Morgan Stanley | RESEARCH

IDEA

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2019 US Muni Outlook | North America

5 Themes for '19

We start 2019 with a preference for munis, but expect a tricky 2H on Fed & GDP uncertainty. We enter the year with a credit barbell & and an overweight to hospitals, but expect to reduce credit & add duration risk over the course of the year if our macro forecast plays out.

1. A 'credit barbell' is a smart start for 2019: Sector selection in high grades doesn't diversify when spreads are tight. HY and HY-light credit does, even though it's overvalued. Hence, we'd pair an overweight to AAAs (of any stripe) with greater credit risk in key sectors like healthcare. We expect to scale back these riskier positions over the course of 2019 if data confirms our outlook for worsening macro conditions.

2. Munis gotta spend, and that's okay: Based on the historical lag between good economic conditions & muni capital spending, we forecast gross supply of $358bn, including new money issuance of $261bn (a post-crisis record). Risks to this outlook are skewed to the upside given 'mega-deals' under consideration. Still, we think these levels will be manageable for the market in 2019.

3. Expect a tricky 2H: A Q3 growth slowdown, pause in Fed hikes & a surprisingly early end to balance sheet normalization (all of which we expect) creates uncertainty. Around this time, muni excess returns could show weakness, as rates volatility biases ratios higher & growth concerns bias spreads wider.

4. What if Puerto Rico exits 'bankruptcy' early? We don't expect this to happen until 2H at the absolute earliest, but it's another reason we may exercise credit caution as the year progresses. Restructured Puerto Rico debt could be 20-30% of the HY index. This could crowd out muni HY demand, biasing spreads wider.

5. If we're wrong…a rising rates playbook: Rising rates in our bear case would present complications to munis. For example, a 100bp rise across the curve brings 20% of the market into de minimis. If this is closer to your base case, we'd recommend a barbell with money markets to capture the steepness of the ratio curve. Don't fall into the "intermediates" trap - they don't offer much protection from rising rates, in our view.

On the "cutting room floor": Our team analyzed several other questions that did not appear to be key market drivers, but are notable. These included:

- Should we worry about OPEB this year?
- Will the new governors impact state credit quality?
- Where are there problems in Higher Ed?
- Will advance refunding alternatives grow this year?

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Exhibit 1: Summary of Key Forecasts

Key Forecasts	Base	Bull	Bear	Investor Survey
Muni Total Returns	**5.1%**	8.3%	-0.5%	
Muni Excess Returns	**1.4%**	1.7%	0.5%	
10Y MMD Forecast (%, 2019Q4)	**2.42**	1.91	3.29	
30Y MMD Forecast (%, 2019Q4)	**2.88**	2.55	3.83	
10Y MMD/UST Ratio	**88%**	85%	90%	80-90%
30Y MMD/UST Ratio	**101%**	98%	105%	91-100%
Gross Supply ($bn)	**358**	370	333	301 - 350
Net Supply ($bn)	**5**	9	0	

Source: Morgan Stanley Research forecasts

Our Key Principles & What They Mean for 2019

1. You're more macro investor than you think: A bias toward flatter and lower yield curves supports demand & excess returns, making a 'credit barbell' reasonable despite HY at overvalued levels.

2. Supply still doesn't matter: New money supply should reach a post-crisis record, but is insufficient to be a market negative.

3. Long duration remains home base: A still-steep ratio curve biases us toward long duration over the course of 2019, assuming data start to hint at a growth slowdown, per our expectations. We start the year a bit more hedged, though, given expectations of near-term data strength. We like using a flat curve to pair money markets & 20+ year maturities to build a duration-neutral portfolio.

4. Sovereign risk is real in munis: We see general government credit cyclicality risks as underpriced. Yet favorable demand dynamics, economic growth, and incoming muni fundamental data should keep these concerns at bay to start the year.

Navigating '19

- We start the year preferring munis relative to USD fixed-income alternatives as we think macro conditions make for a favorable excess returns environment. We see 10Y ratios in a range of 85-90%.
- However, this gives way to substantial uncertainty in 2H on a murky US economic & Fed outlook.
- Hence, investors should pursue a strategy that accounts for near-term favorable conditions, with optionality for adjustments as 1H progresses.
- We'd enter the year with a credit barbell, featuring high grades and high yield-light, that is, benchmark-neutral. We'd add credit risk in hospitals, tax-secured, and utilities; add sector risk in hospitals & tobacco; reduce sector risk in higher ed. Together, this provides diversification benefits and optionality to change allocations as 2H macro conditions become more clear.
- If our macro outlook for 2H holds, we expect to reduce credit risk and add duration over the course of the year.

The 'Late-Cycle Haven' Continues as 2019 Begins

Coming into 2019, we see many of the same conditions that made munis behave as a 'late-cycle haven', sustaining tight spread levels and providing tax-adjusted excess returns vs. Treasuries and corporates. In particular

- **A US growth slowdown means a UST path that supports muni demand:** Remember our first principle of muni investing - you're more macro investor than you think. Muni investing is often less about getting credit fundamentals right and more about observing macro dynamics and valuations. That's because total returns and interest rates volatility, both influenced by the Treasury market and, by extension, broader macro conditions, tend to be a primary driver of muni market demand unless systemic credit stress is showing. We don't think that will be the case to start the year as we discuss later. Hence, we must focus on the path for US Treasury rates, which seems a benign one for munis. Our rates strategy team sees a bias toward modestly lower yields over 2019, supporting muni total returns and demand (see Exhibit 2). That is a friendly backdrop for excess returns, particularly given the challenges facing munis' closest competitor, corporate credit.
- **There's 'late-cycle' upside in supply, and that's OK.** We expect muni bond issuance to grow again in 2019, about 5% to $358B, driven by new money borrowing. Our model expects this outcome because it is historically typical behavior for municipalities to borrow and spend more on capital projects when the economy has been demonstrably good in the previous year. While we expect some investors will fret about the growing calendar, we adhere to our 2nd principle of muni investing - supply doesn't matter. Said differently, there's no reliable relationship between changes in supply levels and market performance. Hence we expect the positive demand dynamic to be more prominent to start the year.

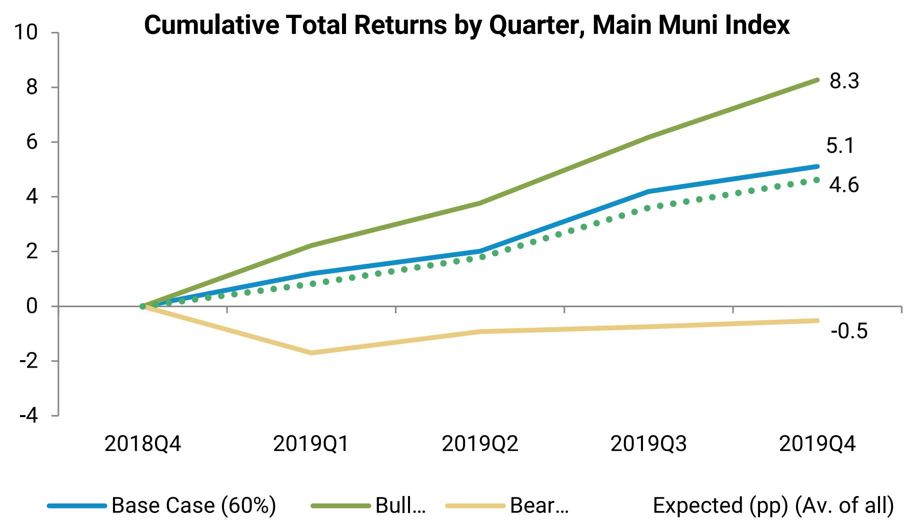
- **Relative credit quality should hold up...for now.** Here we account for our 4th principle of muni investing - sovereign risk is real. The muni market has become better at pricing the reality of state and local credit's procyclicality and potential for bondholder losses, but we still see those risks as underpriced broadly. That said, favorable demand dynamics, economic growth and solid muni fundamentals should be the norm to begin 2019. This is helped by the lag in muni financial reporting, and resulting historical lag in rating agency action ahead of economic downturns. Altogether, this should keep spreads near multi-year tights for the time being.

Exhibit 2: Cumulative returns forecast & ratio forecast

Cumulative Returns	Base Case (60%)	Bull (20%)	Bear (20%)	Expected (pp) (Av. of all)	Ratio Forecast	Base	Bull	Bear
2018Q4	0.0	0.0	0.0	0.0	2Y	72%	75%	81%
2019Q1	1.2	2.2	-1.7	0.8	3Y	78%	78%	82%
2019Q2	2.0	3.8	-0.9	1.8	5Y	80%	78%	84%
2019Q3	4.2	6.2	-0.8	3.6	10Y	88%	85%	90%
2019Q4	5.1	8.3	-0.5	4.6	20Y	99%	96%	103%
2019 Excess	*1.4*	*1.7*	*0.5*	1.3	30Y	101%	98%	105%

Source: Morgan Stanley Research

Exhibit 3: Returns path



Source: Morgan Stanley Research

Challenges & Potential Surprises Make 2H19 More Difficult

While the early part of 2019 may feel like 'Goldilocks' to muni investors, we expect complications to emerge in 2H. These should mostly be macro driven, though some muni-specific surprises could exacerbate market conditions.

As we discuss later in the report, the biggest challenge to munis in our macro forecast is in the 3rd quarter, when our economists expect GDP growth to slow, inflation growth to rise, and the Fed to pause as it sorts out this confusing set of economic data. These conditions may lead to declining investor sentiment beginning in Q2, with some seeing weaker economic data as a sign that recession probabilities have risen, and others seeing higher inflation data as a sign the Fed will have to hike more into a weak growth environment bringing a recession forward. Assuming munis enter into this period of uncertainty with valuations as they are (i.e., multiyear tights in spreads, ratios hovering near multiyear lows), we would expect an upward bias to muni risk premiums. Higher credit spreads would reflect growth concerns. Higher ratios would also reflect those concerns, as well as the UST rates volatility that would typically accompany such uncertainty.

Another point we highlight further in our report is the potential for a negative technical surprise later in the year: the reemergence of Puerto Rico debt. While the timing is uncertain here, there's scope for Puerto Rico to issue a substantial amount of debt, upon finishing restructurings of key parts of its capital structure. That would mean Puerto Rico could account for as much as 20-30% of the muni high yield index, crowding out demand for high yield and high yield-lite names that have benefited from the dearth of paper in the market.

Strategic Implications

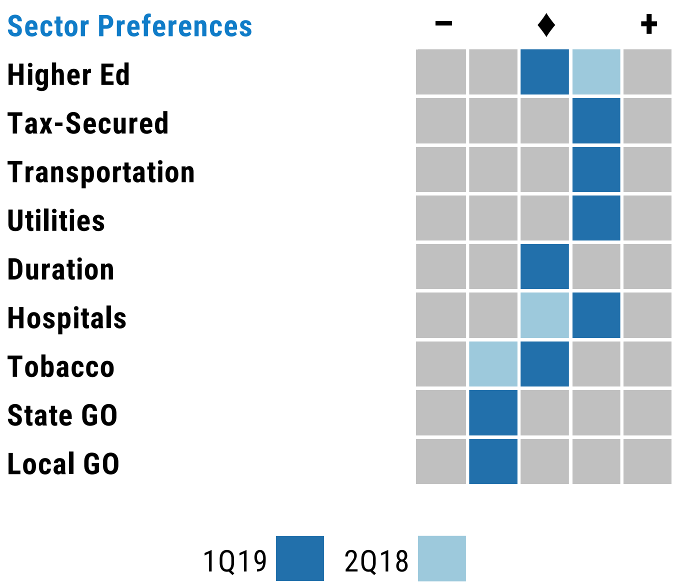
Given the above, we offer a set of recommendations to start the year, as well as guidance on how we expect our attitudes toward the market will change if our broader macro forecast plays out.

Principles to Start 2019

- **Credit Strategy - A Credit Risk Barbell**; **Move Hospitals to Overweight:** Our study of sector diversification (see A "credit barbell" is a smart start for 2019) shows that sector selection does little to improve risk-adjusted returns in high grades, but does provide benefits when one moves down in credit quality. Given the favorable demand backdrop discussed earlier, we therefore see value in constructing a portfolio that matches high grade and high-yield sectors to create a benchmark neutral credit risk weighting. Thus we can avoid the mid-range of ratings, which are spread tightly, while enjoying carry benefits. As for sectors we would prefer in this allocation, we're elevating hospitals to overweight.

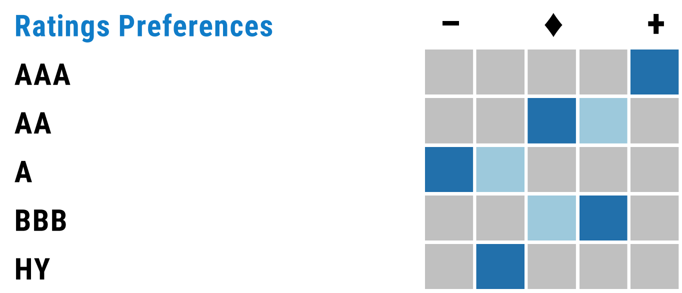
- **Duration neutral:** While we expect Treasury yields to decline over the course of the year, particularly in 2H after growth concerns become evident. If they do not become evident, the bear case for rates kicks in and yields could move higher. Given that risk/reward balance, we think it prudent to keep portfolios neutral vs. benchmarks on duration to start the year.

Exhibit 4: Sector preferences



Source: Morgan Stanley Research

Exhibit 5: Credit ratings preferences



Source: Morgan Stanley Research

2H Challenges Pull Us Away from Credit & Toward Duration Over the Course of the Year

We expect to have more confidence in our forecasts for 2nd-half growth and inflation challenges as forward-looking data are published in Q2. Assuming our economists' base case is strengthened, we would be inclined to provide guidance to trim credit risk and add duration risk to portfolios. The former recommendation will be even more compelling if we begin to get indications that Puerto Rico is nearing the final stages of its restructuring and debt issuance.

A "credit barbell" is a smart start for 2019

As muni credit spreads compress for yet another year, we reassess our sector framework. In brief: **as long as spreads are tight, we argue sector selection doesn't matter that much for high grade portfolios.** Said differently: **we like a credit barbell to start the year - an overweight to AA/AAAs (of any stripe) paired with deep credit research in healthcare, tobacco, utilities & transportation.**

Why recommend a credit barbell *now*? In fact, why own *any* HY now? After all, credit spreads are at multi-year tights, and **in general we think HY is *still* overvalued** (see *HY Stress*, September 5, 2018). The short answer is that spread tightening makes *everything* more difficult, especially sector selection among high grades.

Exhibit 6: AAA is its own sector: if a portfolio is highly rated, sector choices become less meaningful

10Y, 5%, issued in 2016.
Aa-AAA from both agencies, no AA-/Aa3

	n	% End Weight	YTD Excess Return
Education	**197**	32.20	0.09
Government	**166**	27.95	-0.16
Health Care	**14**	2.44	0.25
Industrial Economic Develop	**9**	1.58	0.09
Transportation	**35**	5.76	-0.06
Utilities	**116**	19.30	0.08

Source: Morgan Stanley Research, Bloomberg. N = 623

A sample portfolio of AA & AAA 10Y bonds showed hardly any difference in excess returns across sectors: there simply was not enough spread to begin with for sector choices to matter.

Sector selection only works - that is, sector selection only diversifies - when it is done as part of what we might call a "deep credit" approach. Healthcare, Tobacco, Power and Corporate Backed munis all diversify; Higher Ed and Transportation generally do not. It appears this is largely a function of (1) credit risk and (2) proximity to general government credit.

Exhibit 7: Sector correlation matrix

	IG	**HY**	NR	A	BBB	**BB**	GO	Hghr. Ed	Stu. loan	Life care	**Nursing Home**	Multi Family Housing	Single Family Housing	Land Backed	Air	Port	Toll Road	Res. Recov.	Power	Water Sewer	Approp	Ded. Tax	Incr. Tax	**Corp Backed**	Tob.
IG	1	0.72	0.88	1	0.95	0.73	1	1	0.96	0.92	0.81	0.94	0.93	0.92	0.99	0.99	0.99	0.95	0.94	1	0.99	0.96	0.92	0.87	0.71
HY	0.72	1	0.76	0.72	0.78	1	0.73	0.71	0.67	0.76	0.68	0.7	0.66	0.72	0.72	0.72	0.73	0.7	0.8	0.71	0.76	0.81	0.69	0.73	0.84
NR	0.88	0.76	1	0.88	0.88	0.77	0.87	0.89	0.84	0.94	0.81	0.89	0.87	0.93	0.89	0.87	0.89	0.85	0.83	0.88	0.87	0.85	0.84	0.85	0.73
A	1	0.72	0.88	1	0.95	0.73	0.99	0.99	0.96	0.93	0.82	0.95	0.92	0.92	0.99	0.99	0.99	0.95	0.93	0.99	0.98	0.96	0.93	0.88	0.71
BBB	0.95	0.78	0.88	0.95	1	0.78	0.94	0.94	0.89	0.92	0.81	0.91	0.88	0.9	0.94	0.94	0.94	0.9	0.92	0.94	0.94	0.96	0.88	0.86	0.75
BB	0.73	1	0.77	0.73	0.78	1	0.73	0.72	0.68	0.77	0.69	0.71	0.67	0.73	0.73	0.73	0.74	0.71	0.8	0.72	0.77	0.81	0.7	0.74	0.84
GO	1	0.73	0.87	0.99	0.94	0.73	1	0.99	0.96	0.9	0.8	0.93	0.92	0.91	0.98	0.98	0.99	0.95	0.94	0.99	0.99	0.96	0.91	0.86	0.7
Higher Ed	1	0.71	0.89	0.99	0.94	0.72	0.99	1	0.95	0.93	0.81	0.95	0.93	0.93	0.99	0.99	0.99	0.95	0.93	1	0.98	0.95	0.92	0.87	0.71
Student loan	0.96	0.67	0.84	0.96	0.89	0.68	0.96	0.95	1	0.88	0.77	0.89	0.88	0.89	0.95	0.95	0.94	0.93	0.9	0.95	0.95	0.92	0.9	0.83	0.64
Lifecare	0.92	0.76	0.94	0.93	0.92	0.77	0.9	0.93	0.88	1	0.85	0.92	0.88	0.92	0.93	0.93	0.93	0.89	0.87	0.92	0.91	0.89	0.88	0.86	0.73
Nursing Home	0.81	0.68	0.81	0.82	0.81	0.69	0.8	0.81	0.77	0.85	1	0.82	0.77	0.8	0.82	0.82	0.82	0.78	0.75	0.81	0.8	0.79	0.75	0.74	0.65
Multi Family Housing	0.94	0.7	0.89	0.95	0.91	0.71	0.93	0.95	0.89	0.92	0.82	1	0.97	0.9	0.94	0.94	0.94	0.89	0.87	0.94	0.93	0.9	0.89	0.85	0.67
Single Family Housing	0.93	0.66	0.87	0.92	0.88	0.67	0.92	0.93	0.88	0.88	0.77	0.97	1	0.89	0.91	0.91	0.91	0.86	0.86	0.92	0.92	0.88	0.86	0.81	0.62
Land Backed	0.92	0.72	0.93	0.92	0.9	0.73	0.91	0.93	0.89	0.92	0.8	0.9	0.89	1	0.92	0.92	0.92	0.88	0.87	0.92	0.91	0.89	0.88	0.83	0.68
Air	0.99	0.72	0.89	0.99	0.94	0.73	0.98	0.99	0.95	0.93	0.82	0.94	0.91	0.92	1	0.99	0.99	0.95	0.92	0.99	0.98	0.95	0.92	0.88	0.71
Port	0.99	0.72	0.87	0.99	0.94	0.73	0.98	0.99	0.95	0.93	0.82	0.94	0.91	0.92	0.99	1	0.99	0.95	0.93	0.99	0.98	0.95	0.92	0.87	0.71
Toll Road	0.99	0.73	0.89	0.99	0.94	0.74	0.99	0.99	0.94	0.93	0.82	0.94	0.91	0.92	0.99	0.99	1	0.95	0.93	0.99	0.98	0.96	0.92	0.88	0.72
Res. Recov.	0.95	0.7	0.85	0.95	0.9	0.71	0.95	0.95	0.93	0.89	0.78	0.89	0.86	0.88	0.95	0.95	0.95	1	0.89	0.95	0.94	0.91	0.89	0.84	0.68
Power	0.94	0.8	0.83	0.93	0.92	0.8	0.94	0.93	0.9	0.87	0.75	0.87	0.86	0.87	0.92	0.93	0.93	0.89	1	0.93	0.94	0.94	0.86	0.82	0.71
Water Sewer	1	0.71	0.88	0.99	0.94	0.72	0.99	1	0.95	0.92	0.81	0.94	0.92	0.92	0.99	0.99	0.99	0.95	0.93	1	0.98	0.95	0.92	0.87	0.71
Approp	0.99	0.76	0.87	0.98	0.94	0.77	0.99	0.98	0.95	0.91	0.8	0.93	0.92	0.91	0.98	0.98	0.98	0.94	0.94	0.98	1	0.96	0.93	0.88	0.71
Ded Tax	0.96	0.81	0.85	0.96	0.96	0.81	0.96	0.95	0.92	0.89	0.79	0.9	0.88	0.89	0.95	0.95	0.96	0.91	0.94	0.95	0.96	1	0.88	0.85	0.73
Incr. Tax	0.92	0.69	0.84	0.93	0.88	0.7	0.91	0.92	0.9	0.88	0.75	0.89	0.86	0.88	0.92	0.92	0.92	0.89	0.86	0.92	0.93	0.88	1	0.94	0.67
Corp Backed	0.87	0.73	0.85	0.88	0.86	0.74	0.86	0.87	0.83	0.86	0.74	0.85	0.81	0.83	0.88	0.87	0.88	0.84	0.82	0.87	0.88	0.85	0.94	1	0.72
Tob.	0.71	0.84	0.73	0.71	0.75	0.84	0.7	0.71	0.64	0.73	0.65	0.67	0.62	0.68	0.71	0.71	0.72	0.68	0.71	0.71	0.71	0.73	0.67	0.72	1

Source: Morgan Stanley Research, S&P Dow Jones Muni Indices. Weekly correlations to March 2012. N = 347 per sector

Similarly, sector spreads to MMD only begin to meaningfully vary between sectors when you look at BBB-rated credits and lower:

Exhibit 8: Average current MMD spread for 5% coupon bonds issued in 2017

	Education	General	General Obligation	Higher Education	Medical	Power	School District	Transport	Water	Range	Std Dev
AAA	25	13	7	5		5	14		5	20	7.0
AA	29	18	16	19	34	4	15	17	12	30	8.3
A	31	40	47	39	57	32	33	43	43	25	7.7
BBB	107	94	133	85	86	95		79	106	54	16.2

Source: Morgan Stanley Research, MSRB, MMD. N = 33,000.

Further, ratings outlooks only begin to diverge at single-A credits and below.

Exhibit 9: Few AAAs are on negative outlook

98% of AA credits are on stable outlook, yet only 83% of Single-As are

	Negative	Positive	Stable		Negative	Positive	Stable
AAA	0.2%	0.0%	99.7%	BBB	3.1%	9.2%	82.7%
AA+	0.3%	1.5%	98.2%	BBB-	3.4%	2.4%	91.4%
AA	1.1%	1.0%	97.8%	BB+	5.3%	2.3%	85.1%
AA-	2.1%	0.8%	97.0%	BB	31.0%	2.5%	52.5%
A+	6.5%	3.2%	89.8%	BB-	9.9%	8.2%	70.6%
A	18.7%	2.7%	77.0%	B+	3.6%	3.9%	71.0%
A-	4.5%	6.4%	82.2%	B	3.8%	1.5%	78.0%
BBB+	2.6%	5.6%	85.7%	B-	1.3%	0.0%	0.7%

Source: Morgan Stanley Research, S&P Ratings, S&P Dow Jones Muni Indices. Long Term Rating Outlook only. N = 149,000.

A deep credit approach also tends to be more profitable when applied to a new issue trading strategy: healthcare and housing have historically performed better on the break.

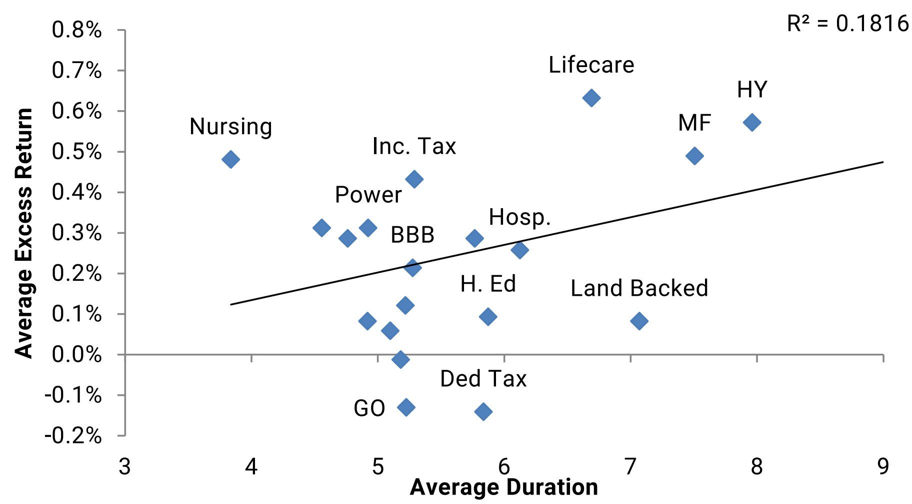
Exhibit 10: New issue spread compression tends to vary across sector

Rating	Education	General	General Obligation	Higher Education	Housing	Medical	Multifamily Hsg	Nursing Homes	Power	School District	Trans	Water	Average
NR	-5	-24	-47							-4		-63	-34
AAA	-4	-2	0	-6			-6		8	-3		-2	-2
AA+	-8	-2	-1	-7			1			-6	0	-5	-4
AA	-18	-15	-4	-10	-4	-8	2	-70	-18	-12	-5	-13	-10
AA-	-14	-10	-5	-6	1	-14		-45	-10	-11	-4	-6	-9
A+	-16	-13	-10	-6	-8	-13	-20	-14	-6	-10	0	-10	-9
A	-15	-11	-12	-10	-9	-13	-8	-4	0	-26	-6	-6	-11
A-	-30	-16	-21	-9	-7	-5	-18	-9	9		2	5	-8
BBB+	-10	-30	-11	-23	19	-28	-33	-14	-24		-46		-23
BBB	-18	-5	-15	-8	-11	-20	-27	-32	-4		-9	14	-13
BBB-	-27	-31	-6	5	-38	-24	-28	-29			-31		-18
BB+	-16	-58	-62	-31	4	-10		-29			-51		-25
BB	-25			-24	70			-35					-28
Average	-14	-10	-3	-9	1	-15	-8	-26	-6	-9	-4	-8	-8

Source: .Morgan Stanley Research, MSRB, MMD. Sample of 33,000 CUSIPs.

Healthcare and housing also offer better risk-adjusted excess returns (i.e., better spread net of duration).

Exhibit 11: Healthcare, Housing, and Power tend to provide better risk-adjusted excess returns



Source: Morgan Stanley Research, S&P Dow Jones Muni Indices. Quarterly returns from March 2013 to the present (n = 23 quarters). Excess return defined as sector return less main index return.

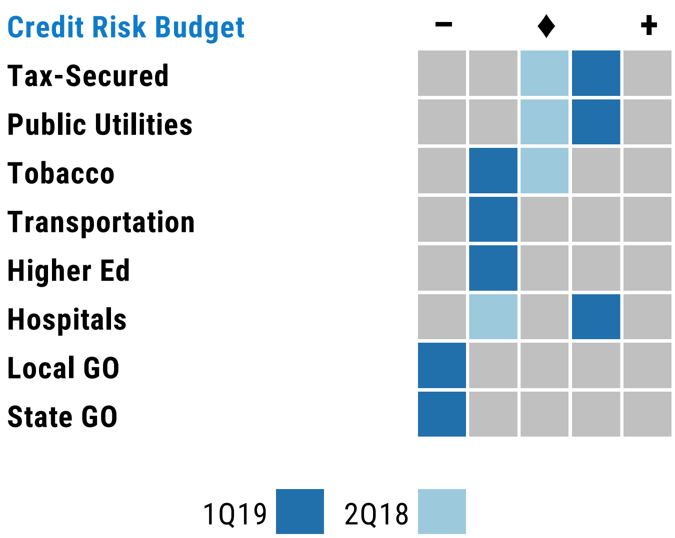
Just as healthcare offers better diversification and spread, we were surprised to see how higher ed offered *relatively little incremental spread or diversification to the main index.* Accordingly, we **add to healthcare and reduce exposure to higher ed.**

Strategy versus tactics: recent defaults keep us from overweighting HY, especially ahead of a tricky 2H

We don't advise anyone hang their hat entirely on historical correlations or returns. HY remains relatively rich to fair value, in our view. A spate of recent event notices in lifecare/nursing homes, student housing, and affordable multifamily reminds us that we remain late-cycle. Moreover, spreads could widen further when Puerto Rico bonds come back to the market (see *What if Puerto Rico exits "bankruptcy" early?*). At the same time, however, we think the real foolishness is investing in a fear-free, headline-free HY market. At least we're past the "Goldilocks" credit environment we saw earlier in the year.

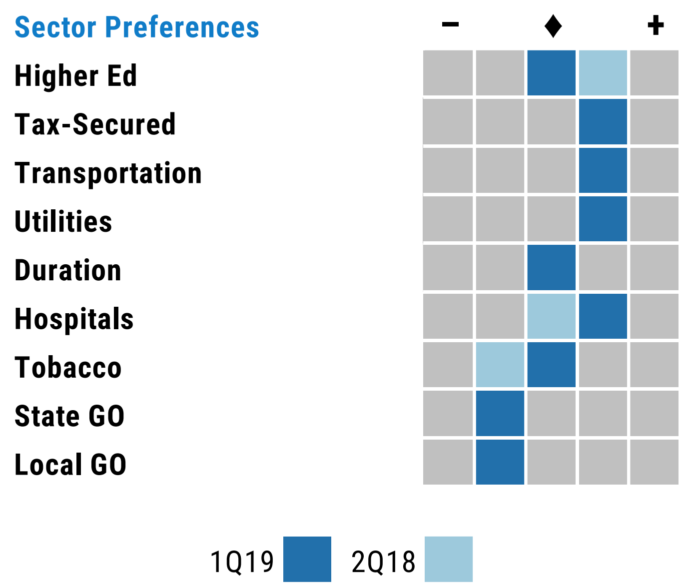
Full sector preferences

Exhibit 12: Credit risk budget



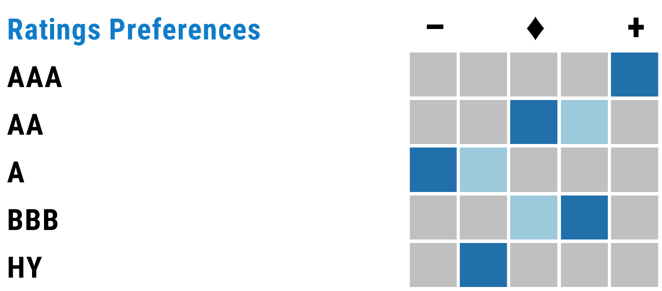
Source: Morgan Stanley Research

Exhibit 13: Sector preferences



Source: Morgan Stanley Research

Exhibit 14: Ratings preferences



Source: Morgan Stanley Research

We begin the year overweight AA/AAAs and BBBs and modestly underweight HY. HY's diversification benefits keep us partially invested. However, the likelihood of a tricky 2H, with spread widening when PR reenters the index, keeps us from being overweight given still-tight HY spreads. We reduce exposure to higher ed and we incrementally add credit risk in healthcare along the rules we outlined in July.

Our views by sector:

- **Higher Ed (equal-weight versus benchmark):** We downgraded higher ed to equal-weight primarily because it has not been a good diversifier. Higher ed faces many of the same pressures that healthcare does: declining utilization, closures, and payment pressures. Yet unlike healthcare, higher ed does not offer as much incremental spread (+25bp vs. +58bp).

- **Transportation (overweight):** We remain overweight transportation, but with somewhat less conviction. Spreads are tight, and the transportation sector is top-heavy a few big issuers: New Jersey Transportation Trust Fund (actually a State Appropriation), New York MTA, PA Turnpike, NJ Turnpike, O'Hare & DFW Airports. Investor sentiment in transportation remains uniformly positive, but we think that mostly reflects good feelings towards toll roads and airports, not the New York MTA or the NJ Transportation Trust Fund.

- **Healthcare (overweight):** Although many clients focused on the negative trends identified by our hospital research (see *New Rules for Nonprofit Hospital Investors*, July 10 2018, *Key Debates on Hospital Closures*, October 4, 2018), we instead think the glass is half full: 80% of all hospitals in the US are in good financial shape. And we think ratings agencies' emphasis on scale over margin creates an investable opportunity for investors comfortable taking a different tack. We continue to favor high-acuity hubs and low-cost leaders.

- **Utilities (overweight):** We like utilities' ample opportunities for investable credit stories in 2019: Puerto Rico utilities may conclude their restructurings this year or next, while unpredictable legal challenges stand to affect nuclear-related project debt. Privatization talk swirls around a handful of utilities - a potential positive total returns catalyst for municipal bondholders, who would likely be defeased. Either way, we think investors should focus more on what particular utility bonds they like, and less on what could be a volatile index total return.

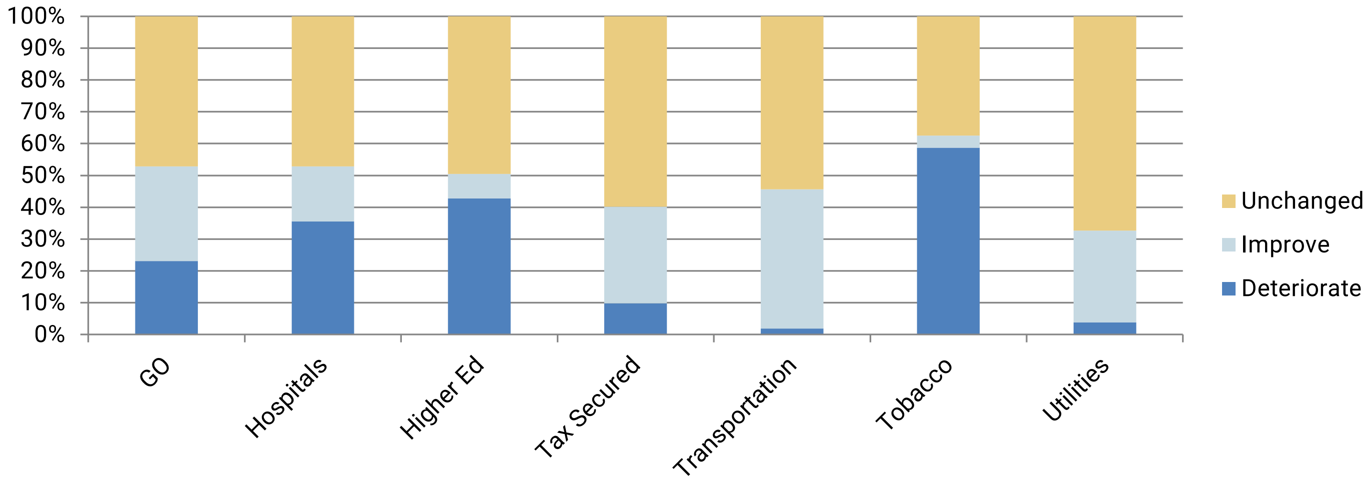
- **States & Locals (underweight):** META, our Muni Early Tax Analysis, is tracking the strongest state tax collections since the financial crisis. META's 10% trailing average is close to the Rockefeller Institute's 9.4% estimate for 2017Q4. All this is to say that state revenues look very strong, which by extension should give local governments a reprieve. We remain underweight GOs, however, as eventually fundamentals (deferred capital, pensions, OPEB) should matter. Our underweight of GOs does not preclude high-quality obligations (AAs, AAAs). **Local AAAs can be an excellent way to monetize liquidity discount at minimal credit risk.** Down the credit spectrum, BBB NJ & IL state/state appropriated paper is perhaps the most direct way for muni investors to play the length of the economic expansion, though the long-term outlook remains foggy.

- **Tobacco (neutral):** We selectively add exposure to Tobacco on price declines. Our Tobacco equity analyst expects implementation of a menthol ban to take at least 4 years (see *FDA Menthol Objectives Confirmed; E-cig Steps More Benign than Manufacturer Actions*, November 15, 2018). As such, we think some of the selloff is overdone, especially given that JUUL and other e-cigs face additional regulation, too. The wildcard for Tobacco remains whether it becomes the chief "funding" asset for muni investors cycling back into Puerto Rico.

- **Tax-Secured (overweight):** We incrementally add risk in tax-secured debt: S&P's ratings revisions strike us as reasonable, and reflect a healthy skepticism around liens (see *Lien Out*, October 3, 2017). We remind investors that, in practice, an overweight to Tax-Secured means an overweight to New York State. Our investor survey indicated very few credit analysts or portfolio managers have a strongly negative view of New York State credit. For now, most bearish sentiment is instead directed towards CA, CT, IL & NJ.

Our investor survey suggests that our preference for healthcare is out of consensus, though our less positive view on higher ed appears in consensus.

Exhibit 15: Investor Survey: For the sectors listed below, do you think credit quality will improve, remain the same, or deteriorate in 2019?



Source: Morgan Stanley Research

Munis gotta spend, and that's okay

In brief:

- We forecast gross supply of $358bn in 2019, consisting of $261bn of new money issuance and $97bn of refunding issuance.
- $261bn in new money issuance would mark a post-crisis record. We suspect that strong economic growth and cheap tax-exempt debt is bolstering issuers' proclivity to borrow, and is raising the public's demand for government services and infrastructure.
- Late-cycle enthusiasm and potential $10bn+ mega-deals out of Chicago, New York, and New Jersey could boost new money borrowing even higher.
- Despite strength in new money, we expect low refunding activity to contain gross issuance below its post-crisis average of $380bn.

Exhibit 16: Summary of our base case supply forecast

Supply	2019 Forecast	2018 YTD*	2017	2016
New Money	**261**	217	247	220
Refunding	**97**	68	189	225
Gross	**358**	286	436	445
Net	**5**	-30	12	43

Source: Morgan Stanley Research forecasts, Bloomberg, Federal Reserve, ICE, The Bond Buyer. *January - October

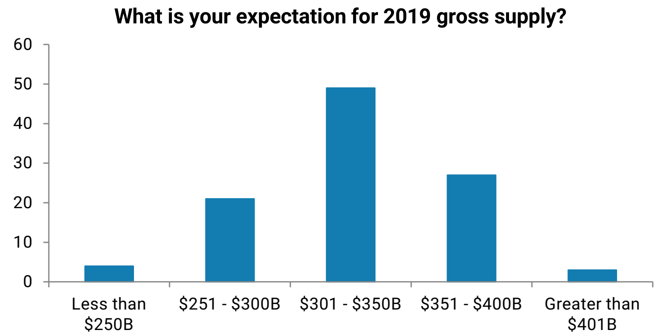
Based on our investor survey, our forecast of $358bn is slightly above consensus.

Exhibit 17: We expect gross supply to come in at $358bn and for net supply to be +$5bn

Rates Cases	Bull	Base	Bear
New Money	261	**261**	261
Refunding	109	**97**	72
Current Refunding (non-BAB)	*87*	***81***	*69*
BAB Current Refunding	*11*	***9***	*1*
BAB Advance Refunding	*11*	***7***	*2*
Gross	370	**358**	333
Net	9	**5**	0

Source: Morgan Stanley Research forecasts, ICE

Exhibit 18: Our forecast is slightly above consensus



Source: Morgan Stanley Research

Across our bull, base and bear rates cases, net supply should have a neutral market impact over the full year as we expect the size of the muni market to remain virtually unchanged at $3.85tr. Despite elevated new money issuance, net supply remains low because $100bn of advance refunding redemptions are scheduled this year while only $7bn in advance refundings are expected. While the full-year impact should be insignificant, seasonal issuance patterns could still create a supply tailwind during the summer and a supply headwind during the spring and fall months.

Exhibit 19: Supply technicals should be least supportive in March and April and most supportive in July and August

Month (2019)	Forecasted Gross Issuance	Net Supply Forecast*	Supply Tailwind / Headwind Indicator
January	24	1	
February	25	-4	
March	34	9	
April	33	9	
May	33	-1	
June	35	-2	
July	29	-11	
August	29	-11	
September	24	5	
October	37	8	
November	27	1	
December	27	0	
Full Year	**358**	**5**	**N/A**

Source: Morgan Stanley Research forecasts, ICE, The Bond Buyer. *Net supply figure does not include coupon payments.

New Money: Let the good times roll

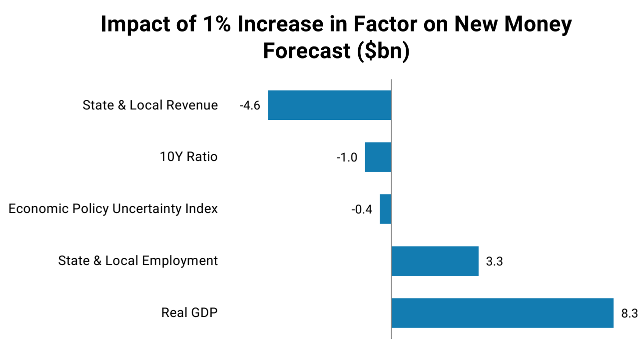
Our model forecasts $261bn in new money issuance in 2019. Assuming this forecast is prescient and that 2018 new money issuance remains on course to hit $255bn, then muni issuers will have increased new public borrowing for 5 consecutive years.

Exhibit 20: After a post-crisis, post-BAB lull, issuers are once again embracing the muni market as a source of fresh funding

Source: Morgan Stanley Research forecasts, The Bond Buyer. *January - October issuance. **Forecasted

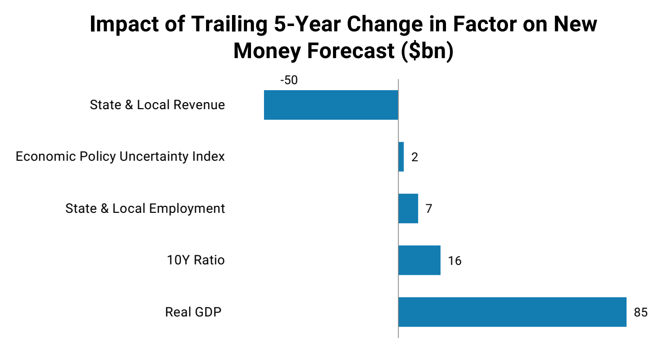
Why are issuers increasingly tapping the muni market for new debt? Our five-factor macroeconomic model suggests real GDP growth and cheap tax-exempt debt remain the drivers. The US's experience of strong economic growth is bolstering issuers' confidence and boosting demand for government services and infrastructure. Simultaneously, a persistently low 10Y MMD/UST ratio and a flat curve keep a lid on financing costs. On the other hand, higher tax revenues are partially depressing the need of governments to deficit finance.

Exhibit 21: Minor changes in real GDP and tax collections can significantly impact new money issuance



Source: Morgan Stanley Research, Haver, Census Bureau, BEA, MMD, The Bond Buyer, Economic Policy Uncertainty

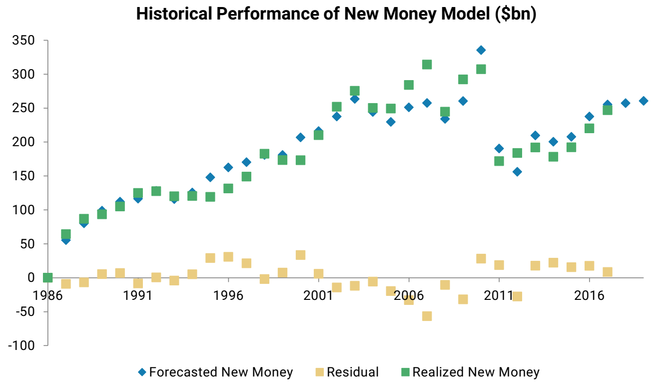
Exhibit 22: Economic growth and cheap tax-exempt debt incentivize issuers to borrow in the muni market



Source: Morgan Stanley Research, Haver, Census Bureau, BEA, MMD, The Bond Buyer, Economic Policy Uncertainty

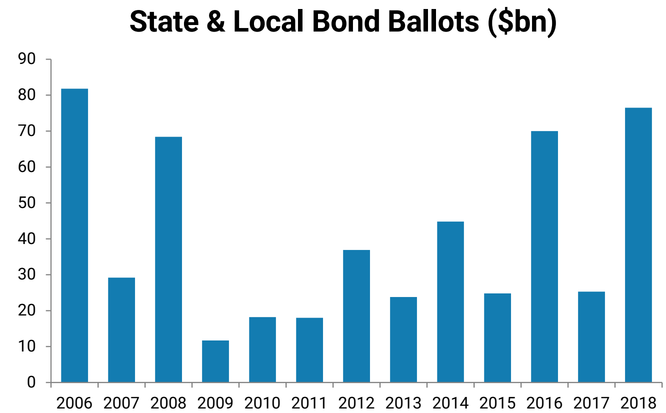
Late-cycle enthusiasm and $10bn+ mega-deals could bring even further upside to our new money forecast. Our new money model underestimated issuance by $33bn and $57bn in the late-cycle environments of 2006 and 2007, respectively. Given the US is closing in on 10 years of economic expansion, we would not be surprised if animal spirits lead issuance to exceed our expectations. The current enthusiasm for deals was apparent at the polls in November; Ipreo's tally indicates that voters were asked to consider the largest face value of bonds of since 2006.[1]

Exhibit 23: Realized new money issuance surprised to the upside versus our model during the enthusiastic run-up to the Financial Crisis



Source: Morgan Stanley Research, Haver, Census Bureau, BEA, MMD, The Bond Buyer, Economic Policy Uncertainty

Exhibit 24: While many bond ballots were rejected, voters considered over $75bn in new bond deals, a post-crisis record



Source: Morgan Stanley Research, Reuters Graphics, Ipreo

3 controversial mega-deals being debated may provide further upside:

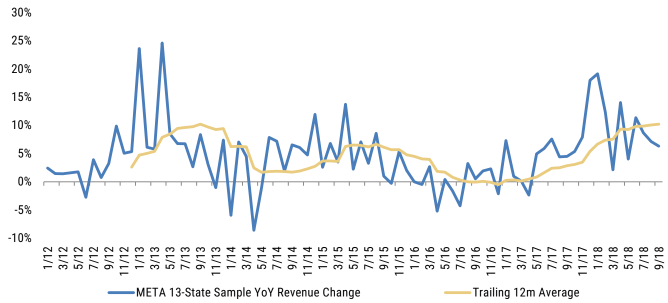
- **The Windy City's Very Big Market Bet:** Chicago has been mulling whether to issue a $10bn taxable pension bond in order to double the city's pension funded ratio from 26% to 52% and lesson the blow from steep increases in the city's planned annual contributions.[2] Many of the details remain subject to debate, including whether Chicago will even pursue the deal, but the controversial issuance would likely arbitrage the lower interest costs of a highly-rated securitization structure and assumed (but uncertain) market returns of 7%.[3] We'll be paying attention to departing Mayor Rahm Emanuel's upcoming pension address on December 12.

- **Congestion Pricing in the Big Apple:** NY Governor Cuomo's declaration of a state of emergency for the MTA last year brought a new sense of urgency to the movement to reform the transportation agency. The governor's Fix NY panel suggested implementing congestion pricing in a 'Central Business District' between Battery Park and 60th Street in Manhattan which would reduce traffic and raise revenues for the MTA. It's been estimated that the annual revenue could support $12bn to $25bn in bonding authority.[4]

- **A Gateway Reopening?:** The Gateway Program, a $10bn+ rail infrastructure project between New Jersey and New York, hit a funding snag when the Federal Transit Administration demanded higher local contributions from NY and NJ. While segments of the program are moving forward, uncertainty over where, and whether, to source billions in capital remains.

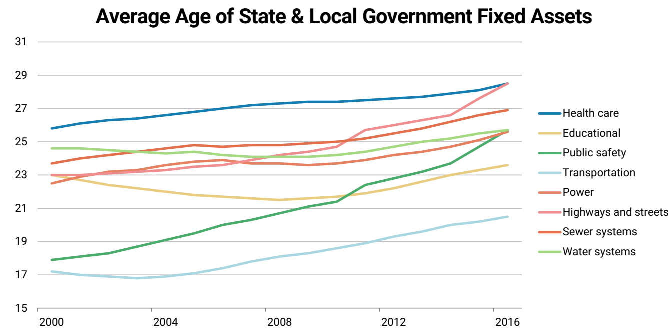
Despite our expectation of growth in new money issuance, we don't foresee a negative impact on returns. We forecast net supply to be a measly +$5bn currently. Even if issuance surprises higher, we'd fade the market noise as we haven't been able to detect a reliable impact of supply technicals on returns (see *5 Core Principles For The Muni Investor: 2. Supply Doesn't Matter*, March 12, 2018). As for credit quality, we find the environment is ripe for higher state spending given increased tax revenues. Spending on new capital projects could even be a credit positive if the spending chips away at the growing backlog of infrastructure investment in the US (see *Infrastructure: Laying an Investment Foundation: The State of US Infrastructure*, April 9, 2018).

Exhibit 25: Our 13-state Muni Early Tax Analysis (META) aggregate of state tax collections shows strong revenue growth throughout 2018



Source: AlphaWise, Morgan Stanley Research

Exhibit 26: The BEA's current-cost average age of state and local infrastructure has risen for 2 decades in several categories

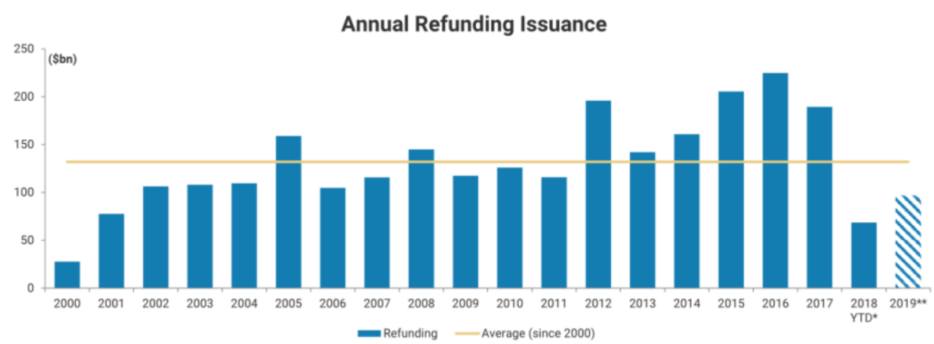


Source: Morgan Stanley Research, BEA

Refunding: BABs are calling

Based on a net present value savings analysis of over 85,000 CUSIPs, we forecast that $97bn of bonds will be refunded in 2019. This includes $81bn in non-Build America Bonds (BAB) current refundings and $16bn in BAB refundings. Refundings in 2018 (tracking at ~$80bn by year-end) and 2019 should both be the lowest refunding prints in over 15 years.

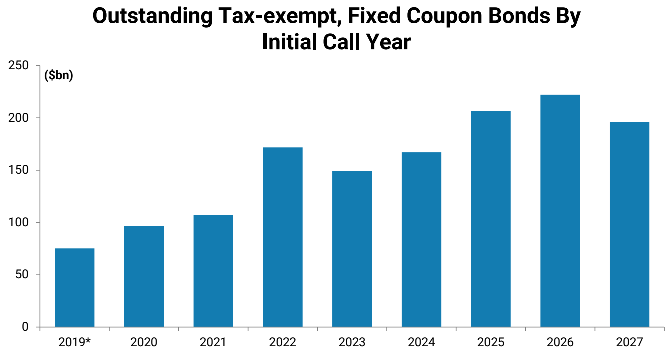
Exhibit 27: Expected 2018 and 2019 refunding issuance is a far cry from the average since 2000



Source: Morgan Stanley Research, The Bond Buyer. *January - October. **Forecasted

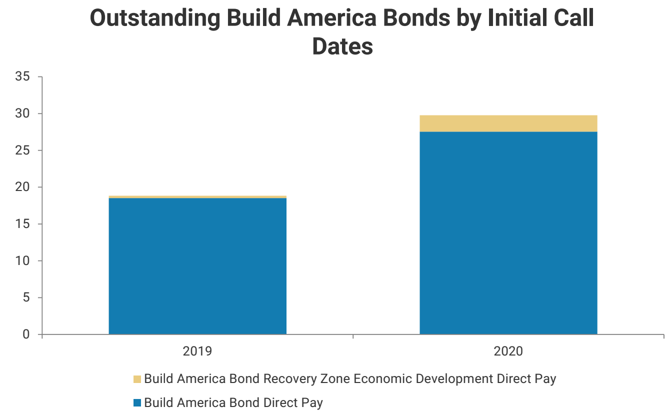
Refunding trends remain dynamic as the path of interest rates, legislation, and issuance trends from a decade ago impact the tally. The skew between our bull, base and bear rates cases differs by $37bn ($109bn for the bull case, $72bn for the bear case) and a large portion of BABs approaching their first call dates heightens uncertainty. We expect $9bn in current refundings for BABs and $7bn in advance refundings (yes, tax-exempt advance refunding of taxable BABs is still allowed). Another trend on our radar is the growth in the current refunding pool over the next few years.

Exhibit 28: If interest rates remain low, current refundings are set to grow for years



Source: Morgan Stanley Research, Bloomberg. This pool is a rough estimation of federally tax-exempt, non-zero, fixed coupon current refunding candidates based on bonds that are currently outstanding, so this should not be interpreted as a strict forecast of the future pool. We emphasize the growth profile over the absolute figure. *2019's figure is lower than our current refunding forecast since it doesn't include taxable bonds, bonds that are currently callable, or variable-rate debt.

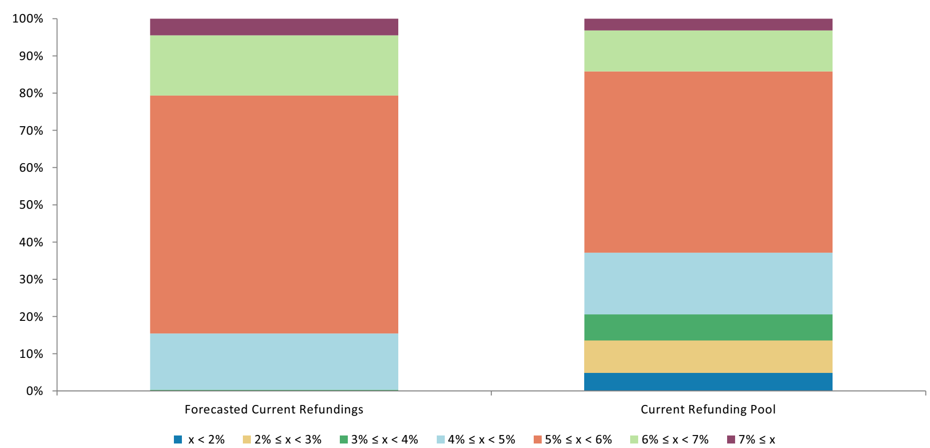
Exhibit 29: Build America Bonds add tens of billions to the refunding pool



Source: Morgan Stanley Research, Bloomberg

As expected, refundings are highly skewed toward 5%+ coupon bonds, underscoring the protection high coupons offer against extension risk. Higher-coupon bonds guard against extension risk as issuers are incentivized to refinance to achieve savings. In *Heeding The Call*, we explain how portfolio managers can outperform by identifying bonds that are likely to be called.

Exhibit 30: 5% coupons comprise 64% of the bonds we expect to be refunded but comprise only 49% of the eligible pool



Source: Morgan Stanley Research, Bloomberg

Expect a tricky second half

We expect a confluence of macro and muni factors to create volatility in the third quarter. This biases the MMD/UST ratio higher and poses risks to our outlook for positive excess returns. Hence, we will watch closely forward-looking economic data in the first half the year, adjusting muni risk accordingly. This is the main reason our credit barbell is not an outright overweight to HY.

Consider these potential macro catalysts in 2H:

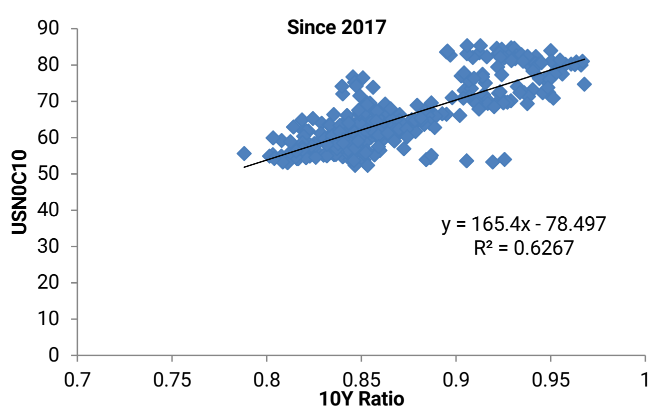
- A growth slowdown, with 3Q GDP annualizing at just 1%
- A pause in Fed hikes
- A surprisingly early end to balance sheet normalization in the US, even as the ECB and BOJ taper

Meanwhile, we can imagine a few tricky potential events in the muni market in 2H, including –

- Chicago's new mayor might talk about how to pay 2020 pension contributions
- New York's MTA grapples with how to pay for subway remediation, as Albany considers congestion pricing
- Puerto Rico might wrap up large portions of its restructuring early, and new bonds could crowd our demand for HY generally (we discuss this in depth in the next section)

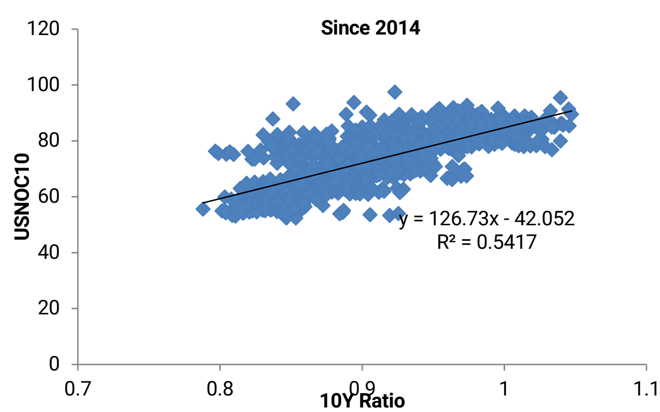
Volatility (both in headlines and rates) matters because it is a key determinant of the MMD/UST ratio:

Exhibit 31: Relationship between implied vol & ratio: 2017-2018



Source: Morgan Stanley Research, MMD, Bloomberg

Exhibit 32: Relationship between implied vol & ratio: 2014-2018



Source: Morgan Stanley Research, MMD, Bloomberg

This price action would also be consistent with ratios' historic behavior at the end of an economic expansion: ratios often rise as an expansion ends.

Exhibit 33: Ratios perform inconsistently leaving a downturn

Phase Start Date	MMD 10Y Ratio	Forward 1M Change	Forward 3M Change	Forward 6M Change	Ratio Change to Next Phase
	Downturn				
12/31/1984	73%	0%	-1%	2%	3%
9/30/1986	83%	-3%	-4%	-7%	-5%
6/30/1989	79%	1%	1%	2%	-2%
7/31/1995	79%	-2%	1%	4%	-3%
11/30/1998	86%	1%	-4%	-7%	-6%
10/31/2000	83%	0%	0%	3%	3%
8/31/2007	87%	-3%	3%	8%	21%
4/30/2016	91%	-2%	3%	5%	2%
Average	**83%**	**-1%**	**0%**	**1%**	**2%**
Median	**83%**	**-1%**	**0%**	**2%**	**0%**
Standard Deviation	**6%**	**2%**	**3%**	**6%**	**9%**
Ratio Increase (Count)		**3**	**5**	**6**	**4**
Ratio Decrease (Count)		**5**	**3**	**2**	**4**
Increase (%)		**38%**	**63%**	**75%**	**50%**

Source: Morgan Stanley Research, MMD

Exhibit 34: Ratios often rise as an expansion ends

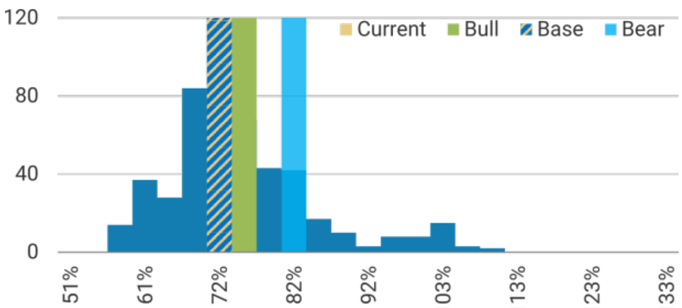
Phase Start Date	MMD 10Y Ratio	Forward 1M Change	Forward 3M Change	Forward 6M Change	Ratio Change to Next Phase
	Expansion				
11/30/1983	70%	1%	-1%	-3%	3%
1/31/1986	76%	-2%	9%	15%	7%
1/31/1987	78%	-2%	1%	-1%	1%
4/30/1994	78%	-3%	-4%	-6%	1%
6/30/1996	76%	-1%	-1%	0%	11%
12/31/1999	80%	-1%	2%	3%	3%
11/30/2004	85%	-1%	-1%	1%	2%
5/31/2012	101%	15%	6%	-6%	-10%
Average	**80%**	**1%**	**1%**	**0%**	**2%**
Median	**78%**	**-1%**	**0%**	**-1%**	**3%**
Standard Deviation	**9%**	**6%**	**4%**	**6%**	**6%**
Ratio Increase (Count)		**2**	**4**	**4**	**7**
Ratio Decrease (Count)		**6**	**4**	**4**	**1**
Increase (%)		**25%**	**50%**	**50%**	**88%**

Source: Morgan Stanley Research, MMD

That said, we see no compelling reason ratios should trade substantially higher, particularly given the relative weakness of corporate credit alternatives that we expect. Hence we only expect modestly higher ratios:

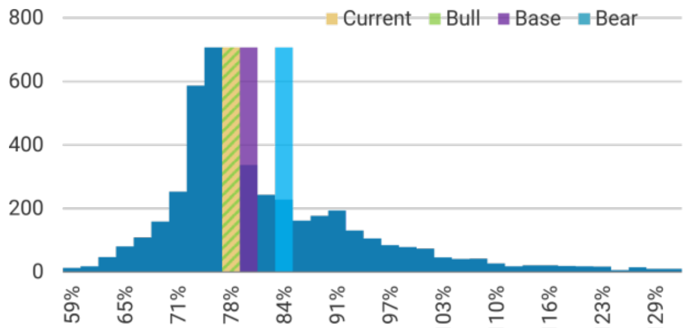
Ratios in Context of Current Level of UST Rates, +/- 35bp, versus Our Forecast Range

Exhibit 35: 2Y: 72-81% forecast range, 72% base case



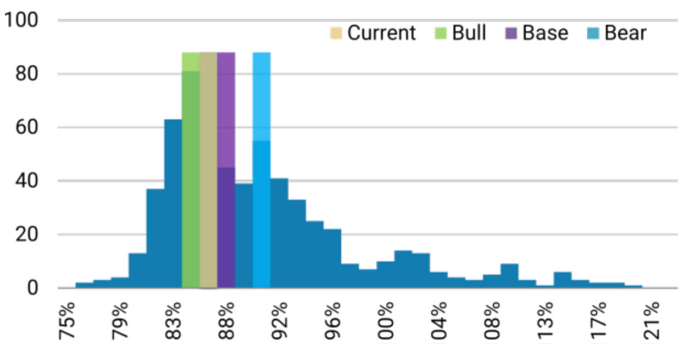
Source: Morgan Stanley Research, MMD

Exhibit 36: 5Y: 78-84% forecast range, 80% base case



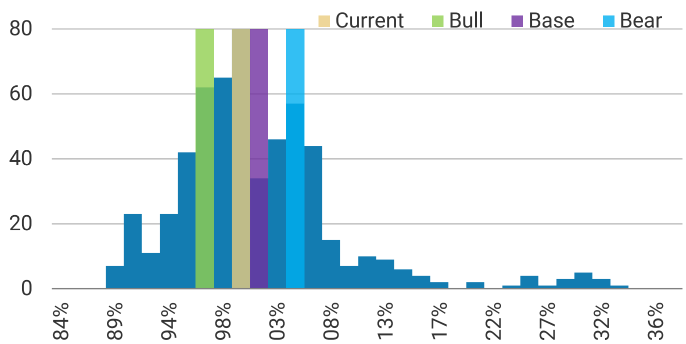
Source: Morgan Stanley Research, MMD

Exhibit 37: 10Y: 85-90% forecast range, 88% base case



Source: Morgan Stanley Research, MMD

Exhibit 38: 30Y: 98-105% forecast range, 101% base case



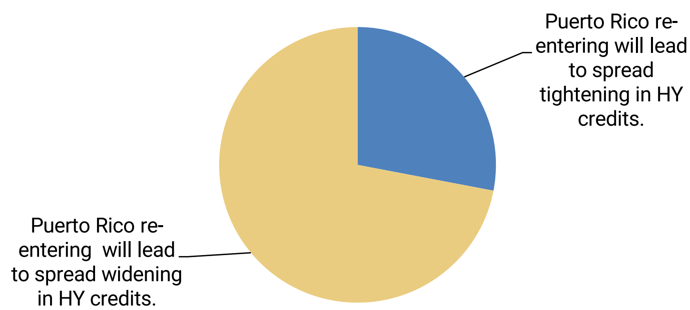
Source: Morgan Stanley Research, MMD

Further, if our macro call is wrong, it is likely that we are too bearish on the economy. If economic growth surprises higher, then rates, tax collections, and equities could increase. The latter two would be positive for muni credit, dimming the chances for ratio-widening headline risk.

What if Puerto Rico exits "bankruptcy" early?

What would it mean for the market if large parts of Puerto Rico's debt stack (like COFINA) finish their restructuring in 2019? Investors are concerned that HY credit spreads could move wider, and we tend to agree:

Exhibit 39: Investor Survey: Which of the following is closest to your view?



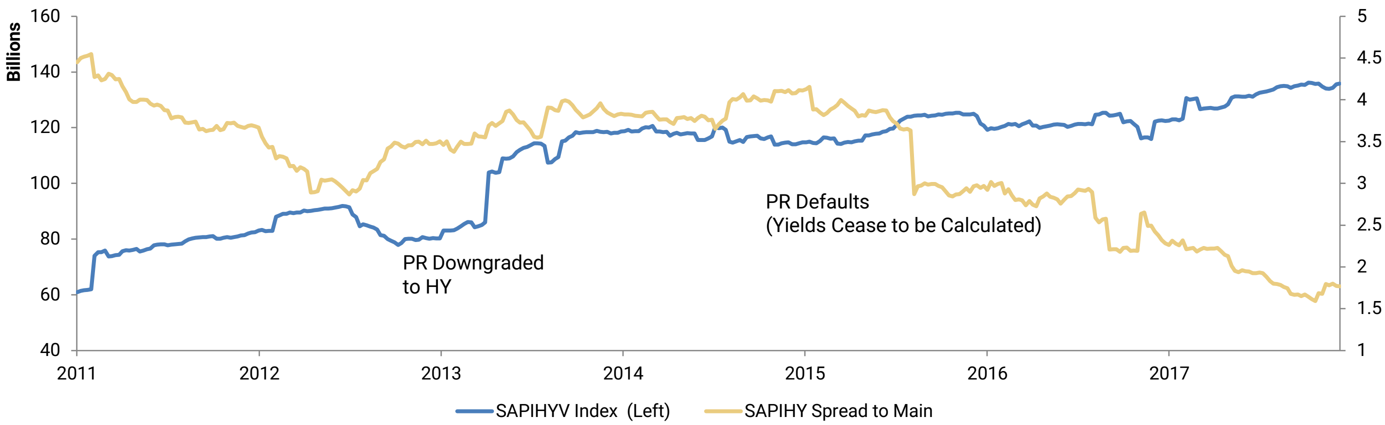
Source: Morgan Stanley Research

First things first - the Puerto Rico restructuring remains unpredictable, and we just don't know exactly when it will wrap up. But, a spate of encouraging developments among key creditor groups (like GDB and COFINA) make it possible that some Puerto Rico issuers could wrap up their restructuring process early. *If that happens, what would it mean?* Investor opinion here is not uniform. Let's debate the arguments for and against Puerto Rico causing HY spread widening:

Why HY spreads may not respond to Puerto Rico reentering the HY market:

1. HY spreads didn't widen due to Puerto Rico entering the index in 2013: When Puerto Rico was initially downgraded in 2013, the HY market index yield barely budged. The difference, of course, was that HY spreads had already sold off significantly during the taper tantrum.

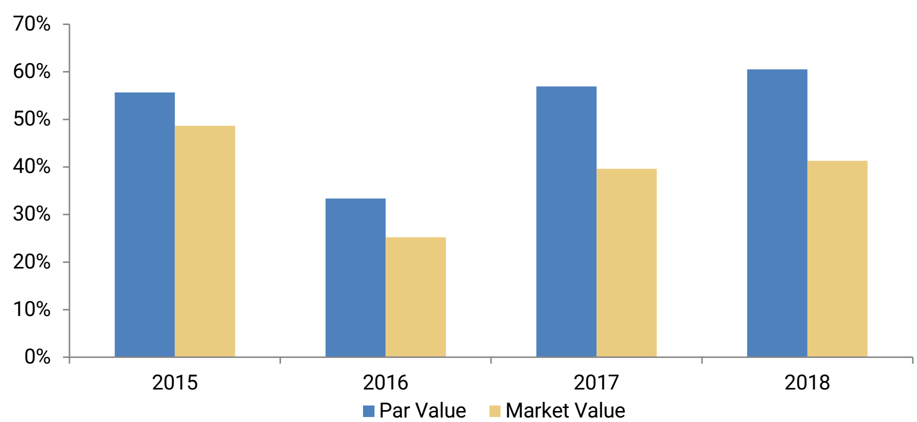
Exhibit 40: Can HY spreads prove resilient when Puerto Rico enters the index for a second time?



Source: Morgan Stanley Research, MSRB, Bloomberg, S&P Dow Jones Muni Indices

2. Puerto Rico trade volume is flat YoY: Contrary to the impression we get in talking to traders and PMs, Puerto Rico's trading volume is more or less flat YoY. It's been, in our view, far and away, the single most important HY trading market for the past four years. Such high volume would imply that news of progress in Puerto Rico's restructuring is already priced in.

Exhibit 41: Puerto Rico trading volume as a percent of all HY trades, 1MM+, 2015-present



Source: Morgan Stanley Research, MSRB

3. Puerto Rico never left the HY market: Puerto Rico bonds not in default (mostly insured) still make up 10% of the HY index.

Why Puerto Rico may cause HY index spreads to widen:

1. A restructured Puerto Rico could be 20-30% of the HY index. Depending on exit yields and market values, a restructured Puerto Rican debt complex could double (or triple) the island's contribution to the HY index. Given the limited size of HY muni funds, such a quantum of debt conceivably would require a discount to clear the market.

2. HY Muni Funds will buy, but they can't buy it all. We estimate the HY muni mutual fund universe to be about $100bn. HY muni funds currently own somewhat above $6bn of PR debt, a far cry from the $14bn+ held in 2013.[5] Accordingly, we think that HY funds will have room to buy Puerto Rico *provided it is cheap to other opportunities, like*

Chicago and Tobacco. Still, for HY funds to buy *all* of the restructured Puerto Rico debt would imply something like quadrupling their holdings over a period of months. This seems unlikely, especially given lingering questions about the durability of Puerto Rico's recovery.

3. Restructured Puerto Rico may create a new benchmark for credit investors: Puerto Rico's full reentry to the muni market will create some thorny comparisons for portfolio managers: will restructured COFINA be better or worse than Chicago Board of Ed? Would you rather own PREPA or a corporate-backed muni from a metals company? Is American Dream more or less of a risk than a restructured GDB bond? Would you prefer Brightline/Virgin Trains USA to PR HTA? *We think the answers to these questions will depend on whether or not you believe government aid will permanently improve the economy of Puerto Rico.*

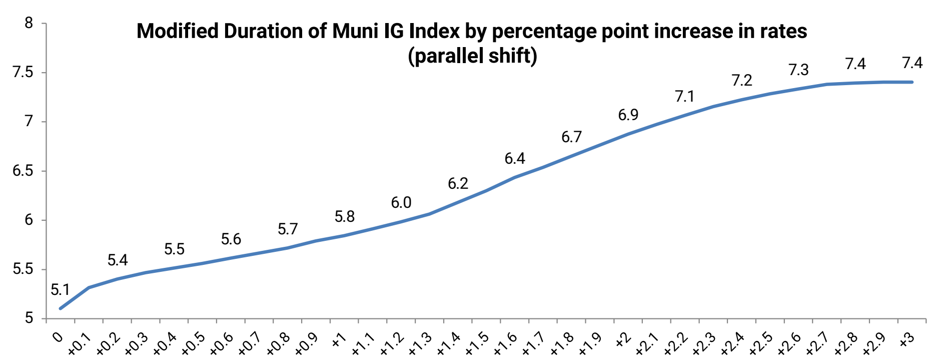
Our take: Puerto Rico investors will only be "patient" as long as EM and corporate HY remain "boring." If distressed opportunities pick up in other markets - something we think is plausible - then hedge funds will likely sell Puerto Rico, and muni HY spreads could widen.

If we're wrong on rates...a rising rates playbook

Although not in our base case, the key risk to our muni market outlook is rising rates. If our bear case is your base case, here's a few strategic points and investment tactics to consider.

Beware of extension risk: 3% coupons are already in de minimis and 4% coupons are extending past their call date. The muni market's duration should increase gradually if rates rise up to 300bp, at which point the market's modified duration would likely plateau around 7.5 years.

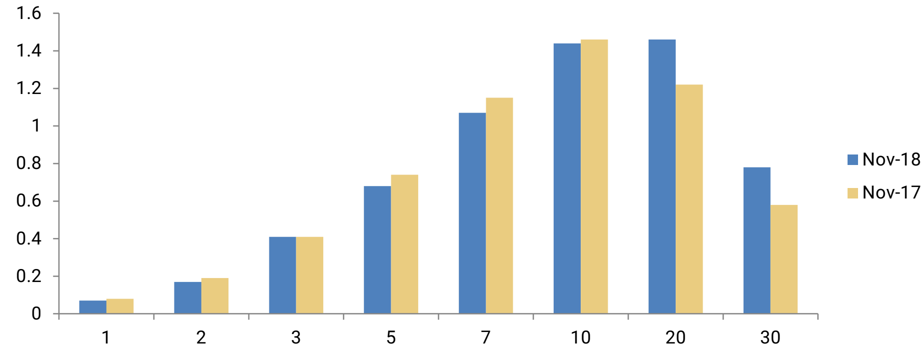
Exhibit 42: Muni market duration would increase up to 7.5 as rates rise 300bp



Source: Morgan Stanley Research, S&P Dow Jones Muni Indices. Based on calculation of 100,000+ CUSIPS in IG Index.

Indeed, rising rates have already affected the key rate duration of the muni market, with incrementally higher exposure to a bear steepener (20Y & 30Y rates):

Exhibit 43: Muni key rate durations suggest the market has become more sensitive to a 10s30s selloff

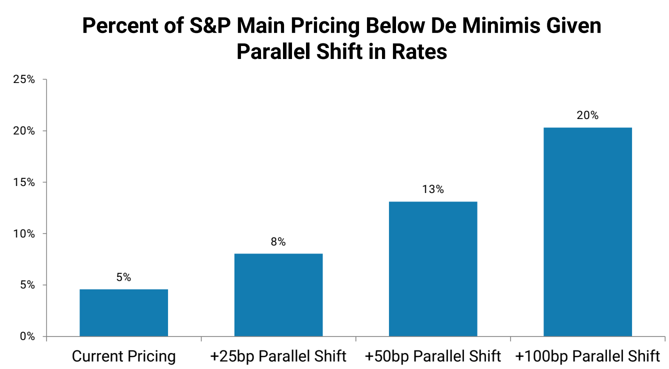


Source: Morgan Stanley Research, S&P Dow Jones Muni Indices, Bloomberg

For example, consider the following likely impacts if rates were to rise 100bp across all tenors:

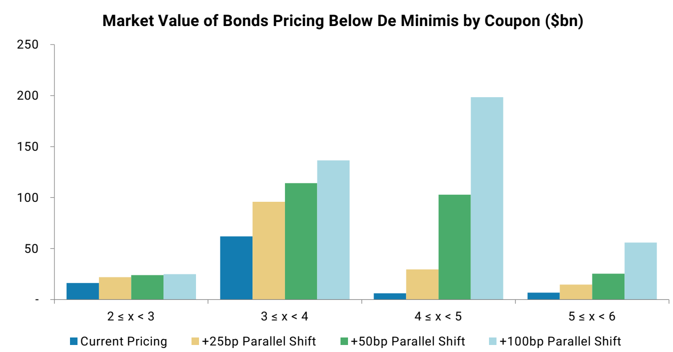
- 20% of the market would become susceptible to de minimis
- This would be an increase from less than 5% today
- 4% coupons would prove particularly vulnerable.

Exhibit 44: A +100bp rise in rates could quadruple the market value of bonds pricing below de minimis



Source: Morgan Stanley Research, S&P Dow Jones Indices

Exhibit 45: The increase in bonds pricing below de minimis would be concentrated in 4s

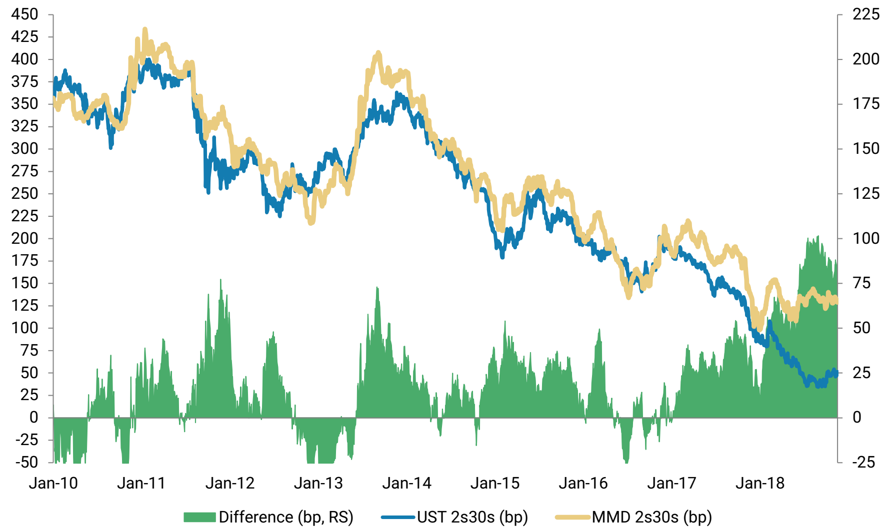


Source: Morgan Stanley Research, S&P Dow Jones Indices

What should you do about it? We see value in structuring portfolios as a barbell, with longer maturities (20+ years) and tax-exempt money markets. Consider:

1. **Dilute duration with money markets if you can, to take advantage of a steep muni ratio curve.** The muni curve remains substantially steeper than the UST curve. We think SMAs' natural tendency to stay short (1-10Y ladders) explains much of front-end ratios' relative richness. Instead of crowding into an already crowded space, we'd rather have a long portfolio diluted by zero duration money market assets (taxable or tax-free).

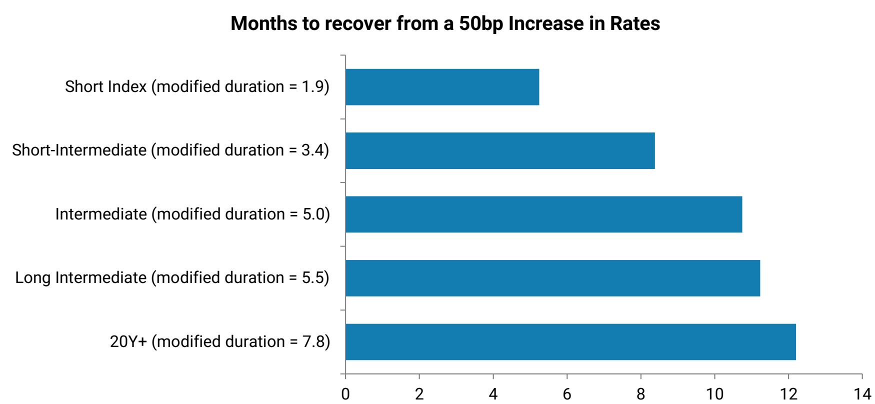
Exhibit 46: A steep ratio curve has caused MMD 2s30s to significantly diverge from UST 2s30s



Source: Morgan Stanley Research, MMD

2. **Don't fall into the false comfort of "intermediates."** We often hear clients of all stripes say "I'm worried about rising rates - keep it inside 15Y." This sounds comforting, but does little good for the next 150bp of rate increase. *If you think rates rise 200bp+, then such a strategy protects against extension risk.* But we find that most professional investors are worried about rates rising 50-100bp, not 200bp+ (see our muni investor survey).

Exhibit 47: Short is short: intermediates do little to reduce current portfolio duration



Source: Morgan Stanley Research, S&P Dow Jones Muni Indices

On the "cutting room floor"

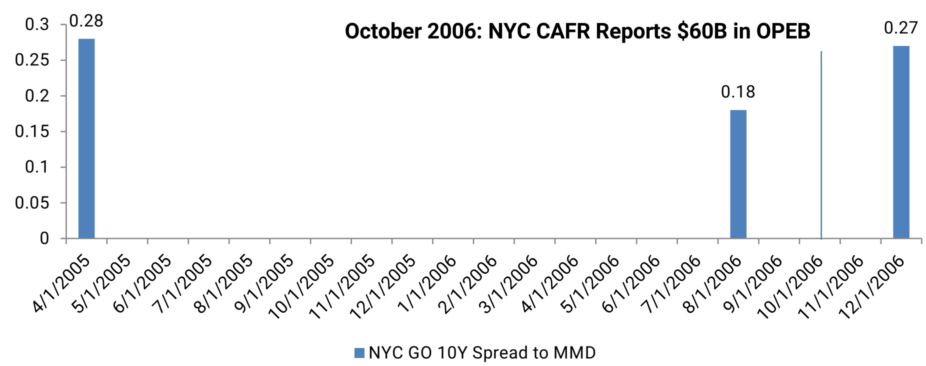
In researching & debating key themes and topics for munis in 2019, we answered several questions that did not fit the strategy narrative but may hold value for investors. We summarize those topics below, for your information.

Should we worry about OPEB this year? Only if you're concerned about recession.

2019 should show investors the impact of GASB Statements 74 and 75 on retiree healthcare (OPEB) reporting. Given that most OPEB plans are pay-as-you-go, placing a Net OPEB liability on the face of the balance sheet could have a meaningful impact on net position. The Boston College Center for Retirement Research estimates total net OPEB liabilities of nearly $900bn.[6] Despite this large number, we can't help but ask: **will the muni market actually care? We don't think so, if New York City serves as any indication, unless recession risks pick up meaningfully.**

In the mid 2000s, New York City went one step beyond the then-new requirements imposed under GASB 45 and placed the full value of its net OPEB liability on its balance sheet; the action reduced its net position by an astonishing $60 billion.[7] Despite this enormous number, credit spreads were largely unchanged: New York City credit spreads remained in a 20-30bp range.

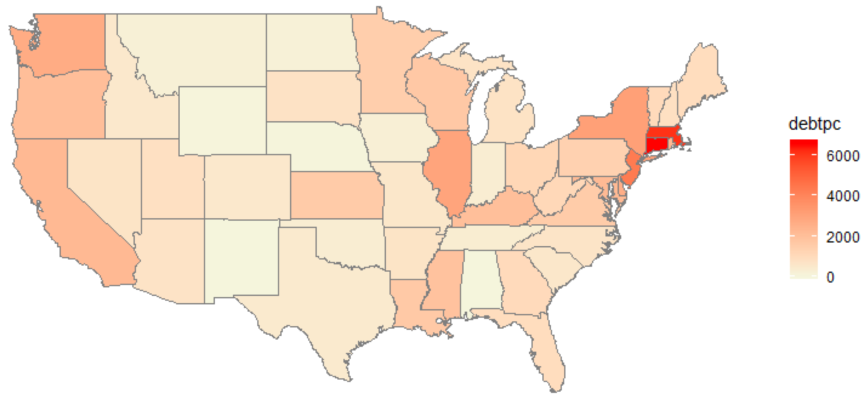
Exhibit 48: The new issue market shrugged off NYC's OPEB disclosure



Source: Morgan Stanley Research, Official Statements, Bloomberg, MMD

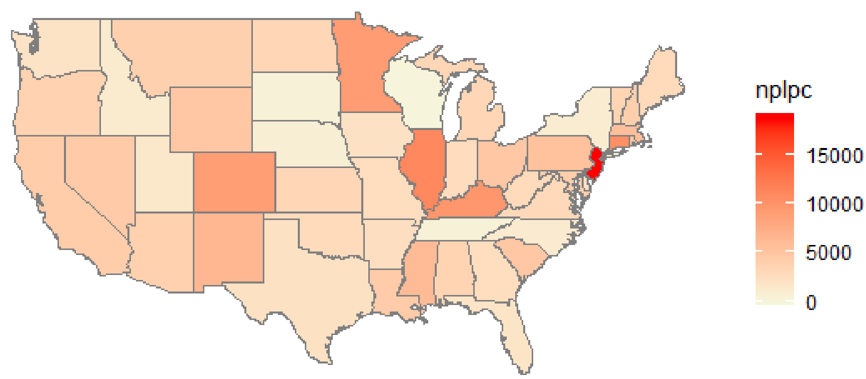
So what's the takeaway for investors? We think **OPEB is a reminder that GOs have greater cyclical challenges than investors appreciate. To this end, we charted out pension, debt, and OPEB liabilities by state in the maps below:**

Debt Per Capita: WA, CT, MA rank high



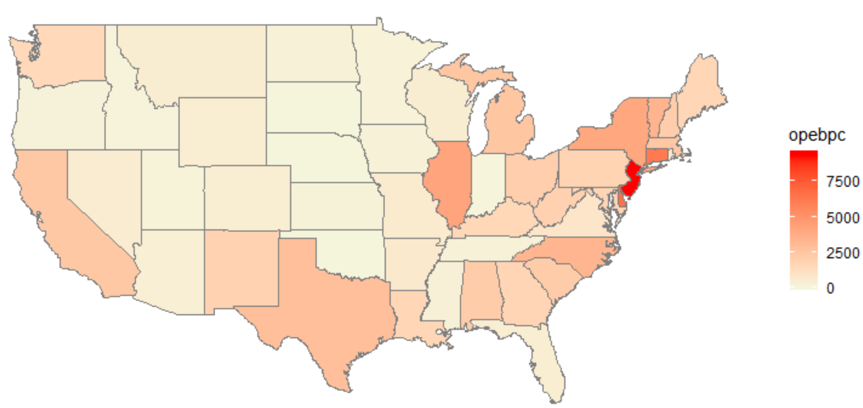
Morgan Stanley Research, RStudio, Moody's, Pew

Pension liabilities a greater problem than bonded debt for IL, NJ, KY, CO



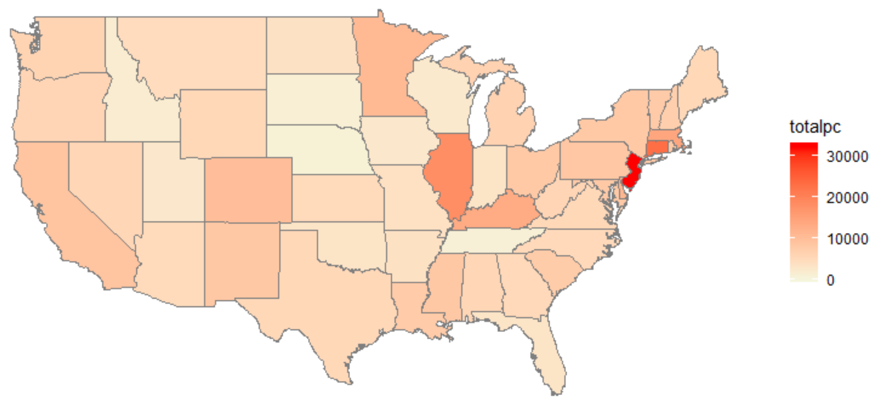
Morgan Stanley Research, RStudio, Moody's, Pew

OPEB burden greatest in NJ



Morgan Stanley Research, RStudio, Moody's, Pew

Total liabilities (Debt, Pension, OPEB): NJ, IL, CT fare the worst



Morgan Stanley Research, RStudio, Moody's, Pew

However, OPEB (like pension liabilities) only "matter" to the market when they create a budget problem - either political or financial. This is most likely to occur during an economic downturn. OPEB re-affirms our long-term underweight on GOs, even if OPEB is unlikely to be a tradable catalyst for credit spreads.

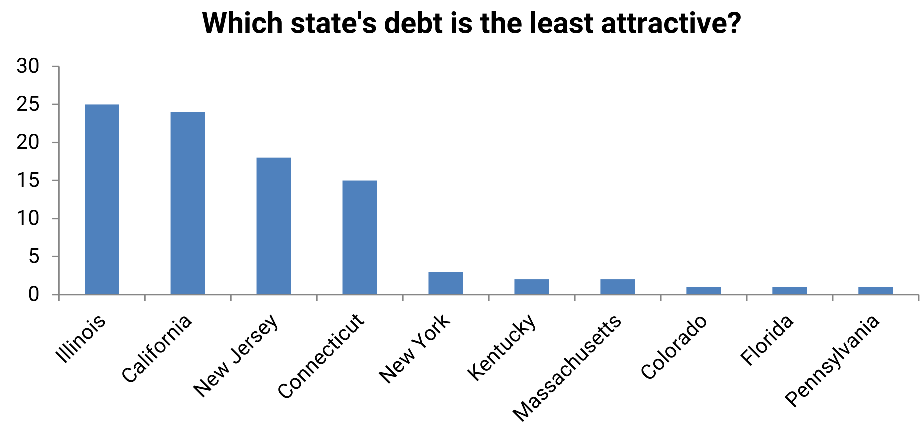
Do governors impact credit quality? Not reliably.

Will bond investors grant incoming governors in CA, CT or IL a "honeymoon period"? We're not so sure: **we think their gubernatorial elections are not particularly relevant to credit quality for a few reasons:**

- Supermajority party control in the IL and CA legislatures makes the governor significantly less relevant to the budget.
- New Jersey's legislature, while just short of a supermajority, has already exerted its strong influence over the budget.
- Connecticut's majority party remains divided over taxes and spending, as evidenced in last year's budget stalemate.

We sense investor disagreement on this topic. Professional investors were divided about which state's debt is the least attractive, with groups disfavoring all four: CA, CT, IL and NJ. **Our view remains that bond investors should pay more attention to state legislative leaders**, and less attention to governors, when it comes to the budget and credit quality.

Exhibit 49: Investor Survey: Which state's debt is the least attractive?



Source: Morgan Stanley Research

Of course, investors' negative outlook on California debt suggests that gubernatorial leadership might matter after all: will the departure of Gov. Brown have an impact on CA credit quality? Again, we're skeptical: CA voters themselves approved substantial income tax increases in 2012 and 2016. The latter referendum passed with a 25-point margin.[8]

Where are the risks in Higher Ed?

Our investor survey showed negative sentiment about Higher Ed. Where are the risks? First, it's worth stating the obvious: unless you're worried about California, the "problem" for Higher Ed lies with private universities, not public ones. (UCal and Cal State make up about 10% of the Higher Ed index, whereas the University of Illinois system makes up less than 1%.)

At the same time, however, saying that the risks in Higher Ed lie with private universities creates its own set of problems. There are over 1,000 issuers in the Higher Ed index. Moody's MFRA tracks 255 private universities. How can an investor keep track? Here are a few groups of names we're watching:

- *Single As on Negative Outlook: Drexel, Fordham.* With $600 million of debt between them, we think Drexel and Fordham are worth watching. Material underperformance at these large, well-known private universities in major urban centers would cut against the common narrative that university financial problems, like hospital closures, are strictly a rural problem.

- *Big BBBs: Emerson, Rensselaer Polytechnic.* Emerson and RPI have about $1bn of debt in the Higher Ed Index. We think a major downgrade to HY of either of these universities could impact investor sentiment in the market.

- *Low Unrestricted Net Assets per Student:* Finally, we'd pay attention to especially tuition-dependent private schools. A lack of unrestricted net assets per student can provide an indication of tuition dependence.

Exhibit 50: Pay attention to ratings upgrades or downgrades among highly tuition-dependent universities

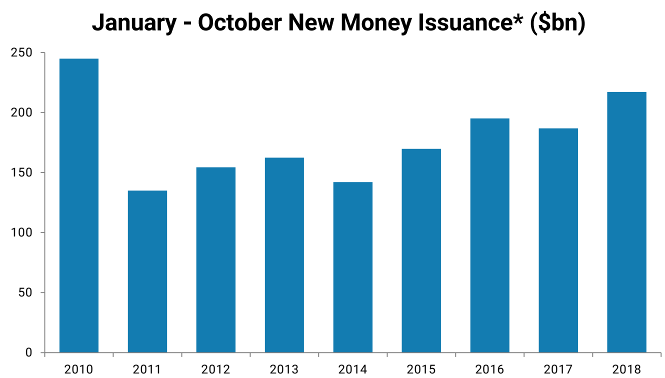
University	Unrestricted Net Assets to FTE
Rensselaer Polytechnic Institute, NY	(22,324)
Georgetown University, DC	(7,952)
Yeshiva University, NY	(2,680)
University of the Sacred Heart, PR	5,760
Regent University, VA	9,438
Illinois Institute of Technology, IL	10,030
Azusa Pacific University, CA	10,645
Regis University, CO	11,706
Sage Colleges, NY	11,855
St. Joseph's College, NY	12,202

Source: Morgan Stanley Research, Moody's MFRA

How have issuers reacted to the loss of advance refundings?

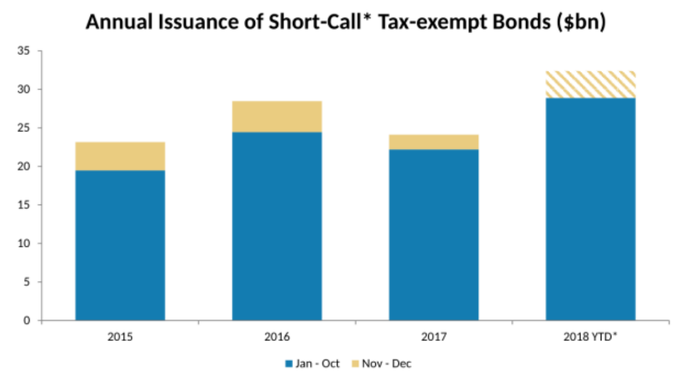
Advance refundings were the most significant and surprising muni market casualty of 2017's Tax Cuts And Jobs Act. According to Bloomberg data, this favored refinancing tool accounted for over $400bn of tax-exempt issuance between 2015 and 2017. Myriad alternatives have been proposed, ranging from taxable advance refundings to forward-starting swaps.[9] Yet issuers appear to be gravitating toward simpler alternatives. We found that short-call issuance is up 28% in 2018 versus the average of the past three years (with additional issuance 2018 still likely). Additionally, higher new money issuance anecdotally supports use of 'cash optimization' in which issuers redirect cash on hand from pay-as-you-go funds to debt defeasance and then increasingly rely on the muni market to raise new money debt.

Exhibit 51: YTD new money issuance is the highest since the BAB program ended



Source: Morgan Stanley Research, The Bond Buyer. *A breakdown of new money issuance is not available by month so the 2010 - 2017 figures are calculated by multiplying the portion of total issuance (including refundings) that had been issued through the end of October by that year's total new money issuance.

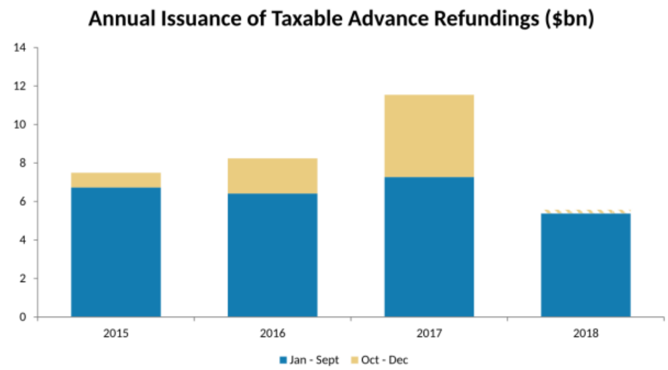
Exhibit 52: Short-call nominal issuance is already 28% higher than its average over the past three years



Source: Morgan Stanley Research, Bloomberg MSRC. *Bonds issued with initial call dates of 3 to 8 years were considered 'short-call' bonds.

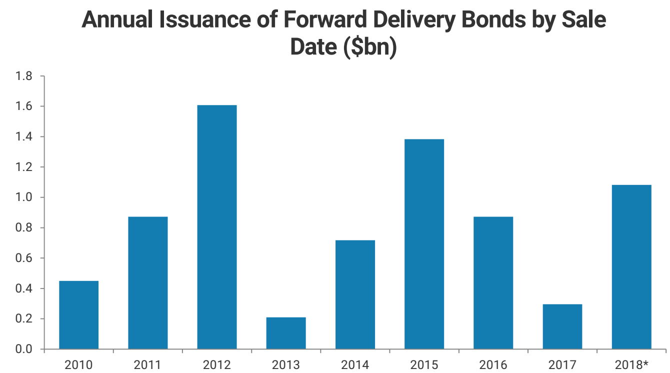
Other alternatives such as taxable advance refundings or forward-delivery bonds do not appear to be gaining much traction.

Exhibit 53: Taxable advance refundings are down YoY



Source: Morgan Stanley Research, Bloomberg MSRC

Exhibit 54: Forward-delivery issuance likely remains too small to matter



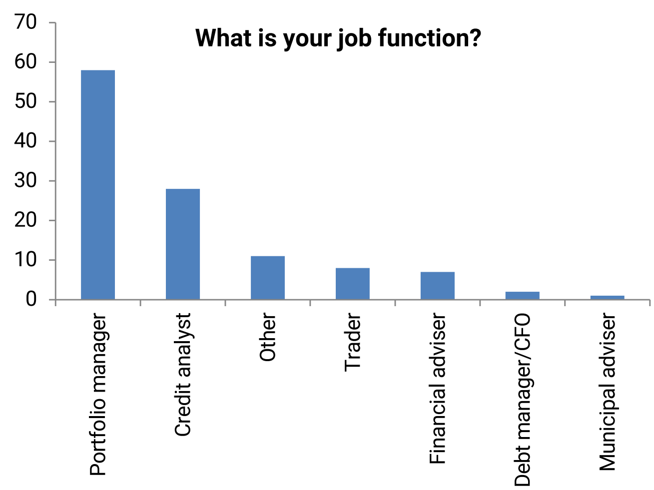
Source: Morgan Stanley Research, Bloomberg

Appendix | 2019 investor survey results

2018 vs 2019 Sentiment:

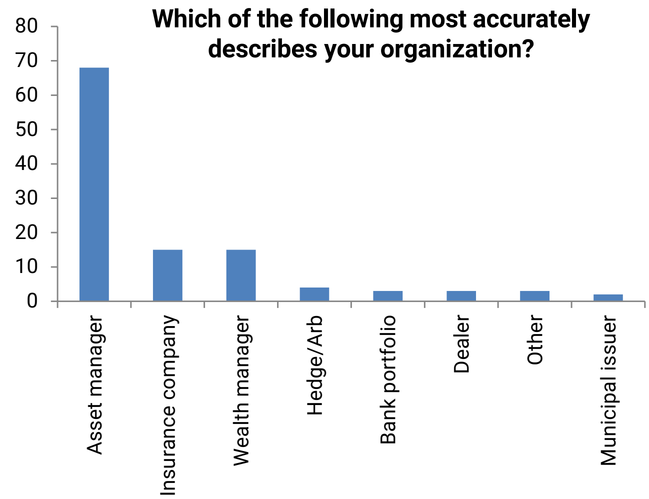
- Versus last year, more investors expect a 30Y ratio above 100%
- Investor sentiment on GOs has significantly improved YoY
- Investors are modestly more constructive on infrastructure policy YoY
- Supply & 10Y ratio expectations are mostly unchanged

Exhibit 55: Professional investors made up the vast majority of respondents



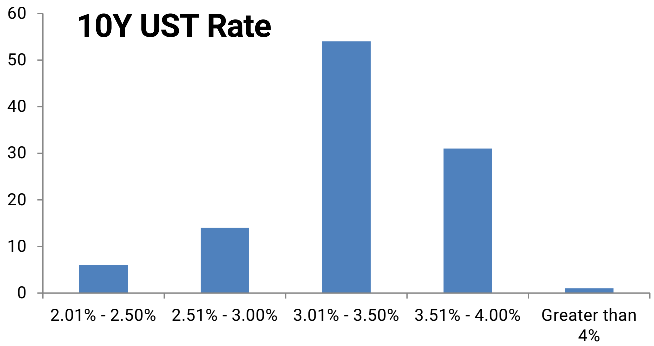
Source: Morgan Stanley Research

Exhibit 56: 70% of responses came from asset managers



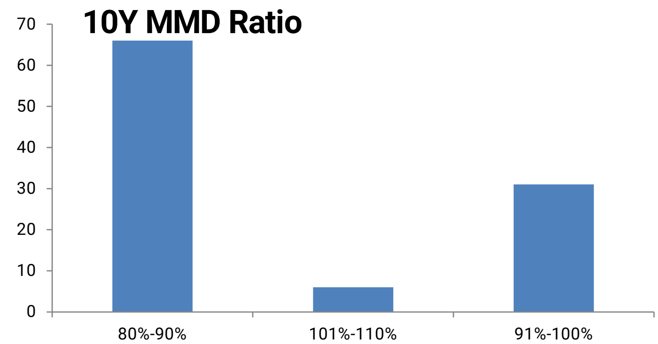
Source: Morgan Stanley Research

Exhibit 57: Investors expect higher rates



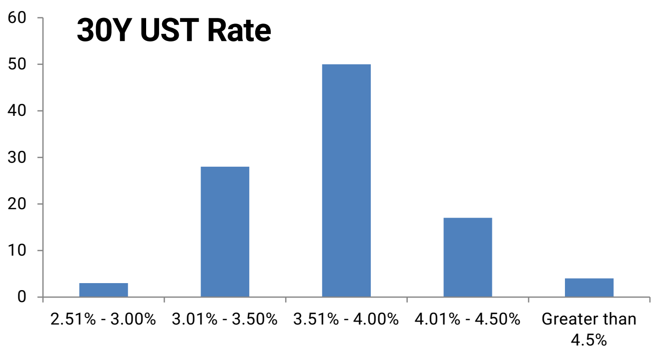
Source: Morgan Stanley Research

Exhibit 58: Disagreement on the 10Y ratio: is 80 the new 90?



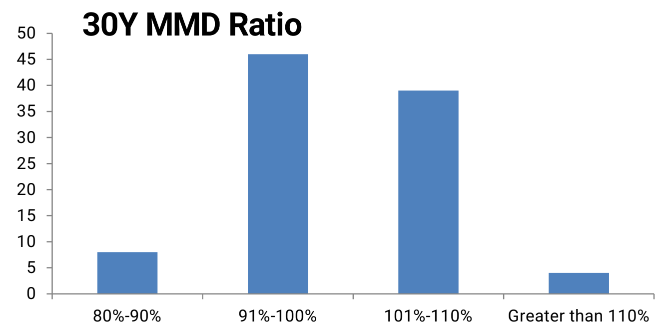
Source: Morgan Stanley Research

Exhibit 59: Less fear of a 30Y selloff, though most expect a higher 30Y rate



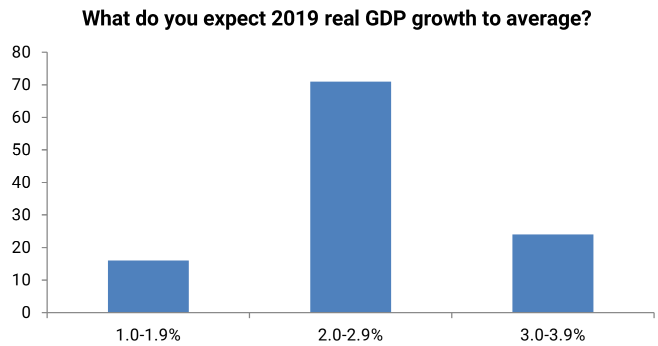
Source: Morgan Stanley Research

Exhibit 60: Less fear of a materially higher 30Y ratio



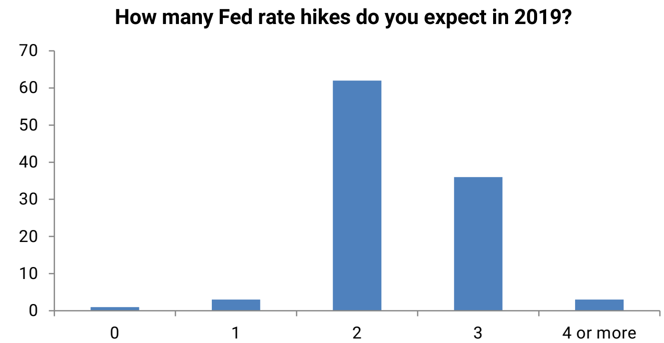
Source: Morgan Stanley Research

Exhibit 61: Investors expect growth to be good, but not great



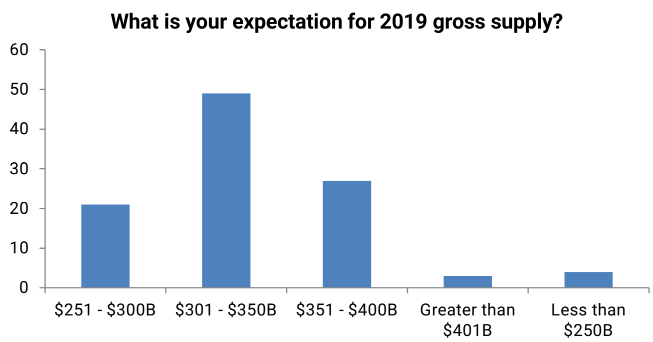
Source: Morgan Stanley Research

Exhibit 62: Investors do not expect the Fed will respond to an inflation surge



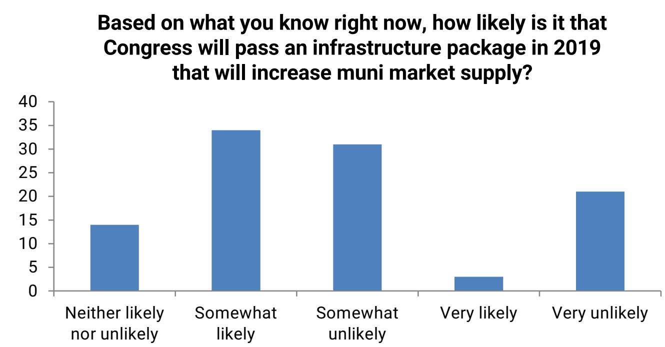
Source: Morgan Stanley Research

Exhibit 63: No hope for a supply surge



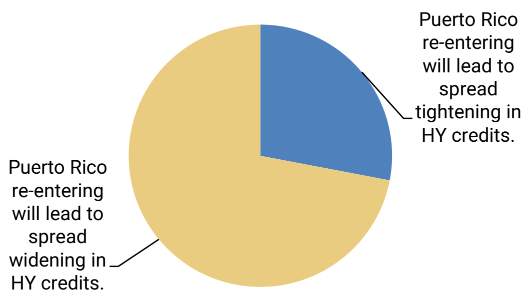
Source: Morgan Stanley Research

Exhibit 64: Divided opinion on infrastructure policy



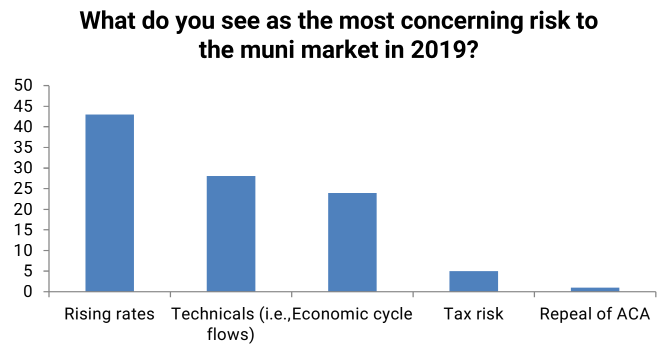
Source: Morgan Stanley Research

Exhibit 65: Investors are generally bearish about Puerto Rico's effect on the broader HY market



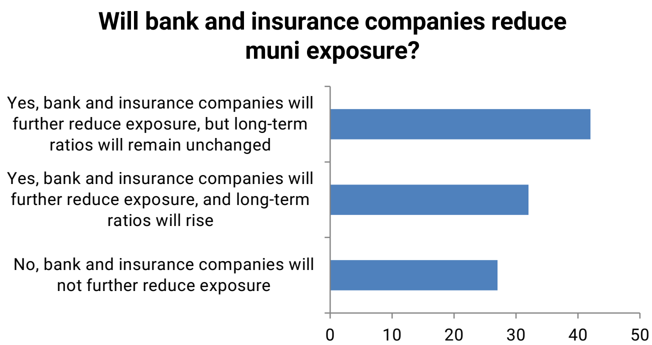
Source: Morgan Stanley Research

Exhibit 66: Investors' worries are all macro



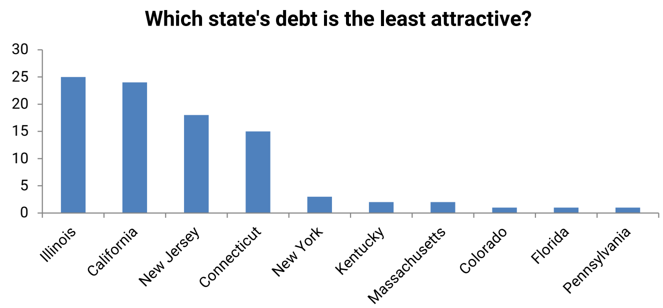
Source: Morgan Stanley Research

Exhibit 67: Muni investors (1) think bank & insurance demand will continue to decline, but (2) are not very concerned about it



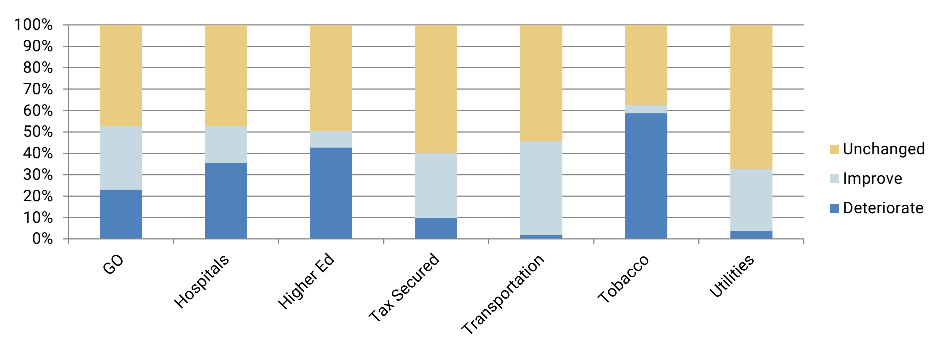
Source: Morgan Stanley Research

Exhibit 68: CA - surprisingly - is the second least liked credit



Source: Morgan Stanley Research

Exhibit 69: For the sectors listed below, do you think credit quality will improve, remain the same, or deteriorate in 2019?



Source: Morgan Stanley Research

Appendix | Returns

Exhibit 70: Muni returns

Muni Sectors	November MTD	Year 2018
BABs	0.9%	-3.9%
IG	0.5%	-0.6%
Main	0.4%	-0.4%
High Yield	-0.4%	3.7%
Water/Sewer	0.5%	-0.9%
Housing	0.5%	-0.6%
GO	0.5%	-0.7%
Hospital	0.5%	-0.7%
Intermediate	0.5%	-0.3%
Education	0.5%	-0.7%
Utilities	0.5%	-0.4%
Transportation	0.4%	-0.9%
Main	0.4%	-0.4%
Power	0.4%	-0.2%
Long	0.4%	-1.3%
Short	0.2%	1.0%

Source: Morgan Stanley Research, S&P Dow Jones Indices, Bloomberg. MTD as of 11/19/2018

Exhibit 71: Muni excess returns

Muni Excess Returns vs Treasuries		
Index	November MTD	YTD
S&P Muni IG Index	-0.2%	0.3%
S&P Muni Short Index	-0.1%	0.3%
S&P Muni Intermediate Index	-0.2%	0.6%
S&P Muni 20Y+ Index	-0.4%	1.1%

Muni Excess Returns vs Corps		
Index	November MTD	YTD
S&P Muni IG Index	0.4%	0.3%
S&P Muni HY Index	0.9%	6.3%

Source: Morgan Stanley Research, The Yield Book, S&P Dow Jones Indices, Bloomberg. MTD as of 11/16/2018

Appendix | Historically-Implied Supply Forecasts by Category & State

Exhibit 72: Historically-implied supply by sector

$358bn Gross Forecast	Percentage of Total Issuance			Historically-Implied 2019 Forecast ($bn)		
Category	2010 - 2017 Median	2010 - 2017 Min	2010 - 2017 Max	Median	Min	Max
Purpose						
Development	3%	2%	4%	11.6	8.3	15.0
Education	27%	23%	31%	95.0	83.3	112.4
Electric Power	4%	2%	7%	13.3	7.9	24.9
Environmental Facilities	1%	0%	2%	2.4	1.5	6.4
Health Care	9%	7%	11%	32.2	26.0	40.1
Housing	4%	2%	5%	13.9	8.2	17.1
Public Facilities	3%	2%	3%	9.2	7.9	11.5
Transportation	15%	11%	16%	52.0	41.0	57.2
Utilities	11%	9%	12%	38.2	33.1	42.9
General Purpose	24%	23%	28%	87.5	83.7	98.7
Issuer Type						
State Governments	11%	8%	12%	38.8	29.7	44.5
State Authorities	29%	26%	30%	103.0	92.2	107.6
Counties & Parishes	6%	6%	7%	21.7	19.8	24.0
Cities & Towns	14%	13%	15%	49.8	46.0	55.3
Districts	18%	15%	22%	65.0	52.2	80.3
Local Authorities	17%	16%	20%	62.6	57.1	71.5
Colleges & Universities	4%	3%	4%	13.2	10.8	15.6
Direct Issuers	1%	0%	1%	2.4	1.6	4.2
Tribal Governments	0%	0%	0%	0.0	-	0.2
Cooperative Utilities	0%	0%	0%	0.0	-	0.1
Tax Status						
Tax Exempt	88%	64%	91%	314.6	227.7	324.1
Taxable	9%	7%	35%	30.7	24.1	125.5
Minimum Tax	3%	1%	4%	10.5	4.8	13.0
Coupon Type						
Fixed Rate	91%	89%	95%	325.6	318.4	340.2
Variable Rate (Short Put)	4%	2%	6%	13.3	8.5	20.6
Variable Rate (Long/No Put)	1%	1%	2%	3.6	2.3	7.6
Zero Coupon	0%	0%	1%	1.6	1.0	2.5
Linked Rate	3%	1%	5%	11.1	3.3	17.0
Auction Rate	0%	0%	0%	-	-	-
Convertible	0%	0%	1%	0.4	0.0	1.8

Source: Morgan Stanley Research, The Bond Buyer

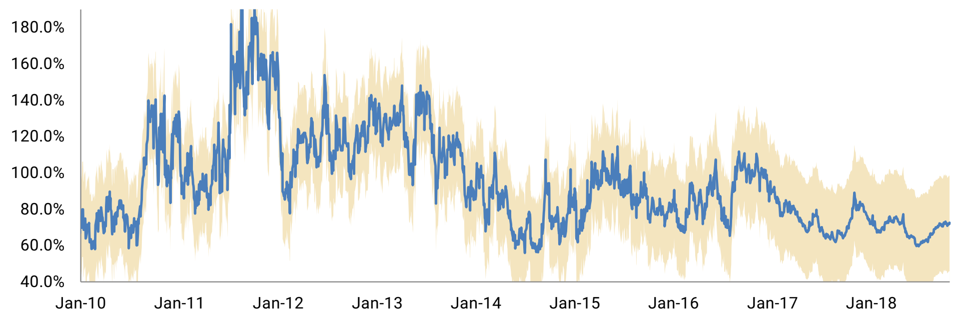
Exhibit 73: Historically-implied supply by state

$358bn Gross Forecast	Percentage of Total Issuance			Historically-Implied 2019 Forecast ($bn)		
Category	2010 - 2017 Median	2010 - 2017 Min	2010 - 2017 Max	Median	Min	Max
Alabama	1%	1%	1%	3.2	3.0	5.2
Alaska	0%	0%	0%	0.9	0.7	1.4
Arizona	1%	1%	2%	5.4	4.6	6.5
Arkansas	1%	0%	1%	1.9	1.4	2.7
California	14%	12%	16%	51.4	43.8	56.3
Colorado	2%	1%	2%	6.1	4.1	8.6
Connecticut	2%	1%	2%	5.5	4.8	7.0
Delaware	0%	0%	0%	0.9	0.5	1.2
District of Columbia	1%	0%	1%	2.4	1.8	3.1
Florida	4%	4%	5%	14.1	13.4	18.1
Georgia	2%	1%	2%	6.3	4.9	8.4
Guam	0%	0%	0%	0.3	0.2	0.5
Hawaii	1%	0%	1%	2.3	1.7	4.0
Idaho	0%	0%	0%	0.7	0.4	1.0
Illinois	4%	3%	6%	15.4	11.9	20.1
Indiana	1%	1%	3%	4.4	3.7	11.6
Iowa	1%	0%	1%	2.5	1.7	4.2
Kansas	1%	1%	1%	2.8	2.3	4.5
Kentucky	1%	1%	1%	3.9	2.4	5.0
Louisiana	1%	1%	1%	4.4	3.2	4.9
Maine	0%	0%	0%	0.9	0.8	1.4
Maryland	2%	1%	2%	6.3	4.6	8.9
Massachusetts	3%	2%	4%	9.7	8.3	12.7
Michigan	2%	1%	3%	7.9	5.1	10.7
Minnesota	2%	1%	2%	6.3	5.0	7.7
Mississippi	0%	0%	1%	1.5	0.6	2.2
Missouri	1%	1%	2%	4.8	4.0	6.4
Montana	0%	0%	0%	0.4	0.2	0.9
Nebraska	1%	1%	1%	2.6	2.0	3.5
Nevada	1%	0%	1%	2.6	1.3	3.4
New Hampshire	0%	0%	0%	0.7	0.5	1.0
New Jersey	3%	3%	6%	12.5	11.3	20.3
New Mexico	0%	0%	1%	1.5	1.0	2.4
New York	11%	10%	14%	40.1	34.6	48.4
North Carolina	1%	1%	2%	5.4	4.1	6.2
North Dakota	0%	0%	0%	0.7	0.4	1.1
Ohio	3%	2%	4%	9.8	8.0	12.7
Oklahoma	1%	1%	1%	2.7	2.2	3.2
Oregon	1%	1%	2%	3.6	2.9	5.4
Pennsylvania	4%	3%	5%	15.7	11.5	18.0
Puerto Rico	1%	0%	3%	4.0	0.0	9.2
Rhode Island	0%	0%	0%	0.9	0.6	1.5
South Carolina	1%	1%	1%	4.1	3.2	4.9
South Dakota	0%	0%	0%	0.7	0.5	1.2
Tennessee	1%	1%	1%	3.9	3.1	4.7
Texas	10%	9%	12%	37.5	31.5	43.1
Utah	1%	1%	1%	2.4	2.1	3.3
Vermont	0%	0%	0%	0.5	0.3	0.6
Virgin Islands	0%	0%	0%	0.1	-	0.4
Virginia	2%	2%	3%	7.2	6.3	10.1
Washington	3%	2%	4%	9.4	8.3	12.9
West Virginia	0%	0%	0%	0.7	0.5	0.9
Wisconsin	2%	1%	3%	6.2	5.1	9.9
Wyoming	0%	0%	0%	0.2	0.1	0.3

Source: Morgan Stanley Research, Bloomberg MSRC

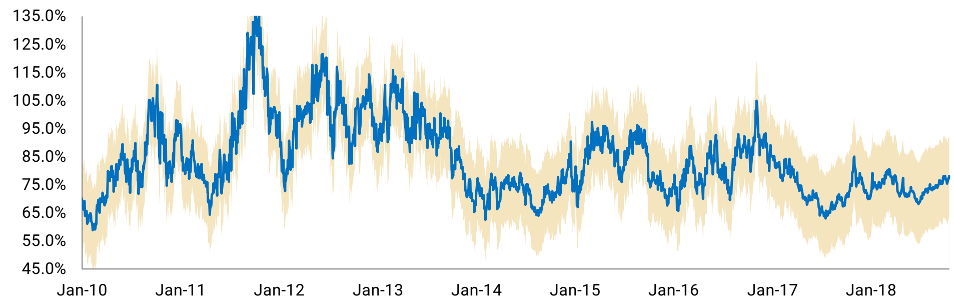
Appendix: Ratio Ranges

Exhibit 74: 2Y Ratios +/- 1SD



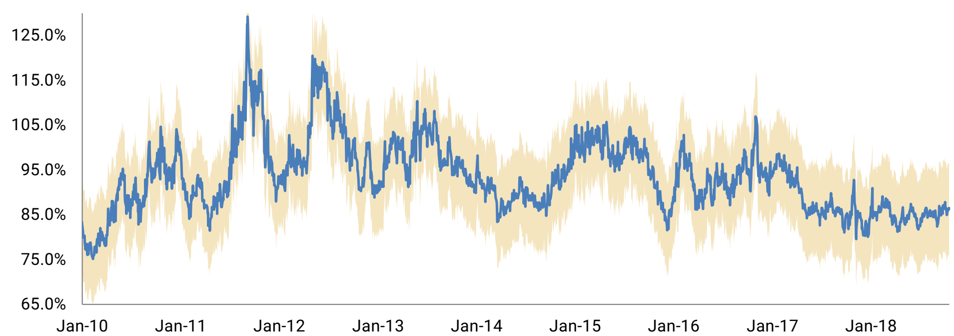
Source: Morgan Stanley Research, MMD

Exhibit 75: 5Y Ratios +/- 1SD



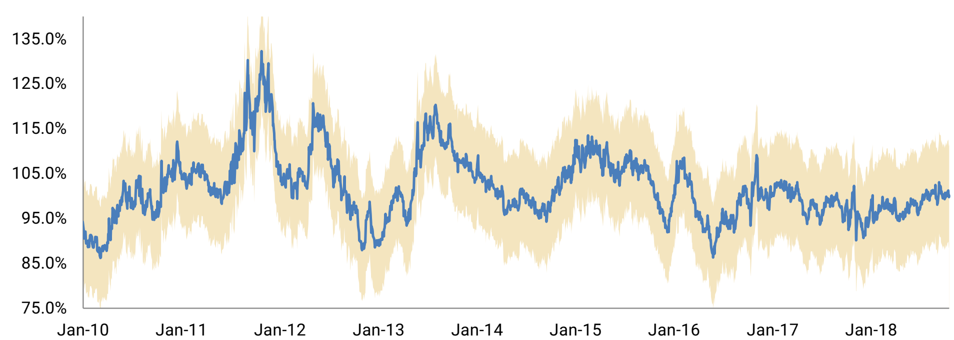
Source: Morgan Stanley Research, MMD

Exhibit 76: 10Y Ratios +/- 1SD



Source: Morgan Stanley Research, MMD

Exhibit 77: 30Y Ratios +/- 1SD



Source: Morgan Stanley Research, MMD

Endnotes

1 2018 state and local ballot measures. Reuters Graphics. Ipreo by IHS Markit. November 2018.

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9 BAN ON TAX-EXEMPT ADVANCE REFUNDINGS - NOW WHAT? National Association of Bond Lawyers. February 2018.

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	COVERAGE UNIVERSE		INVESTMENT BANKING CLIENTS (IBC)			OTHER MATERIAL INVESTMENT SERVICES CLIENTS (MISC)	
STOCK RATING CATEGORY	COUNT	% OF TOTAL	COUNT	% OF TOTAL IBC	% OF RATING CATEGORY	COUNT	% OF TOTAL OTHER MISC
Overweight/Buy	**1157**	**37%**	**305**	**42%**	**26%**	**544**	**39%**
Equal-weight/Hold	**1380**	**44%**	**335**	**46%**	**24%**	**632**	**45%**
Not-Rated/Hold	**47**	**1%**	**7**	**1%**	**15%**	**7**	**0%**
Underweight/Sell	**553**	**18%**	**82**	**11%**	**15%**	**220**	**16%**
TOTAL	**3,137**		**729**			**1403**	

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