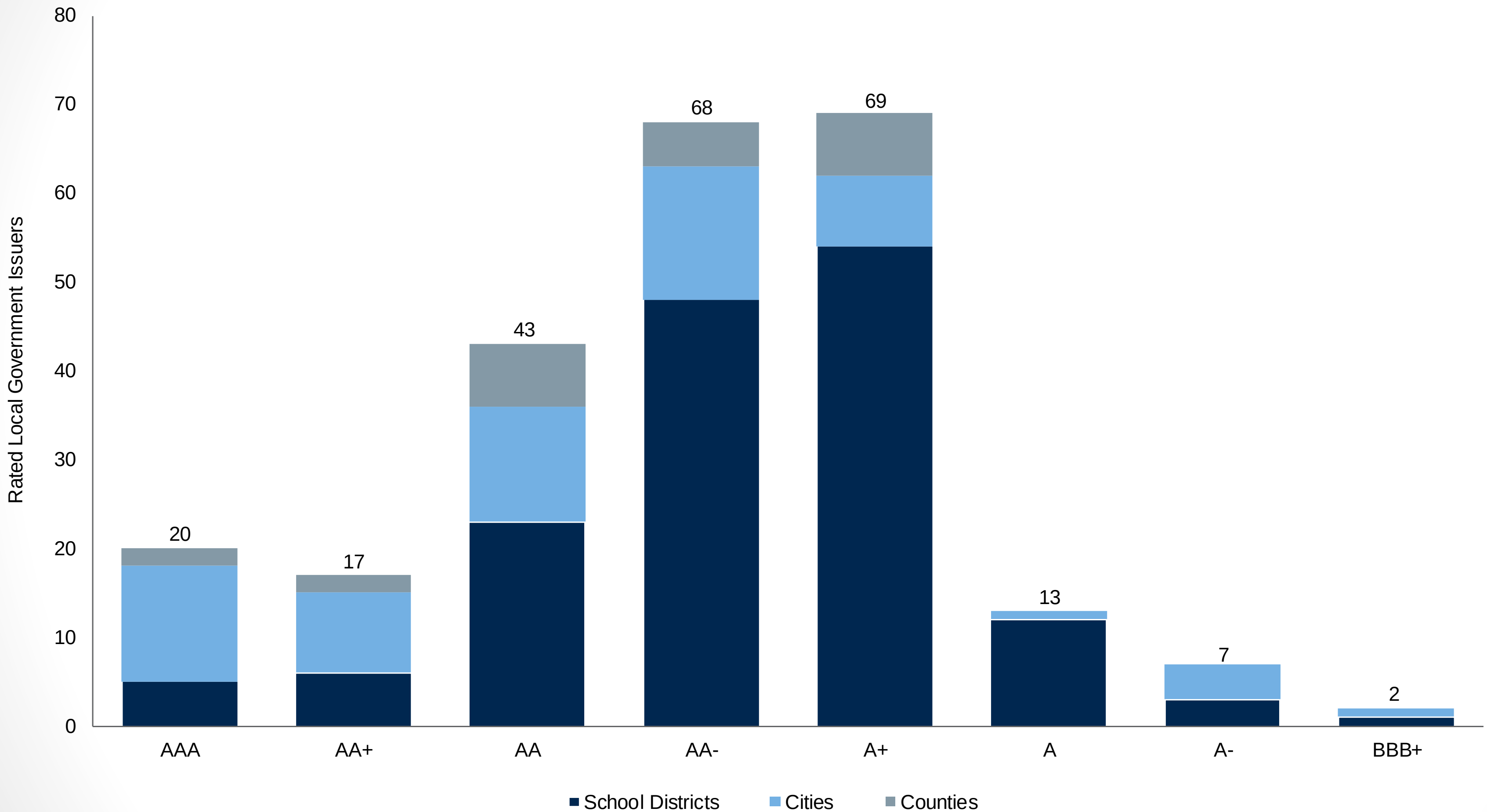


- Moody's currently rates 577 local governments in the state of Ohio, with the majority of local government issuers (50%) receiving either a Aa2 (25%) or A1 (25%) rating

Source: Moody's Investors Service, May 2018

Ohio Treasurer's CPIM Academy

S&P's Ohio Local Government Credit Rating Distribution



- S&P currently rates 239 local governments in the state of Ohio, with the majority of local government issuers (29%) receiving an A+ rating

Source: S&P Global Ratings, May 2018

MyCPIM Password