Loop Capital

Municipal Strategy Report

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Intrigue on Mount Moriah—Will Bonds Be Sacrificed in 2020?

Asset markets were well supported by the fed's policy reversal. Stocks, bonds, commodities, gold, home prices, and the dollar all climbed in 2019. The necessary ingredients to match that kind of performance are not in evidence given the different market and economic realities that will mark the beginning of the new year. Is 2020 the year that bonds fail to earn the coupon as a casualty of current monetary policies to sustain the expansion?

By Chris Mier, CFA | Strategist

While it's too early to clip coupons, 2019 appears to be headed towards a reasonable conclusion without the chaos and tumult that closed out 2018. The current year began fast on the heels of a government shutdown, an unanticipated escalation in trade warring, a temporary buyer's strike by the consumer, and an accumulation of unwanted inventory. Europe was still trying to find a bottom. As the year progressed, good stewardship by the Fed led to lower interest rates and a significantly more accommodative monetary policy stance. The consumer gradually shook off the weakness in their knees, returning to an annualized pace of spending over 4% by the second quarter. The inventory problem gradually wound down. Trade negotiations turned out to be a chronic condition. Economic growth bounced back in the 2nd quarter. Despite significant softness in business investment GDP continued to grow at an acceptable pace, a little better than trend.

Absent an about face as December winds down, investors will be well compensated for both their angst and any related dyspepsia in 2019, as many markets are headed towards bountiful returns for the year. The S&P 500 has risen 23.5% this year through December 3rd. Bond yields have declined dramatically. The total return on Barclays U.S. Treasury Index is around 8% year-to-date. Commodities performed well, while the price of gold rose by 15%. And home prices continued their recovery, rising moderately in 2019.

Thinking ahead to 2020, it is hard not to be concerned about the pricing of stocks (near record highs) and the bond market (the average yield of the 10-Year over 2019 has been the lowest annual average yield since 2012). What kind of economic and financial environment is needed to produce another year of positive stock market returns along with the ability to earn the coupon in bonds? It is hard to imagine the scenario that must arise in 2020 in order to produce another year of positive returns for stocks and bonds given assets at today's prices. 2019's solid performance would likely have been hard to anticipate at this time last year, as well.

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Intrigue on Mount Moriah—Will Bonds Be Sacrificed in 2020?

The year won't be without challenges. We can look forward to an impeachment process, a national election, new twists in trade policy, a rapid expansion of the federal deficit and other scheduled or highly probable market and economic challenges. Then there are the lurking events that haven't presented themselves yet.

The Treasury yield curve started the year inverted from the 1-year to all spots from 2 through 7-years. On October 21st, the curve had returned to a positive slope across all those maturities for the first time this year. This is what both the Fed and the markets have wanted. The Fed needed to know that the reversal in its policy and the subsequent 3 cuts in rates, one-third of the 9-increase aborted normalization process, were calibrated for validation by financial markets. Since the start of the year, the curve is now lower by about 90 basis points in the 2-year and lower by 83 basis pints in 10-years. And it is positively sloped. This market plebiscite supports the conclusion that the Fed is back to a policy that is clearly accommodative and supportive of fostering at least a slight rise in inflation.

Taken on its own, the curve suggests slightly stronger growth, rising inflation, and a move away from deflation risk. To sustain equity prices at current levels with some room to move higher requires a resumption of strong enough growth to validate the decision for businesses to invest again, and enough inflation to allow from some upside movement on prices to re-establish wider margins. The yield curve, helped by a wish list of supportive conditions like a tapering of the trade rhetoric and a hint of growth from Europe, could be enough to push equity prices higher. On the bond side, improved growth and a whiff of inflation moving convincingly towards the Fed's 2% target will require an adjustment in rates enough to move bond total returns solidly into the negative column. Blood must be spilt.

The Fed cannot tolerate a scenario of lower yields one year from now. That would suggest a failure in the efficacy of standard monetary policy and the imminent threat of negative interest rates, secular stagnation, deflation, and increasing financial market instability. There is still a few weeks to ponder 2020's possibilities, but it appears likely that sustaining favorable economic conditions and rising asset prices require sacrificial offering—the bond market.

Economic and Interest Rate Forecast — December 2019

Factors Supportive of Lower Rates

Factory orders fell 0.6% in September and 0.3% year-over-year amid ongoing trade war with China.

The ISM Manufacturing index dipped 0.2 points to 48.1 in November. A number below 50 signals contraction.

Industrial production fell 0.8% in October, below the consensus estimate of -0.4%. Motor vehicle-related production was down 7.1%, driven by the GM strike that concluded in November.

Factors Supportive of Higher Rates

Third quarter GDP growth came in at 2.1% vs. 1.9% consensus estimate, with consumer spending growing at solid rate and residential investment rising after falling for six consecutive quarters.

The U.S. added 128K jobs in October vs. 85K consensus forecast, despite GM strike, while September and August readings were revised up by 95K total.

Retail sales rose 0.3% in October and 3.1% YoY, as consumers continue to support economic growth, even as businesses cut back on investment amid the ongoing trade war with China.

Auto sales rose 3.2% to 17.09 million (annualized) in November.

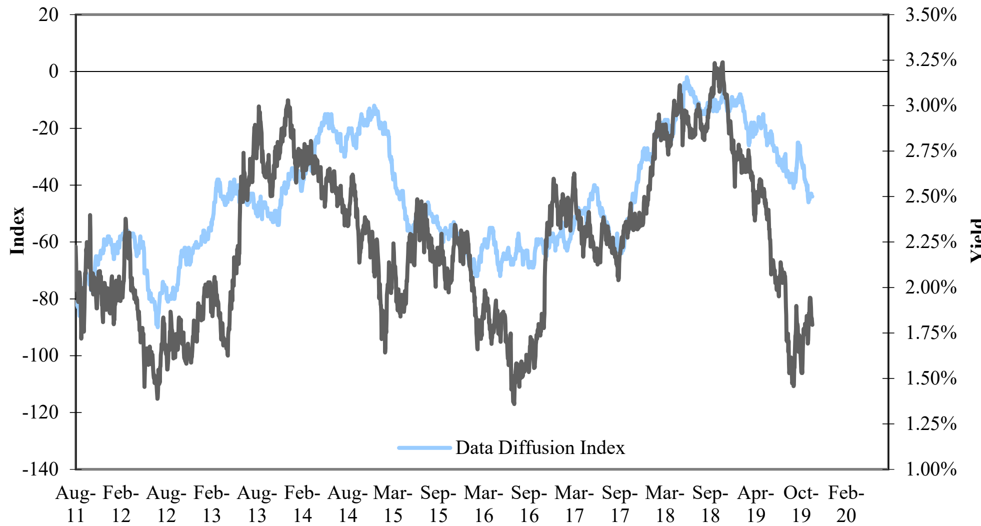
Figure 1 **Economic and Interest Rate Forecast — December 2019**

	3Q'18	4Q'18	1Q'19	2Q'19	3Q'19	4Q'19	1Q'20	2Q'20	3Q'20	4Q'20	1Q'21	2Q'21	3Q'21	4Q'21	Avg'18	Avg'19	Avg'20	Avg'21
Economic Forecasts																		
Real GDP	2.9	1.1	3.1	2.0	2.1	1.6	1.7	2.0	1.8	1.7	1.7	2.0	2.1	2.0	2.9	2.3	1.8	1.9
Core PCE Deflator	2.0	1.9	1.6	1.6	1.7	1.8	2.0	2.1	2.3	2.0	2.2	2.0	1.7	2.0	1.9	1.7	2.1	2.0
Unemployment Rate*	3.8	3.8	3.9	3.6	3.6	3.5	3.5	3.4	3.4	3.5	3.4	3.4	3.4	3.4	3.9	3.7	3.4	3.4
Nonfarm Payrolls (1000s)	568	700	521	456	565	440	380	340	300	260	230	220	200	200	2,679	1,982	1,280	850
S&P 500*	2,850	2,699	2,721	2,882	2,958	3,068	3,150	3,181	3,212	3,244	3,276	3,308	3,341	3,374	2,746	2,907	3,197	3,325
Short-Term Interest Rates*																		
Fed Funds Target (%)	1.92	2.18	2.40	2.40	2.20	1.65	1.59	1.38	1.38	1.38	1.38	1.38	1.38	1.38	1.82	2.16	1.43	1.38
3-Month LIBOR (%)	2.34	2.62	2.69	2.51	2.20	1.94	1.69	1.48	1.48	1.48	1.48	1.48	1.48	1.48	2.31	2.33	1.53	1.48
7-Day SIFMA (%)	1.35	1.63	1.54	1.70	1.37	1.18	1.35	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.41	1.45	1.28	1.25
Treasury Interest Rates*																		
2-Year Treasury (%)	2.66	2.80	2.49	2.13	1.69	1.59	1.61	1.44	1.42	1.43	1.46	1.48	1.51	1.52	2.52	1.97	1.48	1.49
3-Year Treasury (%)	2.74	2.84	2.46	2.09	1.63	1.58	1.60	1.46	1.43	1.45	1.48	1.52	1.54	1.57	2.62	1.94	1.49	1.53
5-Year Treasury (%)	2.81	2.88	2.46	2.12	1.63	1.59	1.60	1.51	1.48	1.49	1.54	1.58	1.62	1.66	2.75	1.95	1.52	1.60
7-Year Treasury (%)	2.88	2.97	2.52	2.22	1.71	1.68	1.66	1.58	1.54	1.57	1.61	1.66	1.70	1.73	2.85	2.03	1.59	1.68
10-Year Treasury (%)	2.92	3.04	2.65	2.34	1.80	1.75	1.66	1.63	1.61	1.64	1.70	1.76	1.82	1.88	2.91	2.13	1.64	1.79
30-Year Treasury (%)	3.06	3.27	3.01	2.78	2.29	2.22	2.08	2.16	2.13	2.16	2.22	2.28	2.34	2.40	3.11	2.57	2.13	2.31
Municipal Interest Rates*																		
30-Year MMD (%)	3.04	3.27	2.95	2.47	2.08	2.08	1.99	2.06	2.04	2.07	2.13	2.19	2.25	2.31	3.05	2.39	2.04	2.22
Muni Yield Curve Slope (%)	1.47	1.40	1.34	1.03	0.98	0.96	0.74	0.81	0.79	0.82	0.88	0.94	1.00	1.06	1.44	1.08	0.79	0.97

P: Preliminary Data
* 3-month average
Source: Loop Capital Markets' Analytical Services Division and Short-Term Desk. Black Text: Actual Blue Text: Forecast as of December 4, 2019

Market Review *Data Diffusion | ADS Index*

Figure 2 **Data Diffusion Index vs. 10-Yr Treasury Yield**

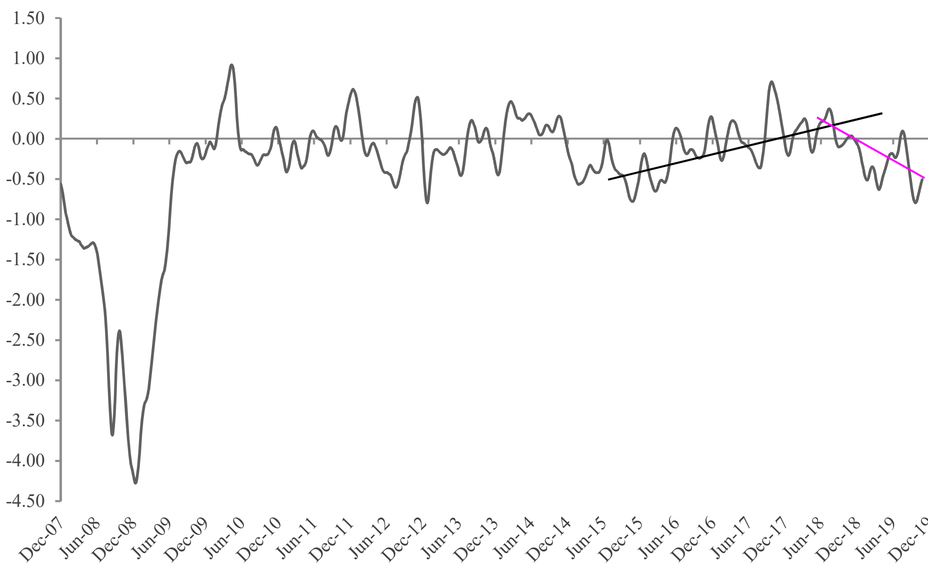


Sources: FRED, Loop Capital Markets

Even though economic releases were weaker than expected, Treasury yields rose over the last 2 months.

Data Diffusion Index: We calculate the Data Diffusion Index based on 30 different weekly, monthly and quarterly economic releases, such as construction spending, capacity utilization and new home sales. If the number came above the consensus estimate (which is positive for economic growth) the index would increase by one, and vice versa. The Treasury yield is expected to track the data diffusion index (the yields would increase as the economy exceeds expectations and vice versa).

Figure 3 **Aruoba-Diebold-Scotti Business Conditions Index (12/31/2007 — 11/23/2019)**



Source: Federal Reserve Bank of Philadelphia

The ASD index turned decisively negative in September and October and has been trending down since mid-2018. The comparison is relative to trend growth of about 2%, represented by the horizontal line.

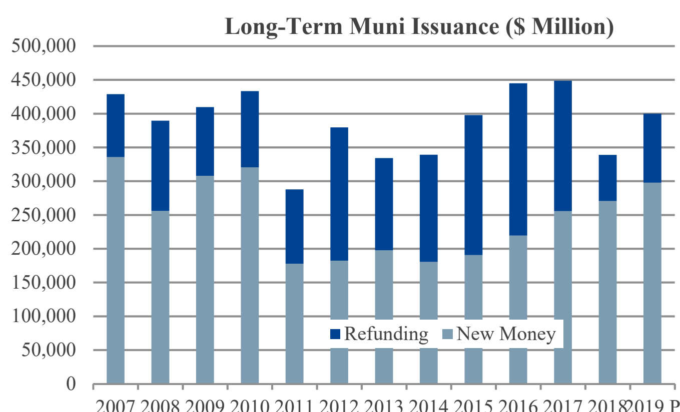
Reading the ADS Index: The index is designed to track real business conditions at high frequency. Its underlying (seasonally adjusted) economic indicators (weekly initial jobless claims; monthly payroll employment, industrial production, personal income less transfer payments, manufacturing and trade sales; and quarterly real GDP) blend high and low-frequency information and stock and flow data.

Municipal Bond Volume Forecast for 2020

By Chris Mier, CFA | Ivan Gulich, CFA

We forecast new issue volume of $450 billion for the coming year, 12% above the anticipated volume for 2019 of around $400 billion and about the same as in record 2017. Refundings are expected to increase, accompanied by a moderate improvement in new money issuance.

In 2019 new money volume rose to its highest level since 2010, when it was boosted by issuance of Build America Bonds (BABs). Refunding volume, which was decimated in the wake of tax reform, partially recovered in 2019.



Source: The Bond Buyer

We forecast next year's new issue volume using two approaches: (1) quantitative modelling using historical data and (2) bottom-up estimate of refunding potential for outstanding callable bonds. Recent surge in taxable advance refundings, a new development not reflected in historical data, refunding potential from callable BABs, and potential for securitization of opioid settlement necessitate a bottom-up analysis.

Quantitative Model

Our forecasting model is based on regression analysis. We ran multivariate regressions using different combinations of factors to develop the optimal model. The challenge was to identify and test variables that are predictive of new issue volume, while satisfying statistical criteria regarding significance and explanatory strength. We use this approach because it provides insight into the economic and financial factors associated with volume and how they interact with each other. This approach also allows sensitivity analysis to evaluate the impact of a change in one variable on municipal volume as others are held constant.

The variables chosen were:

- Bond Buyer Weekly 20-year GO Yield
- U.S. GDP
- Growth in Local Government Payroll
- State and Local Government Expenditures

Squaring the yield variable captured some of the non-linearity of the volume data and significantly improved the model fit.

In addition to independent variables, we have also included a lagged variable in the regression as well, since monthly volumes are serially correlated. Our sample consisted of annual data from 1987 through 2019.

All variables in our model were statistically significant at the 5% level, with randomly distributed residuals. The model explains 89.9% of year-over-year variation in new issue volume.

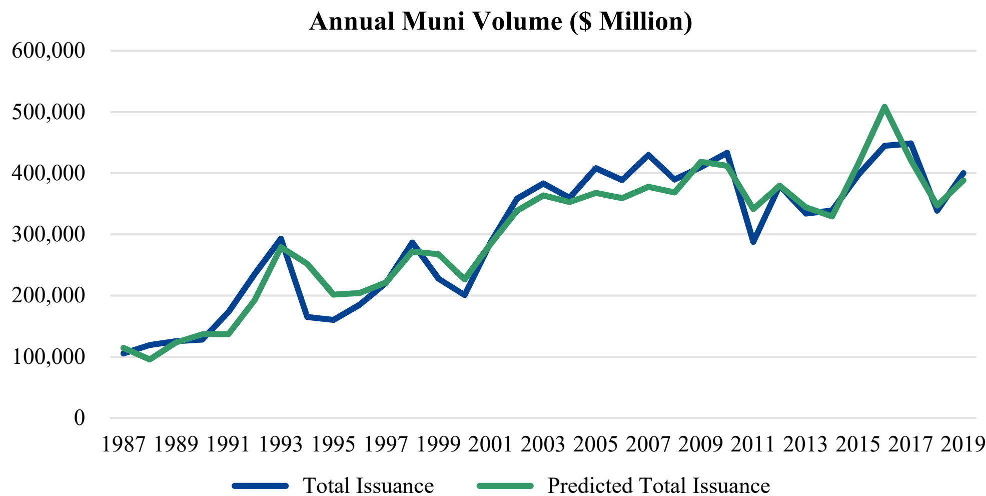
SUMMARY OUTPUT

Regression Statistics	
Multiple R	95.8%
R Square	91.8%
Adjusted R Square	**89.9%**
Standard Error	34,829
Observations	33

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	353,261,219,454	58,876,869,909	48.5359	0.0000
Residual	26	31,539,539,760	1,213,059,222		
Total	32	384,800,759,213			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	1,243,700	266,607	4.6649	0.0001	695,681	1,791,719
BB 20-Yr GO Yld	(263,478)	73,148	(3.6020)	0.0013	(413,837)	(113,120)
(BB Yld)^2	14,900	5,622	2.6502	0.0135	3,343	26,457
Nom GDP NSA	(82.4236)	20.3439	(4.0515)	0.0004	(124.2411)	(40.6061)
Local Gov Empl Growth	2,960,311	1,131,404	2.6165	0.0146	634,678	5,285,945
S&L Gov Exp NSA	495.7239	141.7602	3.4969	0.0017	204.3315	787.1162
Lagged Volume	0.3819	0.1252	3.0504	0.0052	0.1246	0.6393



Source: Loop Capital Markets

Bottom Up Analysis

In 2020 current refundings will increase for two reasons:

1) By the time tax-exempt advance refundings were eliminated in 2017 relatively few bonds with 2020 call date were refunded due to marginal savings. Many more such bonds will become currently refundable than would have been the case without the TCJA.

2) Current refundings will be boosted by BABs issued in 2010 with a 10-year call.

Taxable advance refunding boom that began in August is likely to continue, assuming interest rates remain in their current range.

We have aggregated outstanding volumes of bonds that are candidates for refunding based on the call date, coupon, maturity etc. As advance refunding savings are lower for longer calls, we have assigned higher probability of being called to bonds with 2021 than 2022 calls, while allowing for possibility that 2023, or even 2024 calls could be in play next year, should rates stay at these levels.

Another potential source of issuance is securitization of opioid payments in 2020. Even though the amount and timing of potential securitization of cash flow from opioid settlements is uncertain at this point, this development has a potential to boost muni issuance in 2020.

Taking into account quantitative and qualitative considerations, bottom-up analysis confirms that $450 billion muni issuance in 2020 estimated by our model is achievable.

Conclusion

The factors supportive of stronger new issue volume in the second half of 2019 should continue in 2020. Monetary policy is accommodative and interest rates are low. Inflation risk in remote. Low and negative sovereign yields in Europe limit the potential for abrupt rise in Treasury yields. Taxable deals have attracted non-traditional buyers including an expanding pool of international investors hungry for yield, which helps keep a lid on muni rates. Favorable conditions for muni issuance are likely to continue, which is why we feel comfortable forecasting $450 billion muni issuance in 2020.

Will PG&E Be Taken Over by the State or Local Governments?

By Rachel Barkley | Senior Vice President

Pacific Gas and Electric (PG&E), which provides electricity and natural gas to 5.2 million households in Northern and Central California, filed for Chapter 11 bankruptcy protection in January 2019 driven by recent findings that PG&E equipment was responsible for causing wildfires detailed below. In total, the Utility's estimated liabilities related to the wildfires could exceed $30B.[1] At the time of the filing, the Utility has lined up roughly $5.5B in debtor-in-possession financing, to allow the Utility to maintain operations during the bankruptcy proceedings. PG&E had previously undergone a bankruptcy restructuring in 2001, during the state's energy crisis.

Wildfire Background

2017 Northern Wildfires: In October 2017, a total of 21 wildfires spread through Northern California, affecting areas of Napa, Sonoma, Butte, Humboldt, Mendocino, Lake, Nevada, and Yuba counties. In aggregate, the fires were determined to have caused 44 fatalities, destroyed 8,900 structures, and consumed over 245,000 acres. Cal Fire determined PG&E equipment was involved in causing 20 of the 21 fires.[2]

2018 Camp Fire: A November 2018 wildfire near the city of Paradise, California in Butte County. The fire consumed more than 153,000 acres, caused 85 fatalities, and destroyed roughly 19,000 buildings, including residences and commercial structures. Cal Fire determined that the fire was caused by electrical transmission lines owned by the Utility near Pulga, California. PG&E accept Cal Fire's determination.

As of January 28, 2019, there were approximately 850 complaints against the utility on behalf of 8,000 plaintiffs related to the 2017 and 2018 wildfires, 14 of which sought to be certified as class actions. These complaints are currently under an automatic stay as part of bankruptcy proceedings.

Bankruptcy Proceedings

The bankruptcy proceedings are currently ongoing in the Northern District of California (Case # 19-30089-DM) and are being overseen by Judge Dennis Montali. Earlier this fall, Judge Montali appointed retired bankruptcy Judge Randall Newsome as a mediator to expedite the bankruptcy process, brokering a deal between PG&E and its creditors. Governor Newsom has appointed Ana Matosantos as the State's energy czar, charged with fixing the state's utility problems and helping guide the PG&E bankruptcy.

The Utility filed a Plan for Reorganization in September 2019 to resolve the outstanding pre-petition claims against it, which has since been amended to align with the current Restructuring Support Agreement (RSA) between the Utility and insurance claimants. The current proposed Plan of Reorganization includes $11B to be paid for insurance subrogation claims for damages related to the 2017 Northern California wildfires and the 2018 Camp fire, up to $8.4B for wildfire victims, and an additional $1B to settle claims from public entities related to the wildfires. The deadline for filings claims for fire creditors has been extended to December 31, 2019.

While the bankruptcy proceedings were originally estimated to take two years, they are now expected to wrap up by the close of June 2020 to allow the Utility to qualify for participation in the wildfire insurance fund, revised prudency standards, and the liability cap which were instituted by AB 1054. The wildfire insurance fund will allow participating IOUs to pay eligible third-party damage claims resulting from wildfires from the newly created fund.

Potential Government Intervention

The California Public Utilities Commission (PUC), a state regulatory agency that regulates privately owned utilities in California, has jurisdiction over terms and conditions of service for the Utility's distribution and must approve any Reorganization Plan for PG&E.

Governor Newsom has stated the $11B for insurance settlements may be too low and could prevent the State from signing off on a bankruptcy settlement.[3] He also indicated the State might take part in a PG&E takeover if the bankruptcy process does not improve PG&E operations to a significant degree. However, at least one rating agency has already warned this could have negative implications for the state's risk profile. S&P released a report in November stating that a full takeover of PG&E cold present substantial liability risk to the State, which is currently rated AA- with a Stable Outlook.[4] If State were to take control of the Utility, its rating would take into consideration the size and scope of the State's resulting costs and liabilities, which may include cost of operations, capital needs, and exposure to wildfire risk.

[1] PG&E, 10-Q, October 2019

[2] PG&E, 10-Q, October 2019.

[3] California Governor Questions $11 Billion PG&E Insurance Deal. Wall Street Journal. Nov. 11, 2019.

[4] If California Takes Direct Control To Restructure PG&E, It Could Affect State Credit Quality. S&P Global. Nov. 12, 2019.

There is also a push for a potential local government takeover of the Utility. San Francisco had offered to buy portions of the system that serve the city for $2.5B earlier in the year and was rejected. A wider consortium of local governments, led by San Jose, consisting of 16 city mayors and 5 county chairs representing over 5 million residents wrote to the California PUC stating that they plan to propose transforming PG&E into a mutual-benefit corporation in November.[5] While this option is not currently being considered by the Court, it should be on the radar of analysts for area localities. It is too early to know any specific details of such a proposal but a portion of cost of operations, capital needs, and wildfire risk would likely transfer to participating entities, as well as any debt issued to finance the purchase which could affect the overall rating and credit profile of participants.

Cities and Counties Pursuing a Mutual Benefit Corporation

City of Berkeley
City of Clovis
City of Davis
City of Elk Grove
City of Hayward
City of Modesto
City of Oakland
City of Redding
City of Redwood City
City of Richmond
City of Sacramento
City of San Jose
City of Stockton
City of Sunnyvale
Marin County
San Benito County
San Mateo County
Santa Cruz County
Yolo County

[5] Liccardo, Sam *et al.* Letter to President Batjer and Commissioners, Nov. 4, 2019.

Muni Market Update

By Ivan Gulich, CFA | Senior Vice President

New issue volume through the end of November was $378 billion, up 18% compared to the same period in 2018. If issuance is solid over the next couple of weeks, new issue volume in 2019 will likely reach or exceed $400 billion.

New money volume rose 8% through the end of November continuing its gradual recovery since bottoming in 2014. Refundings, on the other hand, soared 60% this year compared to subdued levels in 2018 when tax-exempt advance refundings were eliminated.

Issuance as share of total	2019 YTD*	2018 YTD*	Change	
Negotiated	271,584	219,363	52,221	23.8%
Competitive	93,739	79,820	13,919	17.4%
Private Placements	12,350	20,884	(8,534)	-40.9%
New Money	240,139	222,275	17,864	8.0%
Refunding	92,394	57,479	34,915	60.7%
Combined	45,140	40,312	4,828	12.0%
Tax Exempt	298,985	274,677	24,308	8.8%
Taxable	58,709	28,724	29,985	104.4%
AMT	19,979	16,666	3,313	19.9%
Revenue	223,415	200,986	22,429	11.2%
General Obligation	154,257	119,081	35,177	29.5%
Fixed-Rate	350,498	293,549	56,949	19.4%
Var.-Rate (Long/No Put)	16,291	10,431	5,860	56.2%
Var.-Rate (Short Put)	7,568	9,482	(1,914)	-20.2%
Linked-Rate	1,903	5,765	(3,862)	-67.0%
Zero-Coupon	1,317	735	582	79.2%
Education	102,145	78,264	23,881	30.5%
General Purpose	89,688	82,268	7,420	9.0%
Transportation	59,458	47,519	11,939	25.1%
Utilities	40,798	37,007	3,791	10.2%
Health Care	34,228	29,539	4,688	15.9%
Housing	22,257	19,479	2,779	14.3%
Electric Power	10,303	5,329	4,974	93.3%
Development	9,068	7,579	1,489	19.6%
Public Facilities	5,891	11,466	(5,575)	-48.6%
Environmental Facilities	3,836	1,617	2,220	137.3%

** Jan-Nov*

Source: The Bond Buyer

Taxable muni volume more than doubled year-to-date, reaching its highest level since 2010, when Build America Bonds program ended. The increase is driven almost exclusively by taxable advance refundings. The increase in taxable issuance year-to-date is comparable to the increase in muni refundings.

There are several reasons for this dynamic. Taxable refunding savings have improved due to a decline in interest rates and curve flattening, which reduces negative arbitrage. Issuers no longer have much hope that tax-exempt advance refundings will be reauthorized by Congress. Demand for taxable munis is very strong as sovereign yields are close to historic lows in many overseas markets and are negative in several developed countries.

Taxable munis, with their relative high credit quality, remain attractive to overseas and other non-traditional investors hunting for incremental yield. They can offer higher yields than corporate bonds in the same rating category and have much lower historical default rates. Concerns about excessive indebtedness among some corporate issuers, and potential mergers and share buybacks that can affect bond valuation, make taxable munis an attractive option for fixed-income investors to diversify their holdings.

The composition of muni issuance has changed somewhat year-to-date. Private placements declined sharply, while negotiated bested competitive issuance in relative terms. GO volume jumped almost 30% year-over-year. Issuance in the education sector increased the most in absolute terms, followed by transportation, general purpose and healthcare bonds. Muni volume surged in relative terms in environmental facility and public power sectors, but slumped in public facilities sector.

Among top issuing states, volume increased the most in absolute terms in California, Florida, Texas and Massachusetts. Largest year-over-year declines were recorded in Illinois, New Jersey, Minnesota and New York.

Bond Sales by Top 20 Issuing States: Jan-Nov ($ million)

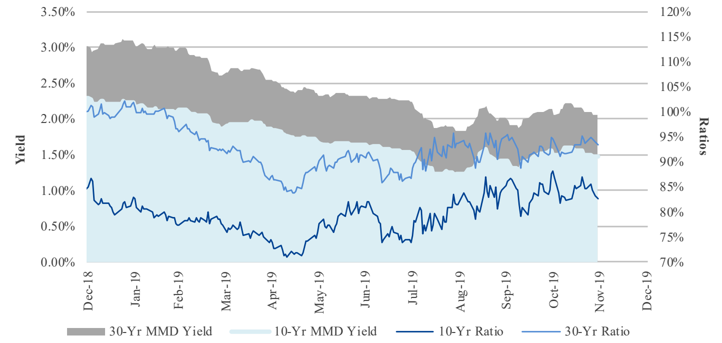
States	2019	2018	Change
California	54,519	44,649	22.1%
Texas	39,880	31,465	26.7%
New York	38,081	38,921	-2.2%
Florida	20,233	11,759	72.1%
Pennsylvania	17,296	13,030	32.7%
Massachusetts	13,457	8,009	68.0%
Ohio	11,423	8,001	42.8%
Colorado	11,296	9,967	13.3%
Georgia	10,920	6,677	63.6%
New Jersey	9,190	10,276	-10.6%
Washington	8,583	8,866	-3.2%
Virginia	8,418	5,371	56.7%
Illinois	8,384	10,161	-17.5%
Michigan	8,308	6,320	31.5%
Wisconsin	7,935	7,500	5.8%
Arizona	7,571	3,423	121.2%
North Carolina	6,997	5,918	18.2%
Maryland	6,549	5,458	20.0%
Minnesota	6,407	7,257	-11.7%
Missouri	6,284	4,250	47.9%

Source: The Bond Buyer

Yield Curve

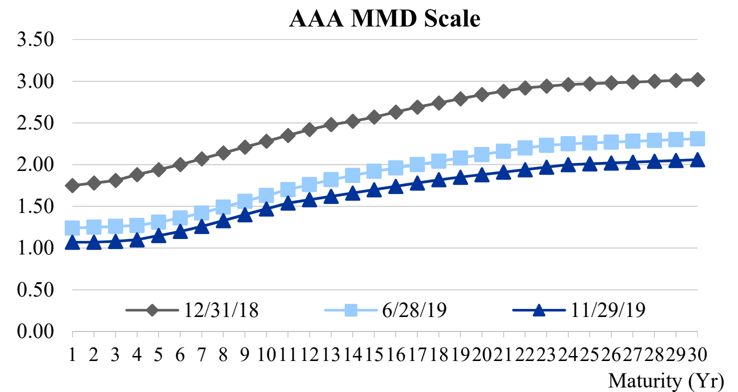
Muni yields have been steadily declining through the end of August, driven by the dynamic in the Treasury market. Towards the end of the first quarter the Fed cut its forecast for projected rate hikes to zero. At the end of May, trade war jitters and slowdown in Eurozone economies led to another sharp drop in Treasury rates. In the wake of Fed's rate cut on July 31, the 30-yr Treasury yield dipped below 2%, its lowest level in decades. Negative sovereign yields in some overseas markets increased demand for U.S. fixed income assets. Yields are also affected by net supply, which is often negative during the summer months, when redemptions are high and issuance sluggish, and turns positive later in calendar year.

Muni/Treasury ratios steadily declined through mid-May due to limited supply in the first half of 2019 and strong investor demand:



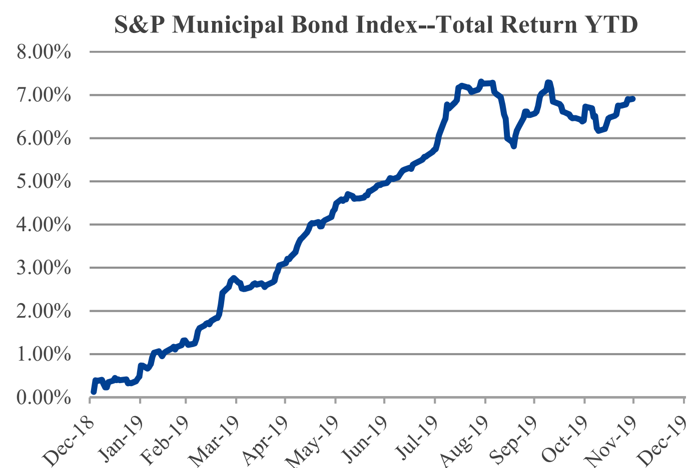
Source: Eikon/TM3

As a result of these developments, muni bonds rallied. The yields fell sharply in H1'19 and continuing to decline in H2, for a total of 87 bps, on average, across the curve year-to-date.



Source: Eikon/TM3

Munis returned almost 5% in H1'19 and around 6.9% year-to-date:



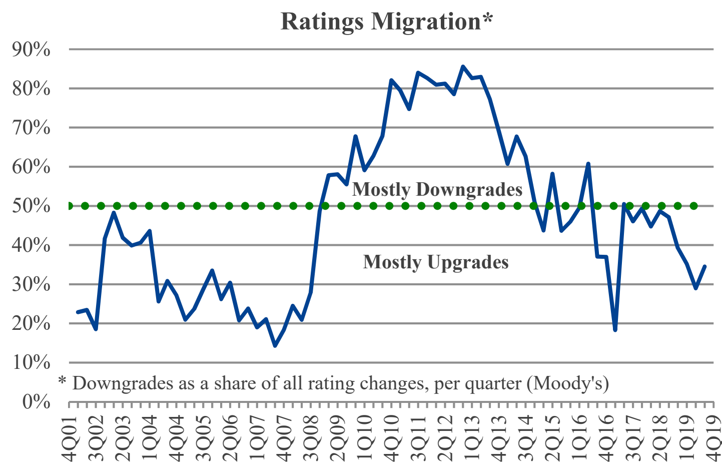
Source: S&P

Longer bonds outperformed short and intermediate maturities, as AAA MMD yield curve flattened 28 bps so far in 2019.

Muni Credit

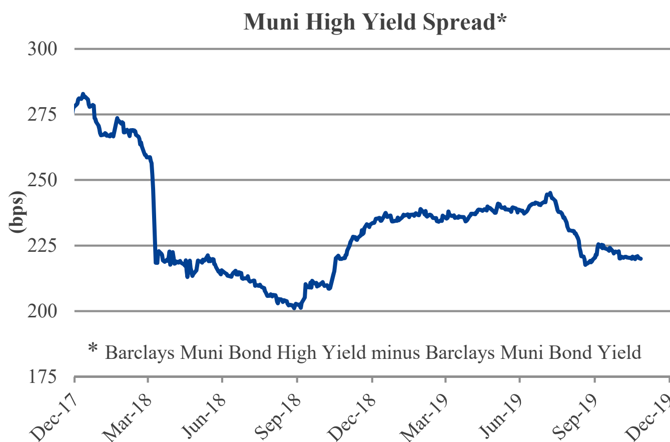
The overall muni credit quality improved in 2019, with twice as many upgrades as downgrades.

GO credits have benefited from strong revenue growth. State tax collections increased 8.3% year-over-year in Q2'19 on the strength of income tax receipts. Property tax collections, the main source of revenue for local units of government, rose 8.2% YoY. Revenue bonds have benefited from continued economic expansion as well.



Source: Moody's

Credit spreads have tightened 14 bps year-to-date amid strong demand for bonds that offer attractive yields.

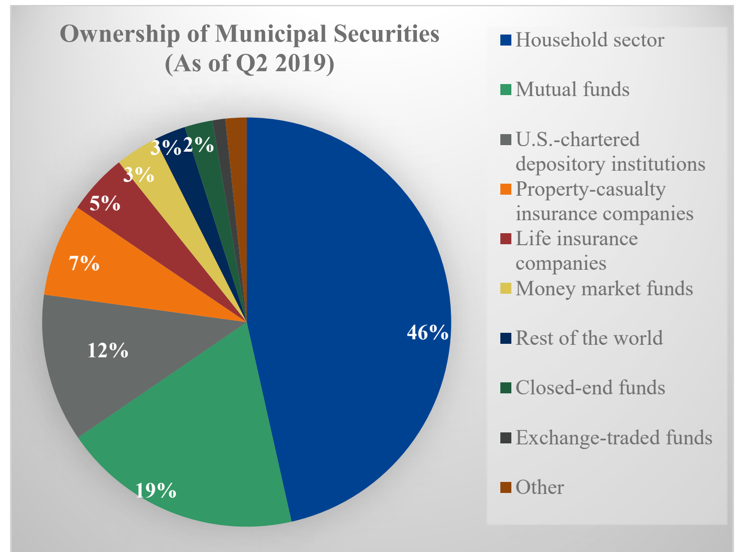


Source: Barclays

Weaker credits are at risk of spread widening, which generally happens late in the business cycle. With current expansion the longest on record, the potential for further spread compression is limited.

Muni Bondholders

Demand for munis is driven mostly by retail investors whose share of outstanding munis (owned directly or through mutual funds) increased 1.7 points in 2018 and additional 1.2 points in H1'19 to 65.4%.



Source: Federal Reserve

Banks have continued to reduce muni assets through the end of Q2 in response to corporate tax cut, while muni holdings of insurance companies have stabilized:

				Q2'19 vs.	
Sector	2017	2018	Q2'19	Q4'17	Q4'18
Households	1,879.8	1,852.5	1,892.6	0.7%	2.2%
Mutual funds	688.1	693.6	772.7	12.3%	11.4%
Banks	572.6	498.8	476.4	-16.8%	-4.5%
P&C insurance companies	338.9	291.6	298.6	-11.9%	2.4%
Life insurance companies	197.8	190.0	195.5	-1.2%	2.9%
Foreign buyers	101.3	100.8	102.0	0.7%	1.2%

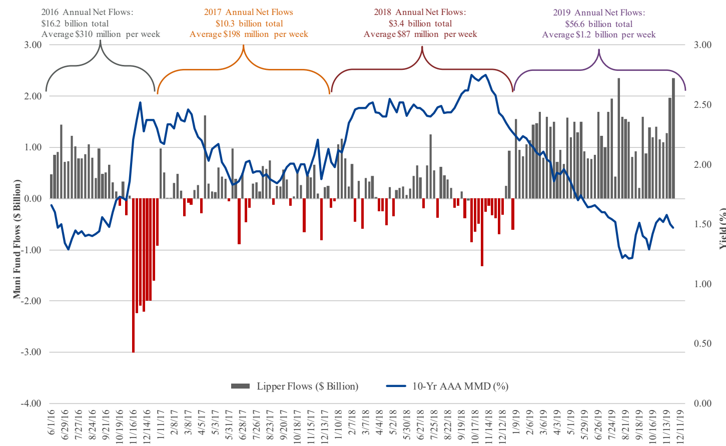
Source: Federal Reserve

Surge in taxable issuance in the second half of 2019 should boost municipal holdings of foreign buyers and potentially arrest the decline in muni ownership among banks.

Muni Fund Flows and Secondary Trading

Robust retail demand for munis is reflected in close to $60 billion mutual fund inflows over 47 consecutive weeks in the best fund flow year on record. Last week, muni bond mutual funds added $2.36

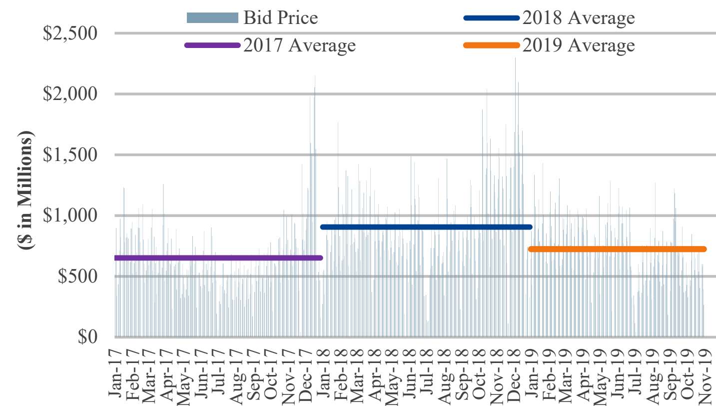
billion of new money, the largest amount since records began in 1992.[6]



Source: Lipper

Secondary trading volume, on the other hand, declined about 20% so far in 2019.

2017 Daily Avg	2018 Daily Avg	2019 Daily Avg
$652 M	$906 M	$724 M



Source: MSRB

Final Thoughts

Accommodative monetary policy, low inflation and pervasive negative interest rates on overseas sovereign bonds have created an environment that is broadly supportive for muni issuance, including taxable advance refunding deals.

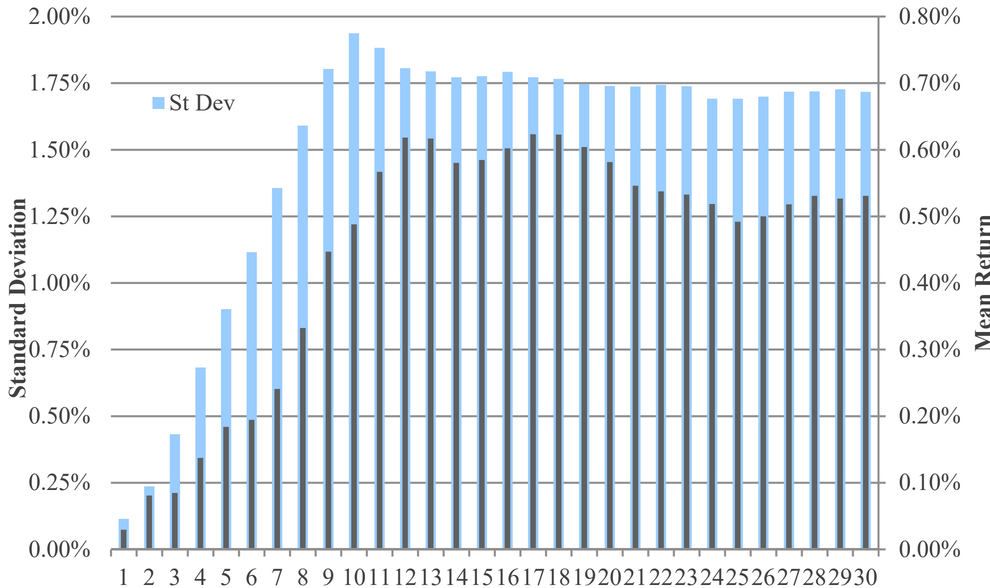
Demand for munis is very strong among retail investors and foreign buyers. It is gradually firming up among insurance companies and possibly banks.

Barring some unforeseen circumstances, such as unexpected downturn in the economy during an election year, or a sharp rise in Treasury yields, which would reflect negatively on the muni market, we expect 2020 to be a good year for issuers and investors alike.

[6] Source: Lipper/Refinitiv

Market Review *Historical Monthly Bond Price Changes*

Figure 4 **Muni Benchmark Callable Scale — Average Bond Price Changes (December)**



Sources: Loop Capital Markets, TM3

We show historical bond price changes for each point on the muni benchmark callable curve during the month of December for the last 18 years.

The returns in December were positive 2/3 of the time, with bond prices rising, on average, 0.45% across the curve.

Figure 5 **Muni Benchmark Callable Scale — Average Bond Price Changes (December)**

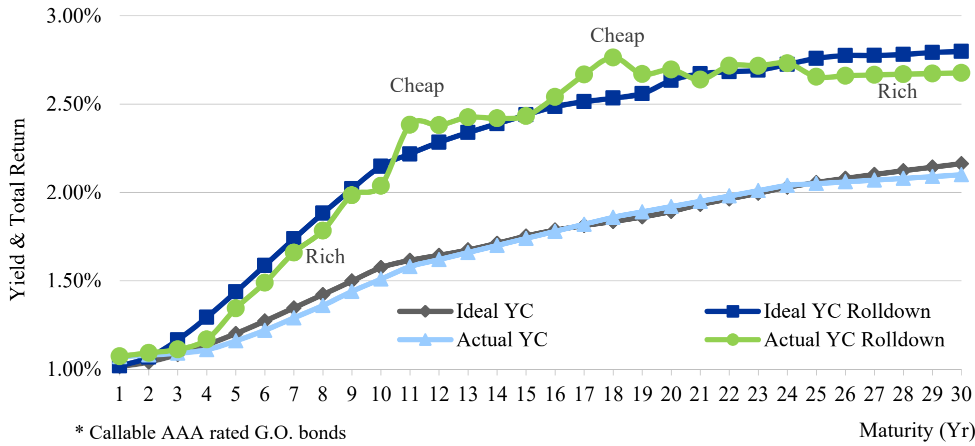
Maturity	5	10	15	20	25	30
Dec-01	-0.79%	-1.85%	-1.53%	-1.07%	-1.37%	-1.37%
Dec-02	1.79%	2.70%	2.60%	2.18%	1.86%	1.86%
Dec-03	0.13%	1.21%	1.03%	0.87%	0.71%	0.71%
Dec-04	0.76%	1.12%	1.28%	1.43%	1.26%	1.18%
Dec-05	0.22%	0.88%	0.87%	0.95%	1.19%	1.27%
Dec-06	-0.49%	-0.95%	-1.03%	-1.10%	-1.18%	-1.26%
Dec-07	0.27%	-0.08%	0.24%	0.24%	0.00%	0.00%
Dec-08	2.07%	4.06%	2.95%	2.53%	2.36%	2.68%
Dec-09	-0.31%	-1.76%	-0.24%	0.24%	0.63%	1.03%
Dec-10	-1.21%	-2.94%	-3.14%	-3.49%	-3.33%	-3.10%
Dec-11	1.23%	3.24%	2.70%	2.68%	2.26%	2.34%
Dec-12	-0.77%	-2.03%	-2.58%	-2.65%	-2.79%	-2.87%
Dec-13	-0.36%	-0.97%	-0.64%	-0.48%	-0.47%	-0.71%
Dec-14	-0.76%	0.33%	1.31%	1.30%	1.14%	1.22%
Dec-15	0.00%	0.82%	1.31%	1.39%	1.14%	1.14%
Dec-16	0.27%	1.72%	1.96%	1.79%	1.78%	1.78%
Dec-17	0.36%	1.40%	1.64%	1.96%	2.04%	2.04%
Dec-18	0.90%	1.89%	1.80%	1.71%	1.62%	1.62%
Mean	0.18%	0.49%	0.58%	0.58%	0.49%	0.53%
St Dev	0.90%	1.94%	1.78%	1.74%	1.69%	1.72%

Sources: Loop Capital Markets, TM3

The 9 to 12-year range was most volatile, with standard deviation of monthly bond price changes of 1.86%.

Market Review *The Yield Curve*

Figure 6 **1-Year Forward Roll-down—Muni Benchmark Curve* (December 2, 2019)**

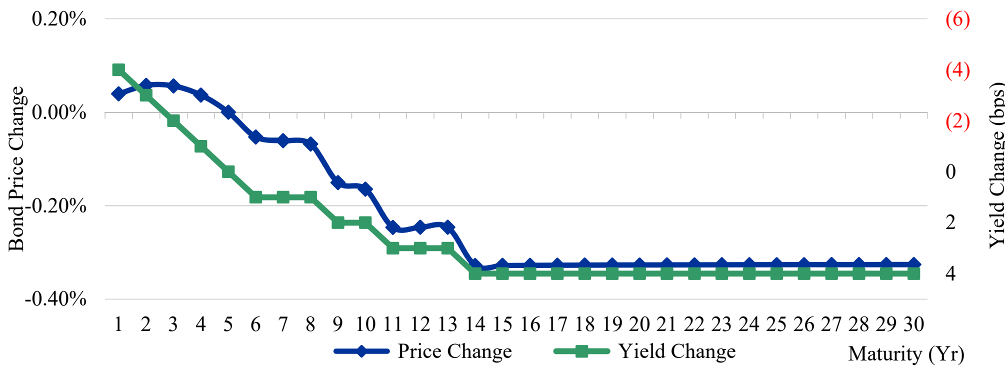


Sources: Loop Capital Markets, TM3 | *Callable AAA-rated G.O. bonds

The yield curve shows rich (4 to 8-yr, 10-yr and 25+ yr) and cheap (11 to 13-yr, 17 to 20-yr) points on the AAA MMD curve, based on one year holding period returns and assuming no change in the yield curve. 18-yr maturity offers the highest expected total return.

Actual returns will depend on the level and shape of the yield curve a year from now.

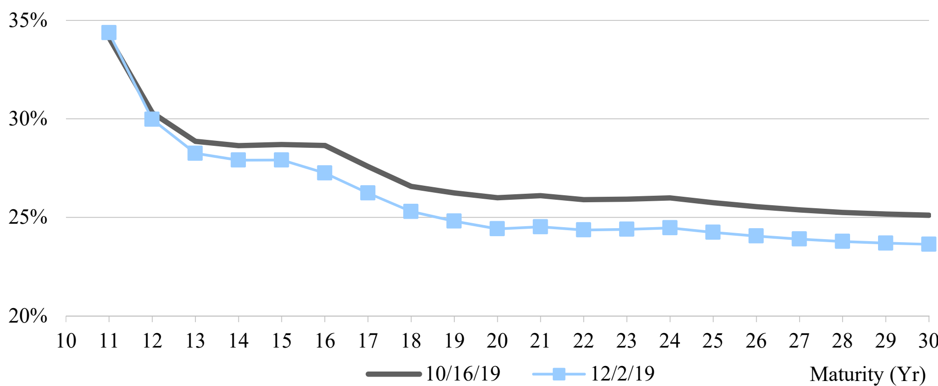
Figure 7 **Monthly Price Change — AAA GO Bonds* (11/1/19 — 12/2/18)**



Sources: Loop Capital Markets, TM3 | *Price Change Only

Yields declined up to 4 bps on the front end, and rose 4 points on the back end of the curve last month.

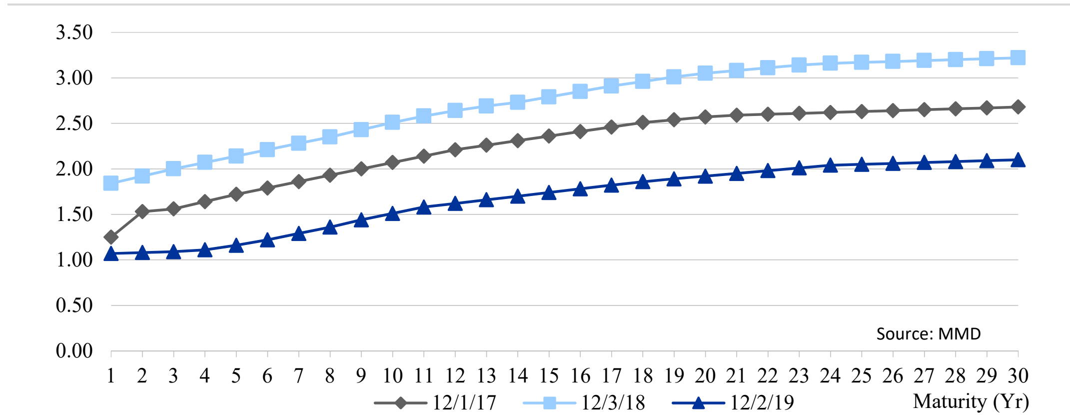
Figure 8 **Implied Municipal Volatilities**



Sources: Loop Capital Markets, TM3 | *10-year call

Implied volatilities declined since mid-October as yields rose across the curve. Since non-callable bonds depreciate faster in rising interest rate environment than their callable counterparts, the price differential between the two, and the respective implied volatilities, declined as a result.

Figure 9 **Current vs. Historical Municipal Yield Curves (%)**

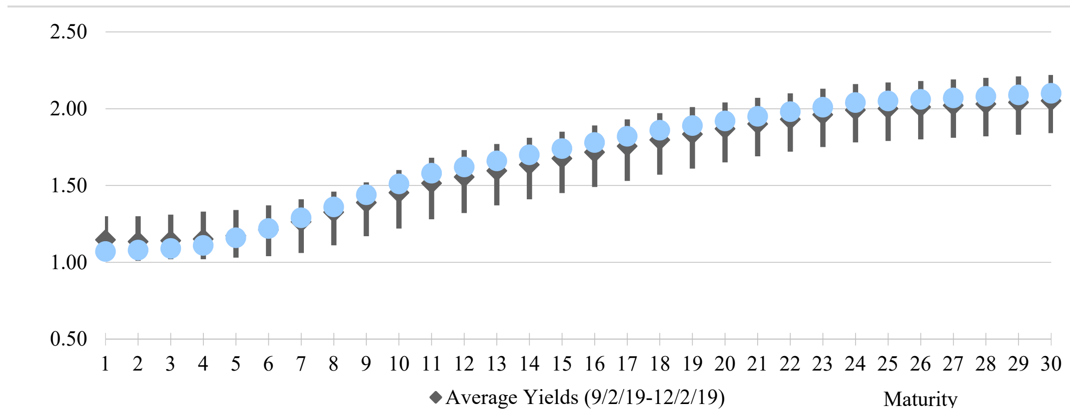


Source: TM3

Yields are 104 bps lower, on average, across the curve than they were in December 2018.

The yields are also lower by an average of 57 bps across the curve versus two years ago.

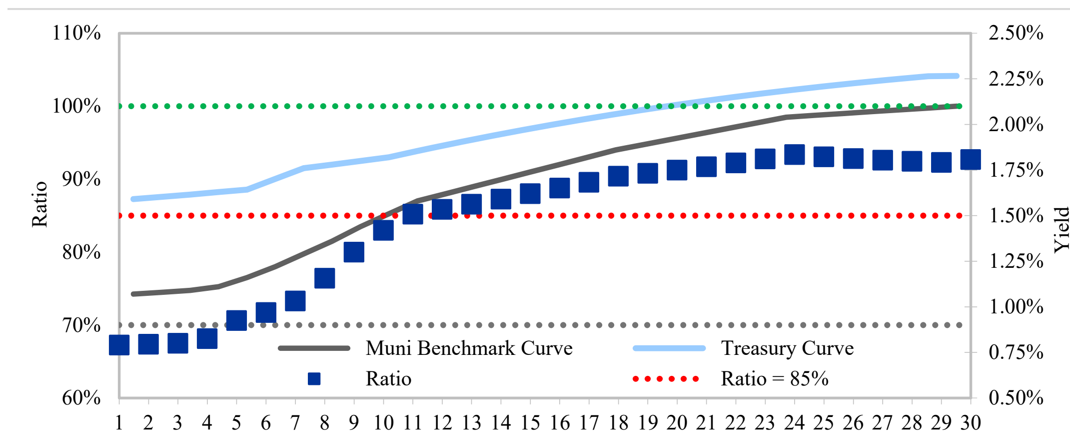
Figure 10 **3-Month Average Benchmark Muni Curve Yield**



Source: TM3

The yields are currently above their 3-month average values in the 7 to 30-yr range.

Figure 11 **Muni and Treasury Yield Curves and Ratios**

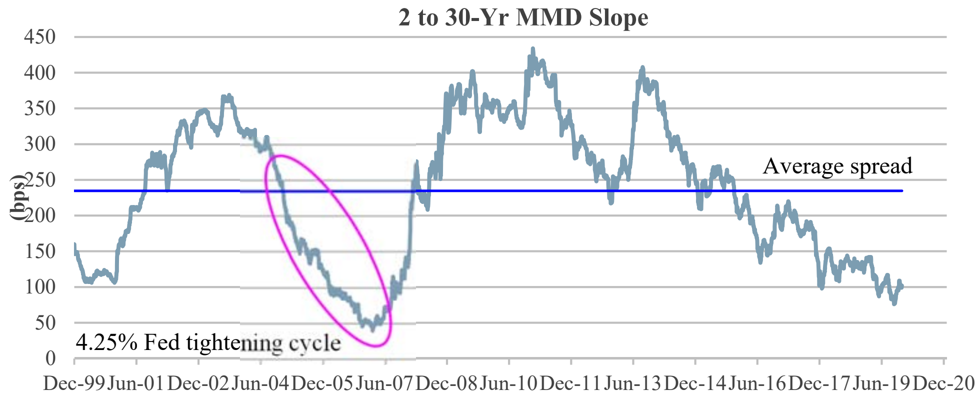


Sources: Eikon, TM3

M/T ratios are relatively low on the front end of the curve by historical standards.

Market Conditions

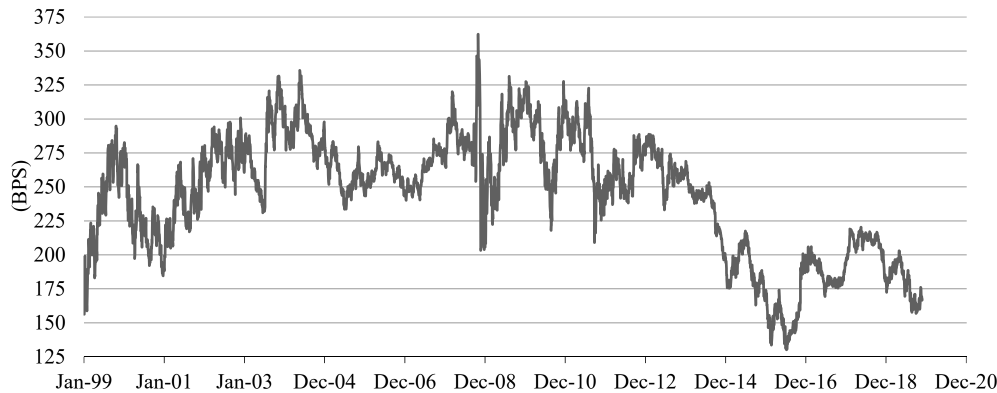
Figure 12 **2 to 30-Yr Muni Spread (bps)**



Source: TM3

The slope of the curve increased 26 bps since late September.

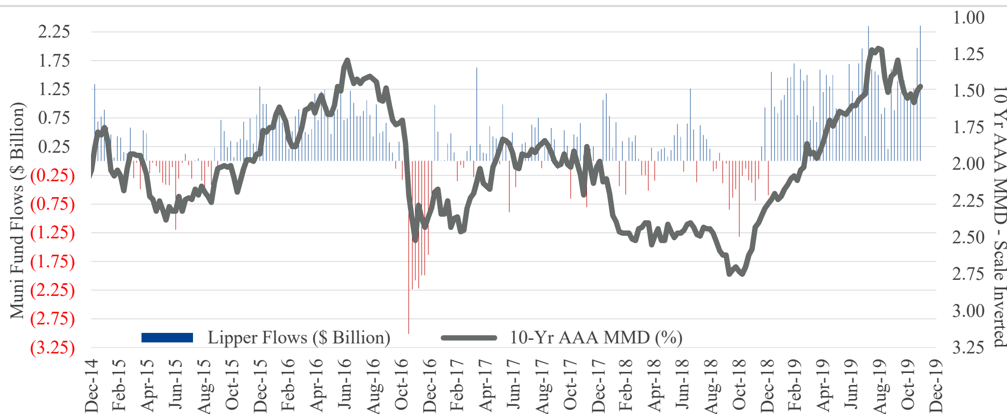
Figure 13 **Inflation Expectations**



Source: FRED

Fed's five-year forward breakeven inflation rate, derived from TIPS and regular Treasury yields, is currently 1.67%.

Figure 14 **Lipper Weekly Municipal Mutual Fund Flows ($ Billion)**



Source: Lipper

Lipper reported net inflows of $2.36 billion into muni funds last week, the largest amount since records began in 1992. Forty-seven consecutive weeks of net inflows boosted fund assets by almost $60 billion.

Loop Capital Markets Upcoming Negotiated Calendar

Date	Par Amount ($ mil)	Issue	Loop Capital's Role
12/4/19	536.8	New York City Municipal Finance Authority Water and Sewer System Revenue Bonds	Co-Senior Manager
Week of 12/2	925.0	Michigan Finance Authority (Trinity Health Credit Group) Federally Taxable	Co-Manager
Week of 12/2	160.2	Michigan Finance Authority (Trinity Health Credit Group)	Co-Manager
Week of 12/2	117.8	County of Franklin Hospital Revenue Refunding Bonds (Trinity Health Credit Group)	Co-Manager
12/5/19	191.3	Oregon Health and Science University Revenue Bonds (Tax-Exempt and Taxable)	Co-Manager
12/4/19	182.3	State of Ohio (GARVEE)	Co-Manager

"While the Nice-to-Naughty ratio has rebounded this year, the apparent headwinds from secular stagnation, the rising cost of elf-labor, and the costs of adjusting our supply chain require that the real cost of toys delivered this year rise from last year's value."

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