

Municipal Market Update

Week Ending February 23, 2018

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1. Macro Update

Global Macro Overview

	Feb 23, 2018	Year End 2017 Level	YTD Change (%)
DJIA	25,310	24,719	2.4%
S&P 500	2,747	2,674	2.8%
FTSE	7,244	7,688	-5.8%
Shanghai Composite	3,289	3,307	-0.5%
US Dollar / Euro	\$1.23	\$1.20	2.4%
Oil	\$63.55	\$60.42	5.2%
10-Year Bund Yield	0.65%	0.43%	22 bps
10-Year Treasury Yield	2.88%	2.41%	47 bps

	Feb. 23, 2018	Feb. 16, 2018	Δ Last Week	YTD Change (bps)
Treasury Rates				
5-Year	2.62%	2.63%	-1 bps	42 bps
10-Year	2.88%	2.87%	1 bps	48 bps
30-Year	3.16%	3.13%	3 bps	42 bps
	02/16/18	02/23/18	Last Week Change	Since Jan. 1, 2018
MMD				
10-Year	2.46%	2.45%	-1 bps	47 bps
17-Year	2.82%	2.83%	1 bps	49 bps
18-Year	2.85%	2.86%	1 bps	49 bps
LIBOR Swaps				
10-Year	2.90%	2.88%	-2 bps	49 bps
17-Year	2.99%	2.97%	-2 bps	47 bps
18-Year	3.00%	2.98%	-2 bps	46 bps

* Figures rounded



Source: Thomson Reuters and Bloomberg as of February 23, 2018; figures are rounded.

U.S. Rate Forecasts

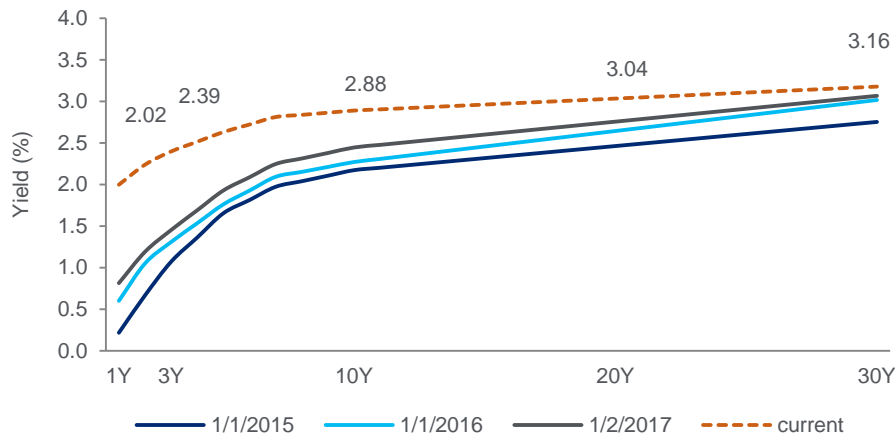
10-Year Treasury Yield Forecast

Citi forecasts a muted interest rate environment as we progress through the first half of 2018, while the street's is elevated



US Treasury Yield Curve

Investor are looking ahead to Fed Chair Powell's first Congressional appearance and for any clues on whether he anticipates 3 or 4 hikes this year



Rate Forecasts

5-Year Treasury	Current	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19
Citi's Forecast	2.62%	2.10%	2.25%	2.35%	2.40%	2.45%	2.50%

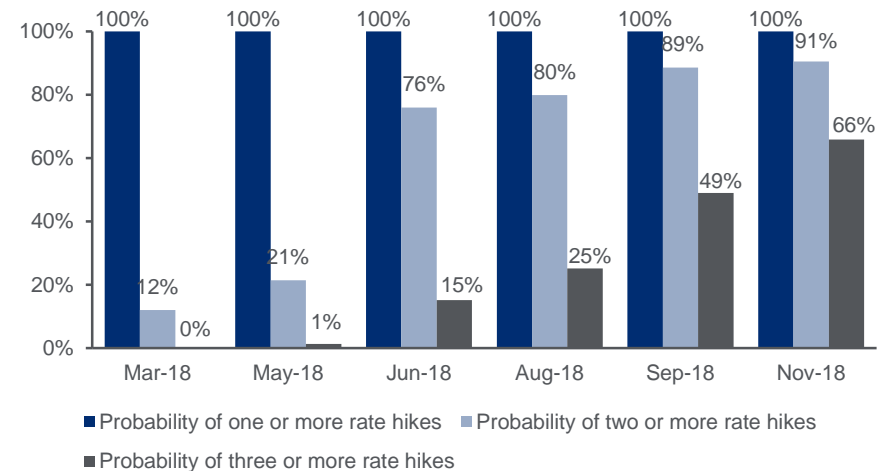
10-Year Treasury	Current	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19
Citi's Forecast	2.88%	2.50%	2.50%	2.55%	2.60%	2.70%	2.85%
Economists' Consensus	2.88%	2.75%	2.86%	2.95%	3.00%	3.15%	3.22%

30-Year Treasury	Current	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19
Citi's Forecast	3.16%	2.95%	2.95%	2.95%	2.95%	3.00%	3.10%
Economists' Consensus	3.16%	3.05%	3.20%	3.29%	3.40%	3.49%	3.59%

Fed Funds	Current	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19
Citi's Forecast	1.50%	1.75%	2.00%	2.25%	2.25%	2.50%	2.75%
Economists' Consensus	1.50%	1.75%	2.00%	2.25%	2.25%	2.50%	2.50%

Expectations of Next Fed Increase in Rates

The market currently anticipates three more rate hikes in 2018, with the next hike likely to come in March



Source: Current rates and expectation of Fed hike as of February 23, 2018; Citi forecasts as of February 22, 2018; Bloomberg forecasts as of February 23, 2018.

2. Municipal Market Update

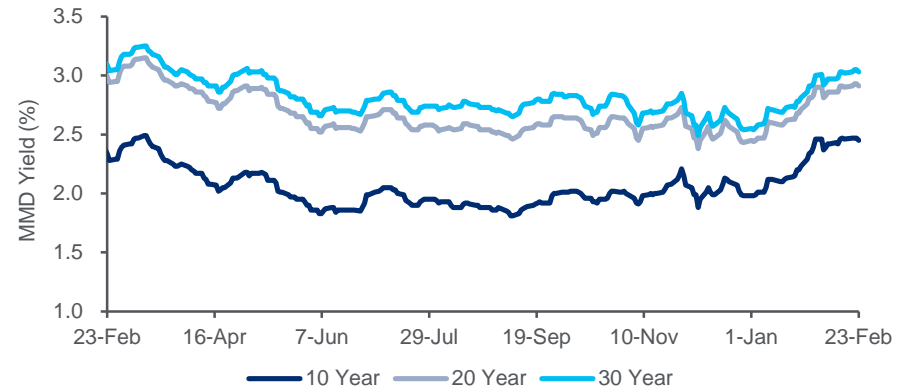
Municipal Market Update

Treasuries and Municipals finished the week mixed as equities rallied on account of continued economic strength and confidence that the Fed won't rush to raise interest rates as the economy picks up momentum.

Global Market Events:

- U.S. Markets:** Equities rallied as the S&P pushed above its 50-day moving average and posted its biggest gain in nearly three weeks. The Dow gained 1,119 points or 4.6% as the S&P rose 128 points or 4.88%
 - 10-yr. TSY yields ended 1bp weaker than last week at 2.88%, as investors dissected the Fed's semiannual monetary policy report to Congress and grew confident that the Jerome Powell-led Fed won't rush to raise interest rates as the economy picks up steam
 - The report indicated that the Fed sees the labor market at or beyond full employment, while some pockets of finance are showing signs of rising leverage and high valuation
 - Minutes of the Fed's January meeting indicated confidence the economy is strengthening amid signs of rising inflation
 - Volatility as measured by the VIX decreased from last week's 19.46 to finish at 16.49
- International Market Movements:** Investors reacted to the European Central Bank's most recent meeting, which showed policy makers aren't yet ready to remove a pledge to expand its asset-buying program if needed. In the U.K., the pound gained after Prime Minister May won the backing of her divided cabinet to seek a trade deal with the EU
- Commodities:** Oil gained for a second weekly increase supported by a surprise pullback in U.S. inventories, closing up 7.3% to \$63.55 per barrel

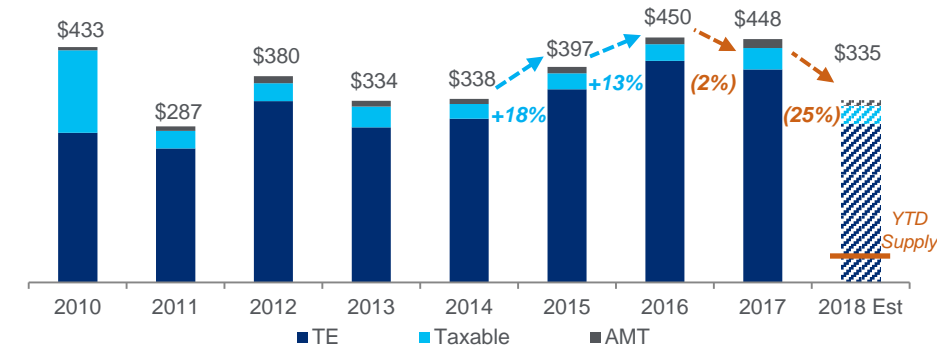
Municipal Market Data Yields¹ Trailing 12 Months



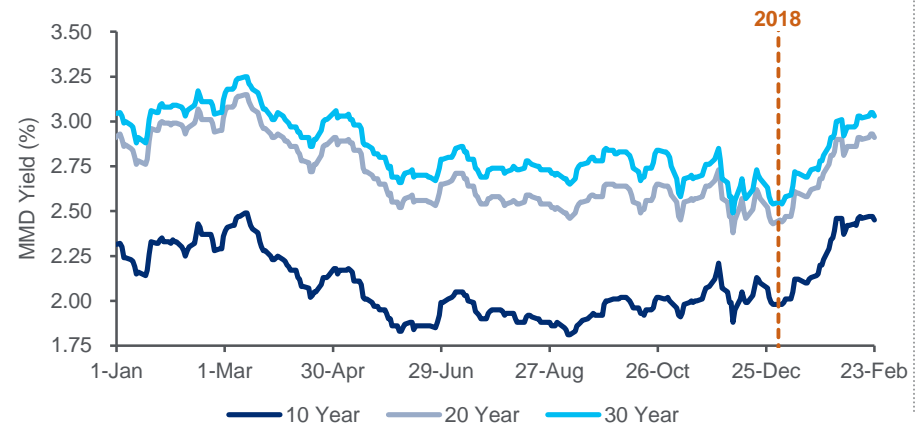
Gross Supply (\$B)²

2010 to 2018 Estimate

- Citi estimates a decrease of issuance in 2018 of ~25% to \$335bn. Year-to-date issuance now stands at ~\$32.5bn, around 43% lighter over the same time period last year



Municipal Rates¹ 2017 – 2018 YTD



1. Thomson Reuters and Bloomberg, rates as of February 23, 2018. 2. SDC, includes private placements, excludes notes; 3. Lipper fund flows as of February 21, 2018.

Upcoming Key Events and Economic Releases

February 2018				
M	T	W	T	F
			1 Jobless Claims Cont' Claims Markit PMI Const' Spend	2 Nonfarm Pay Unemployment Factory Orders Durable Goods U of Mich Sent
5 Markit PMI ISM Mfg	6 Trade Balance	7 Mortgage Apps	8 BoE Rate Decision Jobless Claims Cont' Claims	9 Wholesale Inv
12	13	14 Mortgage Apps CPI Retail Sales	15 Empite Mfg Jobless Claims Cont' Claims Industrial Prod PPI	16 Housing Starts U of Mich Sent
19 <i>HOLIDAY</i> <i>President's Day</i>	20	21 FOMC Meeting Minutes Mortgage Apps Markit PMI Ex Home Sales	22 Jobless Claims Cont' Claims Leading Index	23
26 N Home Sales	27 Fed Chair Jerome Powell's Congressional Testimony Durable Goods Consumer Confidence	28 Mortgage Apps GDP Core PCE		

March 2018				
M	T	W	T	F
			1 Personal Inc Personal Spend Jobless Claims Con't Claims	2 U of Mich Sent
5 Markit PMI	6 Durable Goods	7 Mortgage Apps Trade Balance	8 Jobless Claims Con't Claims	9 Nonfarm Payroll Unemployment Wholesale Inv
12	13 CPI	14 Mortgage Apps PPI Retail Sales	15 Empire Mfg Jobless Claims Con't Claims	16 Housing Starts Industrial Prod U of Mich Sent
19	20	21 Mortgage Apps E Home Sales FOMC Rate Decision	22 Jobless Claims Con't Claims H Price Index Markit Mfg PMI BoE Rate Decision	23 Durable Goods N Home Sales
26	27 Consumer Confidence	28 Mortgage Apps Wholesale Inv	29 Personal Inc Personal Spend Jobless Claims	30 U of Mich Sent

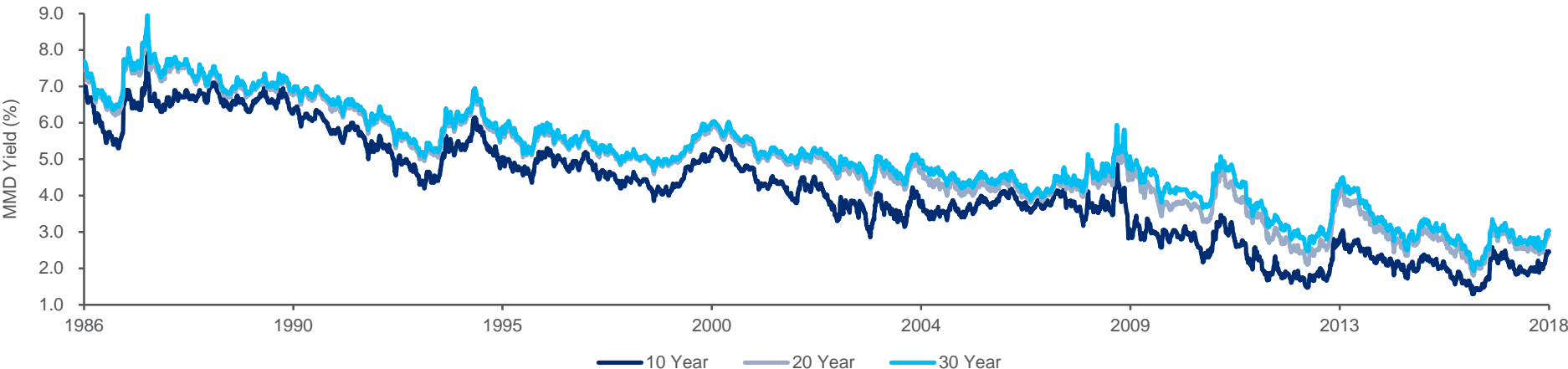
Blue: US Economic Events | Light Blue: World Economic Events | Orange: Significant U.S. Monetary or Fiscal Event | Grey: Holiday

3. Ratios and Rates Update

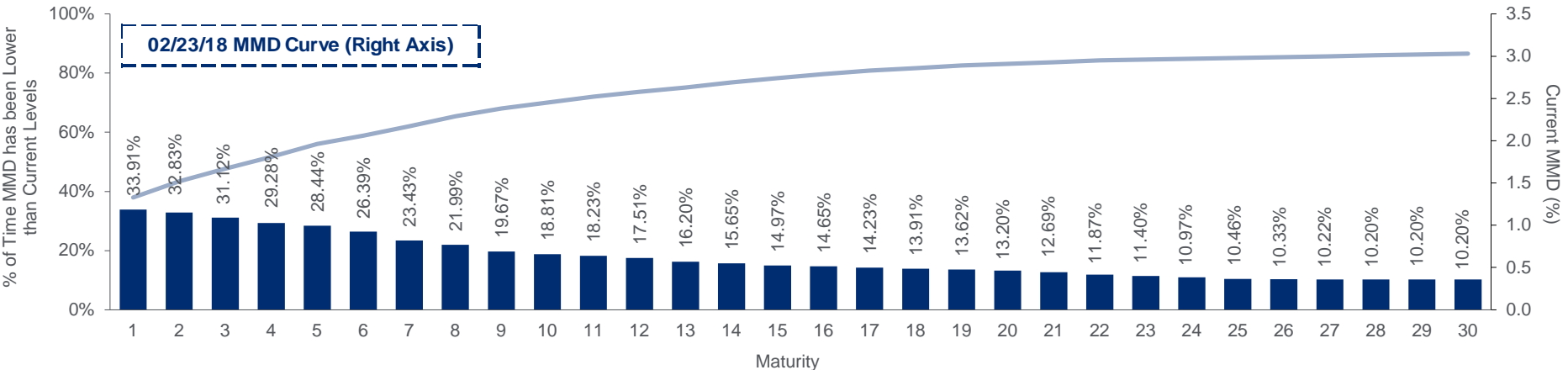
MMD in Historical Context

MMD continues to trend near historic lows with the current rate environment attractive to issuers, especially on the long end of the curve.

AAA G.O. MMD Yields (June 1, 1986 – February 23, 2018)



% of Time MMD has been Lower Since 1986



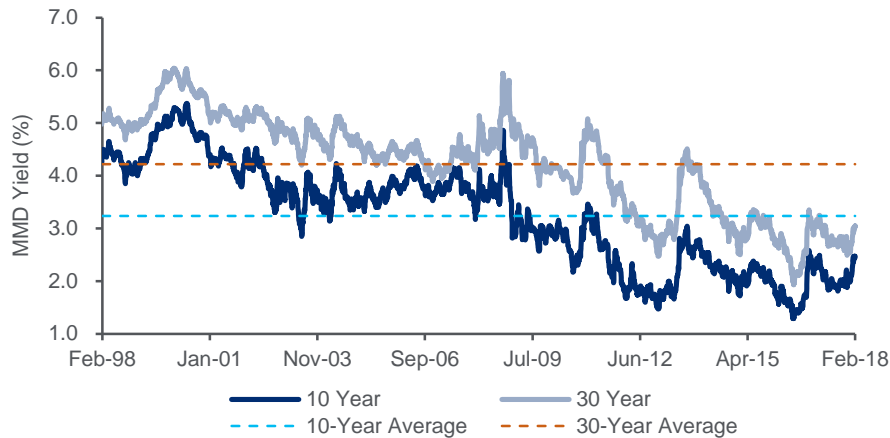
Source: Thomson Reuters, data as of February 23, 2018.



MMD and Volatility in a Historical Context

Municipal volatility has recently trended down from year-end 2017 highs surrounding tax reform as MMD continues to trade below historic averages.

AAA Municipal Market Data Yields¹ Trailing 20 Years



30-Year MMD Historical Annual Range¹

	Minimum (%)	Maximum (%)	Range
2009	3.81	5.08	127 bps
2010	3.67	4.85	118 bps
2011	3.44	5.08	164 bps
2012	2.47	3.57	110 bps
2013	2.69	4.51	182 bps
2014	2.75	4.20	145 bps
2015	2.50	3.36	86 bps
2016	1.93	3.35	142 bps
2017	2.49	3.25	76 bps
2018	2.54	3.05	51 bps

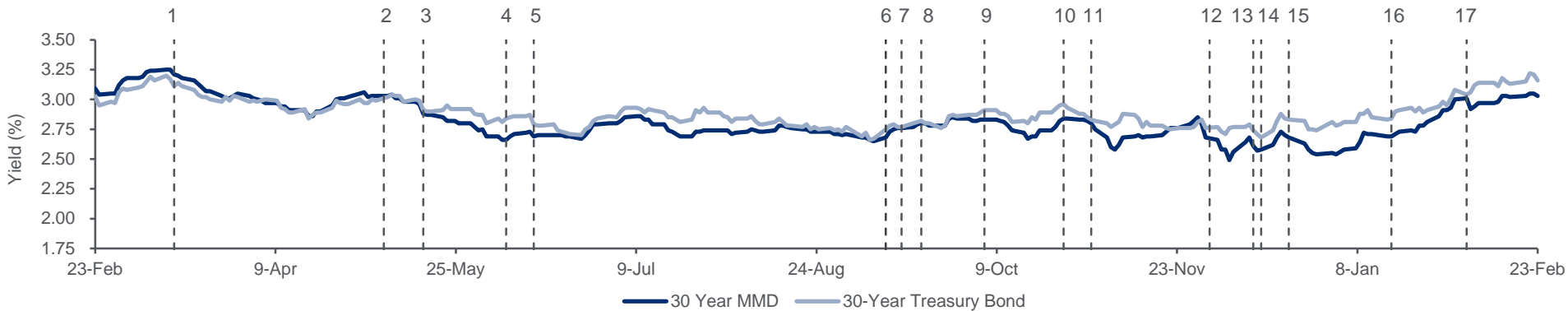
	Feb. 23, 2018	Feb. 9, 2018	Δ Last 2-Week	YTD Change (%)
Treasury Rates				
5-Year	2.62%	2.52%	10 bps	42 bps
10-Year	2.88%	2.83%	5 bps	48 bps
30-Year	3.16%	3.14%	2 bps	42 bps
MMD				
5-Year	1.96%	1.92%	4 bps	28 bps
10-Year	2.45%	2.42%	3 bps	47 bps
30-Year	3.03%	2.97%	6 bps	49 bps
Yield Ratio (MMD / Treasury)				
5-Year	74.8%	76.2%	-1.4%	-1.6%
10-Year	85.1%	85.5%	-0.4%	2.6%
30-Year	95.9%	94.6%	1.3%	3.2%

1. Thomson Reuters, data as of February 23, 2018.

Tax-exempt Bond Rates Relative to Treasuries

Treasury rates have exhibited abrupt movements in response to global economic headlines and announcements, with municipals moving in sympathy, but typically in a more muted fashion.

30-Year MMD and 30-Year Treasury Trailing 12-Months



Key Events Include

- 1) **March 15, 2017:** Fed raised rates by 25 bps, as expected, highlighting the strength in the economy. However, the Fed signaled that it still anticipates just 3 hikes this year, a dovish result for investors looking for a 4-hike signal
- 2) **May 7, 2017:** Emmanuel Macron beats Le Pen in French Election
- 3) **May 17, 2017:** Justice Dept. appoints a special counsel to investigate possible connections between Trump's campaign and Russia
- 4) **June 7, 2017:** James Comey testifies before the Senate Intelligence Committee
- 5) **June 14, 2017:** U.S. Federal Reserve hikes rates 25bps as expected to 1.00% – 1.25% and lays out balance sheet roll-off plan for later in 2017
- 6) **September 11, 2017:** In response to North Korea's latest and most powerful nuclear test, the UN Security Council unanimously votes to adopt a watered-down U.S. draft resolution imposing new sanctions
- 7) **September 15, 2017:** The Dow Jones, S&P 500 and Nasdaq all reached milestones as the indices hit fresh closing highs
- 8) **September 20, 2017:** The Fed holds rates steady and suggests one more rate hike by the end of the year, while announcing plans to start reducing its \$4.5 trillion balance sheet in October

Key Events Include

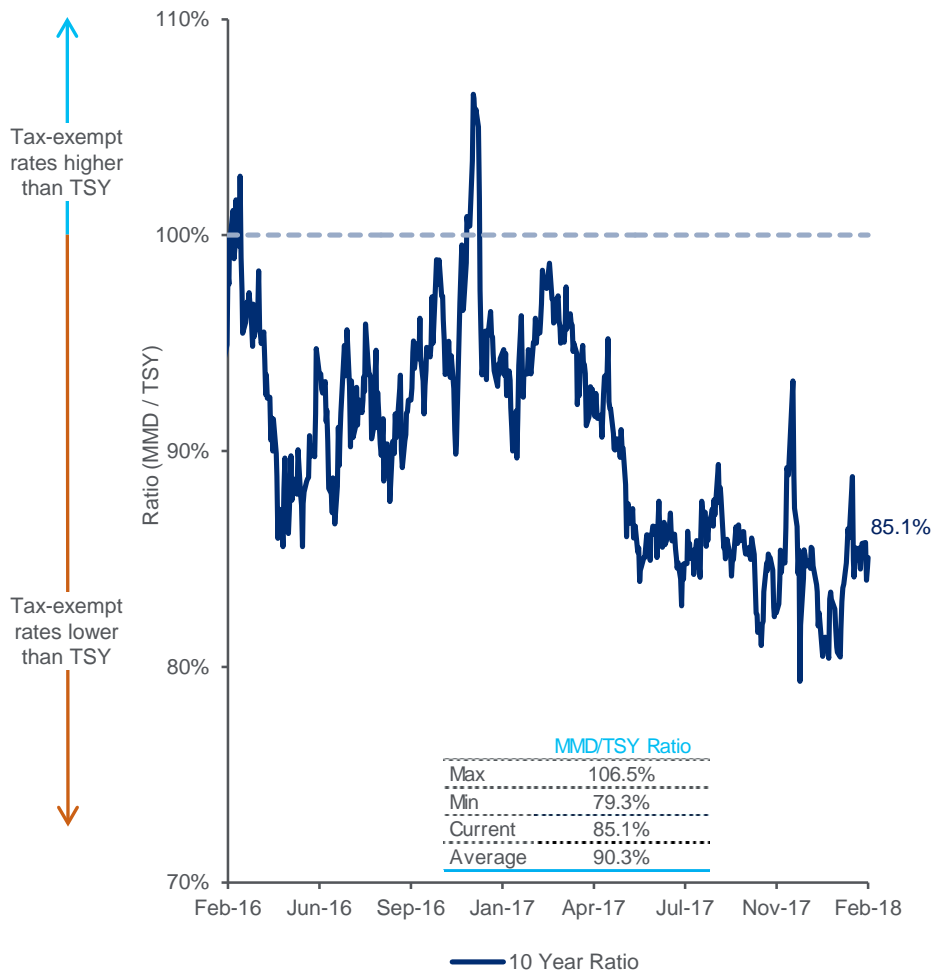
- 9) **October 6, 2017:** Hurricanes Harvey and Irma brought an end to a seven-year streak of positive U.S. payroll reports as 33K jobs were lost in September
- 10) **October 26, 2017:** The ECB delivered a "dovish taper," announcing that they will buy €30bn worth of European bonds each month starting in January and ending in September; down from the current €60bn per-month pace
- 11) **November 2, 2017:** House Republicans release their tax reform bill, with significant implications for municipals
- 12) **December 2, 2017:** The Senate passed its tax bill by a 51-49 vote. The Senate's bill prohibits advance refundings but preserves private activity bonds
- 13) **December 13, 2017:** The Fed raises rates by 25bps, as expected, and raises its forecast for economic growth in 2018, while sticking with a projection of three hikes
- 14) **December 15, 2017:** The Conference Report of the Congressional Conference Committee for the Tax Cuts and Jobs Act is released. Among key muni provisions, the report spares PABs and eliminates advanced refundings without any transition
- 15) **December 22, 2017:** President Trump signs the final tax bill into law
- 16) **January 17, 2018:** The Dow breaks above 26k for the first time and books its quickest 1,000 point gain ever (7 sessions)
- 17) **February 5, 2018:** Global stocks pare gains and sell-off after the Dow loses more than 1,000 points

Source: Thomson Reuters and Bloomberg, data as of February 23, 2018.

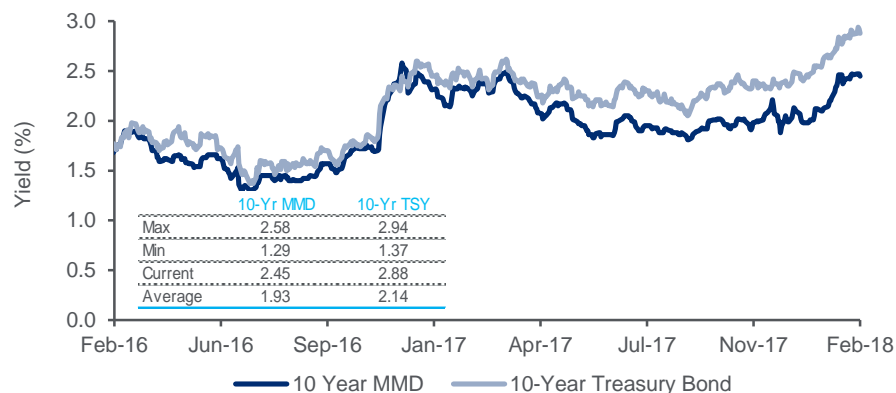
Tax-exempt Yields vs. Taxable Yields

Over the last two-weeks 10-Year Treasury yields weakened 5 bps as 10-Year Municipal yields weakened 3 bps. This has pushed ratios lower, with the 10-Year ratio finishing the week at 85.1%.

10-Year MMD/10-Year Treasury Ratio Prior Two Years

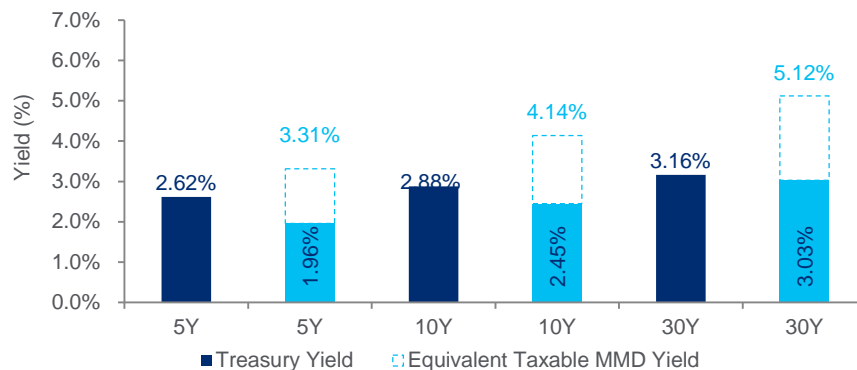


10-Year MMD and 10-Year Treasury Prior Two Years



Tax Equivalent Rates

Higher Tax Rates Make Municipals Attractive



Tax assumptions include: federal marginal tax bracket of 37% and the Affordable Care Act Tax of 3.8%, for a total federal tax assumption of 40.8%.

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Citi works with its clients in greenhouse gas intensive industries to evaluate emerging risks from climate change and, where appropriate, to mitigate those risks.

efficiency, renewable energy and mitigation