Private Bank

North America Strategy

July 2019

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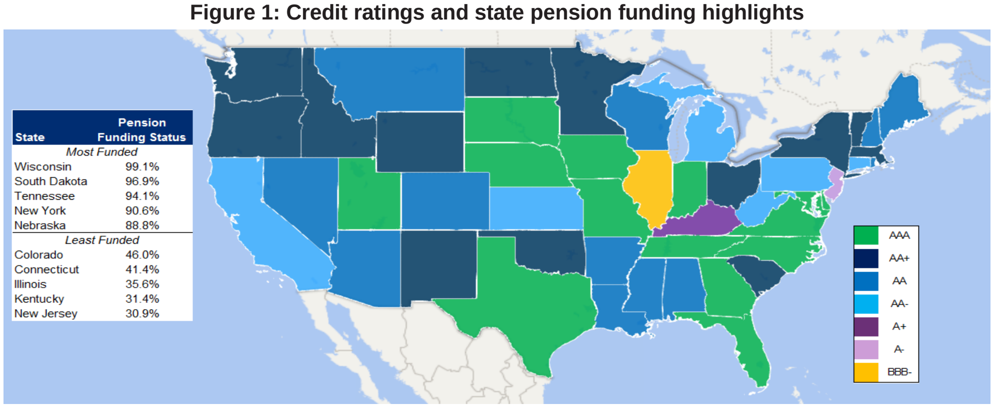
Muni Watch

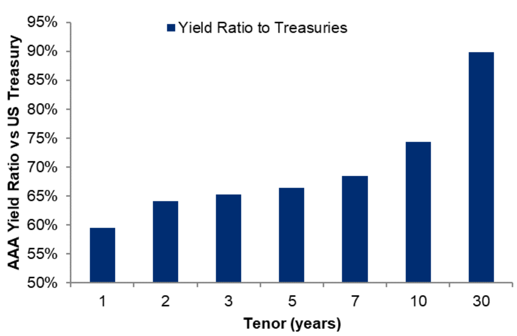
- Municipal bonds have returned 5.7% year-to-date led by 22+ year maturities (Figure 17).
- With yields low and the Fed poised to ease, fewer 5% coupons are coming to market.
- When the Fed has cut rates in the past, 1-12 year maturities, AA-credits, and the leasing/rental, power and water sectors have performed relatively well with some consistency.
- State budgets recommended by Governors for fiscal 2020 plan to increase spending by 3.7% directed towards education with revenue proposals going towards transportation (Figure 15).
- Yield ratios versus Treasuries are most attractive in longer-term maturities (Figure 2).

Figure 1: Credit ratings and state pension funding highlights



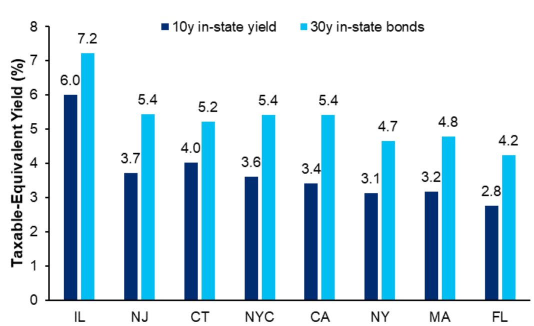
Source: S&P and Pew Charitable Trusts as of December 2018.

Figure 2: Best values are in longer-term maturities



Source: Bloomberg as of July 12, 2019.

Figure 3: Tax equivalent yields in select states (and NYC)



Source: Bloomberg as of July 12, 2019. Note: Tax equivalent yields adjust for top federal, state, and local tax rates. Past performance is no guarantee of future returns. Real results may vary.

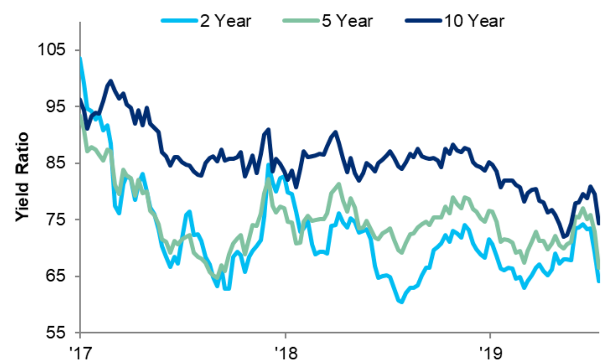
Solid Performance, Strong Demand

Municipal bonds have returned 5.7% YTD, led by 22+ year maturities and lower quality credits (Figure 17), amid strong investor flows into intermeidate-term and long-term maturities (Figure 7) where we see greater value (Figures 2-3). AAA municipal bond yield ratios retreated recently across maturities amid rising Treasury yields reflecting more dovish central banks trying to support their economies, a solid US jobs report and the resumption of trade talks between the US and China (Figures 4-5). The 10-year Treasury yield rose from just under to just over 2.00%, a modest move in our view, and still well below the 2.68% level from the start of the year.

Figure 4: 10-Yr. AAA Muni ratio

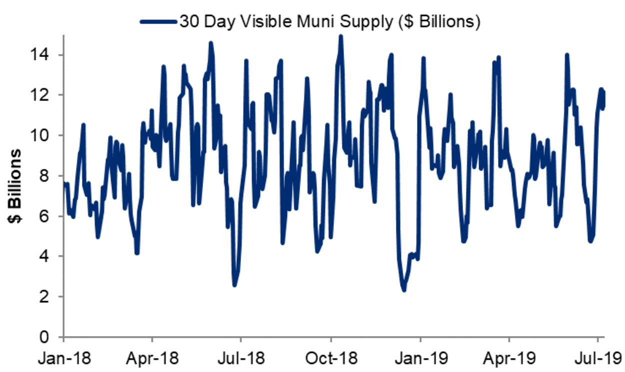
Source: Bloomberg as of July 12, 2019.

Figure 5: AAA Muni ratios have fallen across maturities



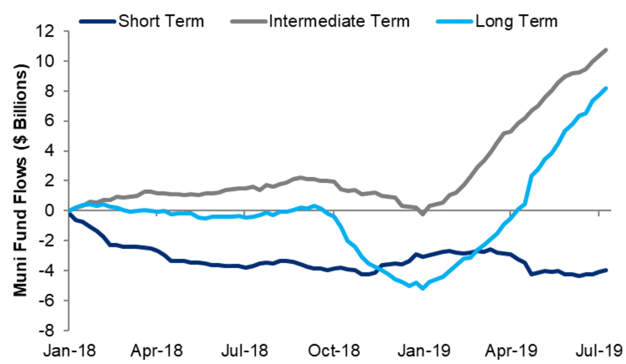
Source: Bloomberg as of July 12, 2019.

Figure 6: Muni supply



Source: Bloomberg as of July 12, 2019.
All forecasts are expressions of opinion and are subject to change without notice and are not intended to be a guarantee of future events.

Figure 7: Strong inflows into intermediate and long-term funds



Source: Emerging Portfolio Fund Research, Inc. as of June 12, 2019.

Fewer 5% Coupons

As rates declined this year and investors have become increasingly convinced the Fed will ease, states and cities have been issuing fewer bonds with 5% coupons. According to Bloomberg LLP, 46% of the fixed-rate state and local debt sold in 2019 has been with a coupon less than 5%, as compared to 39% in 2018. Demand has been strong enough to absorb these lower coupon issues.

Summer of Love for Muni Technicals

The June-August period is half over but should still provide a supportive technical backdrop. Net cash available for investment from coupon payments and net new issuance is on track to be 50% higher than in the past three years, $93 billion versus $61 billion (Figure 22). At the same time, investors impacted by the $10,000 cap on state and local tax (SALT) deductions have continuted to seek out tax-exempt income and this has led to spread compression in high tax states versus out of state options, a subject addressed in our last issue (Figure 13). Finally, the current period has historically been a friendly seasonal period for municical bonds; with the early fall often providing a good entry point for putting new capital to work (Figure 11).

2019 Outlook

The US economic expansion is now the longest on record. It continues to grow but trade tensions have worked to undermine the supports of (a) tax incentives and low borrowing costs in the corporate sector and (b) low unemployment, solid wage growth and low mortgage rates in the household sector. We look for growth to slow to around 3% globally and 2% in the US alongside inflation levels that do not pose a clear and present danger.

Muni Market Leaders/Laggards When the Fed Cuts Rates

Given that the Fed appears set to lower interest rates on July 31st, and may do so again later in the year, we thought it timely to review past municipal bond market performance during Fed rate cut scenarios. Our data is limited but the bottom line is that 1-12 year maturities, AA-credits, and the leasing/rental, power and water sectors have performed relatively well with some consistency. By contrast, 22-year+ maturities and airport bonds have tended to lag (Figure 8). We see merit in paring the relative value of longer-maturities with shorter-dated issues in a barbell fashion. Issues in the 3-5 year maturity range, for example, stand to benefit if the front end of the yield curve steepens on Fed easing in the year ahead, as these issues roll to become 2-4 year maturities.

Longer-maturity muni's can also add value in a broader fixed income portfolio that might include Treasuries and IG corporate bonds when viewed from an after-tax yield lens (Figures 9-10). The after-tax yields shown considers the top Federal (37%) and Affordable Care Act (3.8%) tax rates but not state or city taxes, which vary. For more insight into our fixed income views and preferences, please see our Bond Market Monthly publication.

Figure 8: Municipal Bond Market Performance When the Fed Cuts Rates

Total Return in First Year After First Fed Cut			
Muni Segment	**Jan-01**	**Sep-07**	**Average**
BAML Muni Index	3.8%	3.4%	**3.6%**
GO	3.5%	5.1%	**4.3%**
Revenue	3.9%	2.9%	**3.4%**
Airport	2.4%	0.2%	**1.3%**
Education	3.5%	4.3%	**3.9%**
Hospital	5.0%	2.9%	**3.9%**
Leasing & Rental	4.1%	3.5%	**3.8%**
Multi-Family	5.5%	0.2%	**2.8%**
Pollution Control	5.5%	1.5%	**3.5%**
Power	3.8%	4.3%	**4.0%**
Single-Family Housing	5.6%	0.9%	**3.2%**
Transportation	3.3%	4.1%	**3.7%**
Water	3.8%	3.9%	**3.9%**
1-3 Y	5.9%	5.7%	**5.8%**
3-7 Y	5.5%	6.8%	**6.2%**
7-12 Y	3.9%	5.3%	**4.6%**
12-22 Y	4.0%	2.7%	**3.4%**
22+	3.6%	0.0%	**1.8%**
AAA	3.6%	3.9%	**3.7%**
AA	3.8%	4.4%	**4.1%**
A	4.0%	3.3%	**3.7%**
BBB	5.1%	-1.5%	**1.8%**

Source: Factset as of July 2019. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only. Past performance is no guarantee of future returns. Real results may vary.

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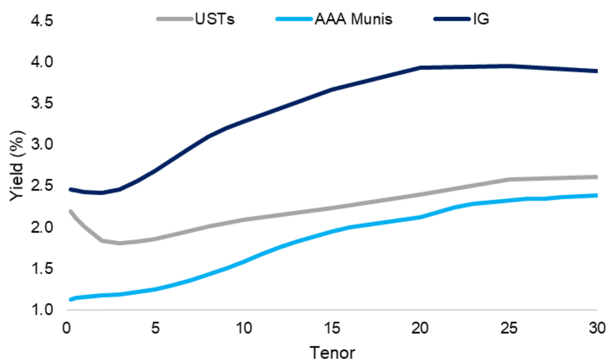
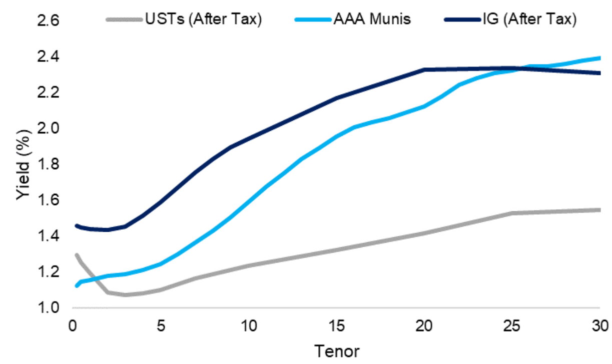
Figure 9: Pre-Tax Yields Across US IG Fixed Income



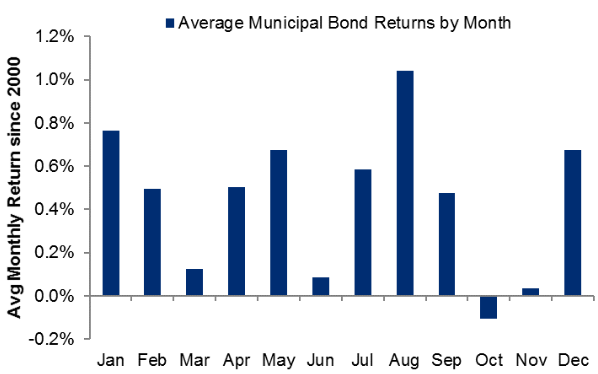
Source: Factset as of July 2019. Past performance is no guarantee of future results. Real results may vary.

Figure 10: After-Tax Yields Across IG Fixed Income



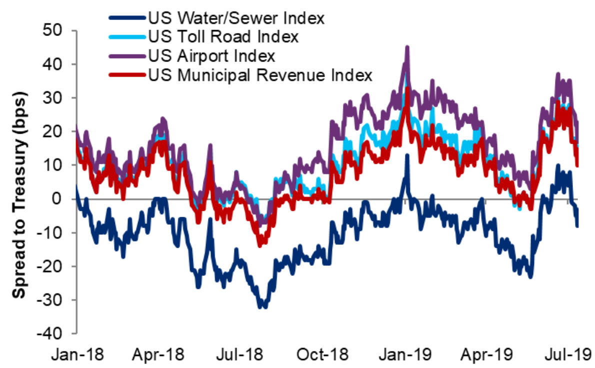
Source: Factset as of July 2019. Past performance is no guarantee of future results. Real results may vary.

Figure 11: Municipal bond seasonality is often friendly in Jul-Sep



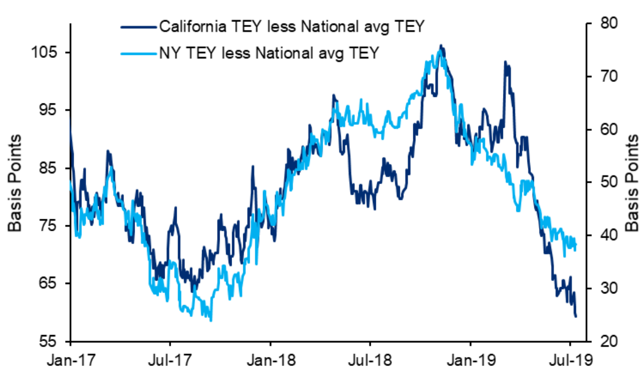
Source: Haver as of June 2019. Past performance is no guarantee of future results. Real results may vary.

Figure 12: Airport, water and tolls revenue bonds have predictable revenues



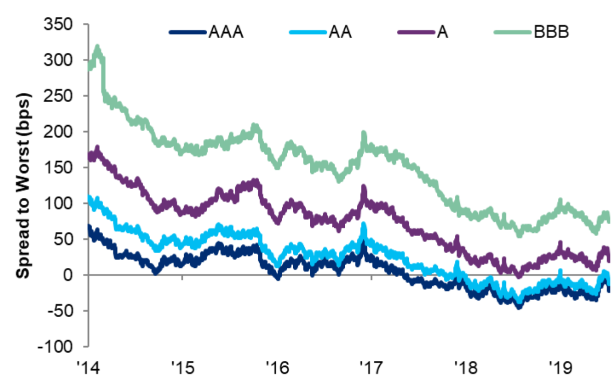
Source: Factset as of July 12, 2019. Past performance is no guarantee of future results. Real results may vary.

Figure 13: NY and CA: In state vs out of state options



Source: Factset as of July 12, 2019. Past performance is no guarantee of future results. Real results may vary.

Figure 14: Spreads by credit rating



Source: Factset as of July 12, 2019. Past performance is no guarantee of future results. Real results may vary.

Fiscal Survey of the States

The budgets recommended by Governors this year call for a 3.7% expenditure increase in Fiscal 2020 with 58% of new money directed towards elementary and secondary education, according to The National Association of State Budget Offices (NASBO) (Figure 15). By contrast, low unemployment has led to muted proposed increases in Medicaid spending. Revenues are budgeted to grow 4.0% with 4.8% growth in sales taxes, 4.2% growth in income taxes and 4.0% growth in corporate taxes collected as some of the highlights.

Governors recommended a number of revenue changes, 21 increases and 11 decreases (Figure 16). NASBRO reports some of the more significant proposals include (i) personal and corporate income tax conformity to new Federal tax laws in California, Minnesota and Virginia, (ii) expanding the sales tax base and increasing health provider taxes in Connecticut, (iii) a new millionaire's tax in New Jersey, (iv) extension of higher personal income tax rates in New York, (v) motor fuel tax increases in Alabama, Arkansas, Michigan, Ohio and Wisconsin, (vi) a business and occupations tax in Washington, and (vii) miscellaneous tax changes in Illinois. A significant amount of the proceeds would be directed towards state transportation.

Strengthening rainy day funds (reserves) has been a priority for states since the Great Recession. Reserves as a percentage of general fund spending have growth from 1.6% to 7.5% from Fiscal 2010 through Fiscal 2019 for the median state, above the 4.8% high prior to the Great Recession.

Figure 15: Recommended Changes in Appropriations ($ Billions)

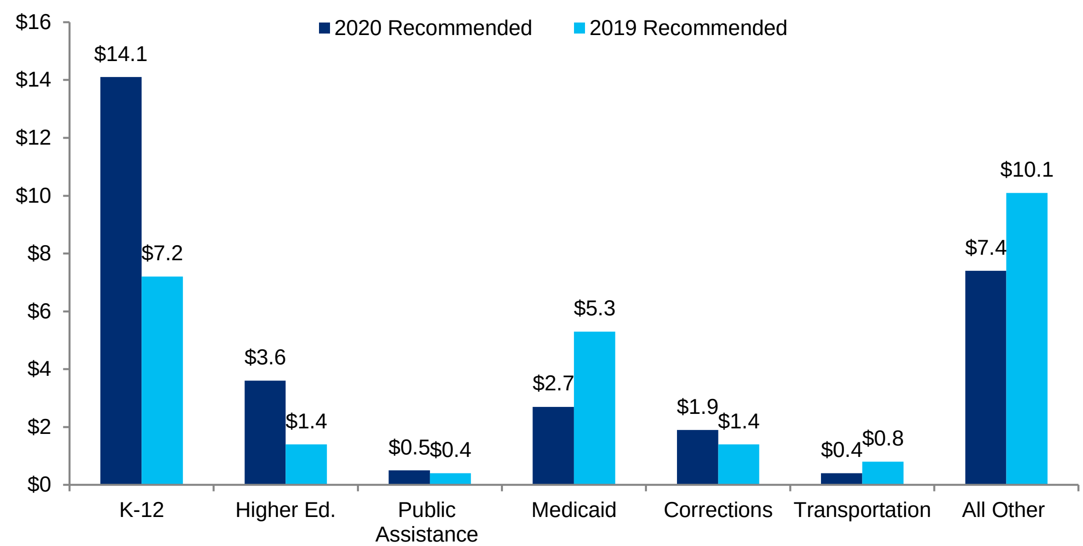


Figure 16: Summary of Recommended State Revenue Changes

Revenue Type	Sales Tax	Personal Income Tax	Corporate Income Tax	Cigarette/Tobacco Tax	Motor Fuel Tax	Alcohol tax	Gaming Revenue	Other Tax	Fees	All Revenue Changes
# of Governors proposing increases	8	8	7	12	5	2	2	12	10	**21**
# of Governonrs Proposing Decreases	5	13	3	1	0	0	0	3	1	**11**
Net Change ($ in Millions)	$823	$1,174	$1,136	$268	$2,593	$28	$341	$1,532	$250	**$8,143**

Source: The National Association of State Budget Offices as of 2019

State Pension Funding Ratios Rise for a Second Year in a Row

According to Wilshire Consulting, the aggregate funding ratio of state pension plans increased 1.7% to 72.2% in fiscal year 2018. State pension assets rose 5.8% to $3.09 trillion, in aggregate, while liabilities rose 3.3% to $4.28 trillion. As a result, the gap between assets and liabilities, now $1.15 trillion, contracted by 2.7%. The median discount rate used by the plans was unchanged at 7.25%, although many plans did lower their rates.

In terms of asset allocation, the aggregate allocation to US equity was 29.3% with non-US equity at 18.3%. The fixed income allocation was 23.7%. Real assets totaled 12.9%, private equity 10.2%, and other assets – which include commodities and hedge funds – comprised 5.6%.

Parting Remarks

For US investors in the highest income tax brackets, US municipal bonds will be among the best options for generating after-tax income.

Muni bond defaults are rare. In *US Municipal Bond Defaults and Recoveries, 1970-2017,* released by Moody's Investment Services, the cumulative default rate for all rated municipal bonds was just 0.09%.

In addition, the asset class has an enviable record of producing positive total investment returns on a rolling 5-year basis (Figure 24). Finally, municipal bonds have low or moderate correlations to other asset classes, like equities, providing potential portfolio diversification benefits (Figure 27).

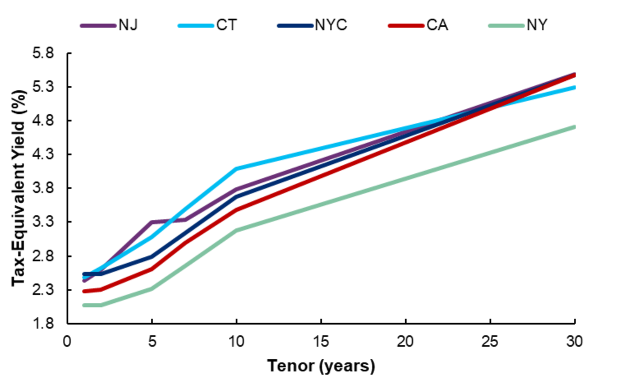
Appendix: Charts to Watch

Figure 17: Municipal bonds: returns and risk by sector, maturity and credit rating

Sector	Yield (%)	Duration	Composite Rating	YTD Return	2018 Return	2017 Return	Return Since 2010	Ann. Volatility Since 2009
BAML Muni Index	2.00	4.90	AA3	5.7%	1.0%	5.4%	52.2%	4.6%
GO	1.78	4.64	AA2	5.2%	1.2%	4.7%	44.8%	3.7%
Revenue	2.08	5.00	AA3	5.9%	1.0%	5.7%	54.9%	4.9%
Airport	2.16	4.83	A2	6.0%	0.7%	6.4%	62.2%	5.8%
Education	1.99	5.59	AA2	6.0%	0.8%	5.5%	53.3%	4.8%
Hospital	2.43	5.41	A1	6.5%	1.0%	6.0%	69.3%	5.7%
Leasing & Rental	1.90	4.45	A1	5.1%	1.7%	5.0%	50.8%	4.3%
Multi-Family	2.43	4.63	AA2	5.0%	1.3%	4.3%	49.8%	4.2%
Pollution Control	1.81	4.13	AA3	4.2%	1.5%	4.1%	50.0%	4.8%
Power	1.81	4.24	AA3	4.8%	1.0%	4.6%	41.5%	4.1%
Single-Family Housing	2.93	7.13	AA1	5.7%	0.8%	5.5%	54.7%	4.0%
Transportation	2.07	4.97	A1	6.2%	1.2%	6.1%	50.7%	4.4%
Water	1.87	4.75	AA2	5.4%	1.1%	5.1%	52.7%	4.7%
1-3 Y	1.26	1.69	AA2	2.1%	1.8%	1.0%	13.0%	1.1%
3-7 Y	1.41	3.87	AA2	4.1%	1.8%	2.9%	31.5%	2.5%
7-12 Y	1.73	5.31	AA3	6.0%	1.3%	5.5%	53.5%	4.0%
12-22 Y	2.20	5.39	AA3	6.4%	0.9%	6.8%	63.4%	5.5%
22+	2.58	6.02	AA3	7.2%	0.1%	8.0%	72.1%	7.2%
AAA	1.75	4.94	AAA	5.3%	0.8%	4.2%	39.1%	3.4%
AA	1.83	4.81	AA2	5.3%	1.0%	4.8%	46.9%	4.1%
A	2.18	5.03	A2	6.1%	0.9%	6.3%	61.2%	5.1%
BBB	2.72	5.03	BBB2	6.8%	1.8%	8.9%	71.4%	7.5%
High Yield	3.70	4.35	B2	6.0%	7.2%	6.1%	94.3%	6.3%

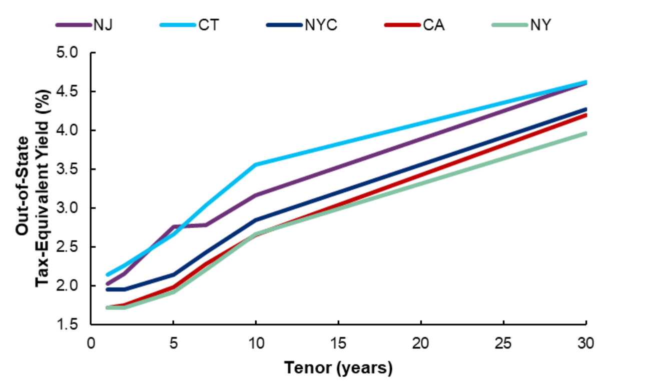
Source: Factset as of July 12, 2019. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only. Past performance is no guarantee of future returns. Real results may vary.

Figure 18: Select in-state (city) tax equivalent yield curves



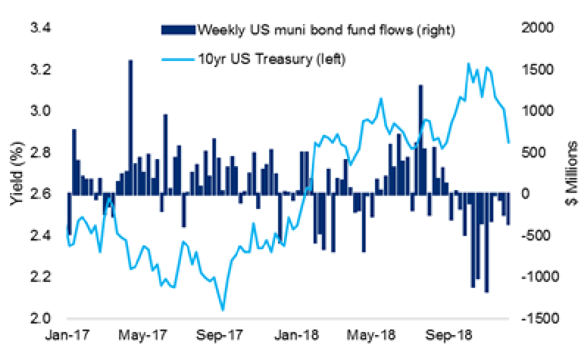
Source: Bloomberg as of July 12, 2019.

Figure 19: Select out-of-state tax-equivalent yield curves



Source: Bloomberg as of July 12, 2019.

Figure 20: Inflows tend to follow lower yields/positive returns



Source: Factset as of July 16, 2018.

Figure 21: Shorter-dated municipals average cash-like returns during S&P 500 corrections of 10%

Start of drawdown	Date 10% drawdown reached	Short-dated US munis total return (%)
7/17/1998	8/4/1998	0.35
7/16/1999	8/10/1999	0.01
3/24/2000	4/14/2000	0.24
10/9/2007	11/26/2007	0.69
5/21/2015	8/24/2015	0.33
1/26/2018	2/8/2018	0.13
9/20/2018	10/29/2018	0.09
	Average	0.26

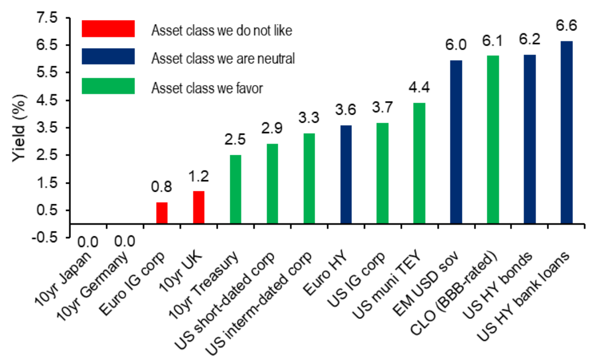
Source: Bloomberg as of June 2019.

Figure 22:This summer's cash flowing to investors should be much higher than the 3 year average

	All numbers in $billions	Jun 2019 (estimates)	Jul 2019 (estimates)	Aug 2019 (estimates)	Summer 2019 (estimates)	Jun avg. (Trailing 3yr)	Jul avg. (Trailing 3yr)	Aug avg. (Trailing 3yr)	Summer avg. (Trailing 3yr)
A.	Gross issuance	35.1	25.2	31.1	91.4	40.2	27.2	39.4	106.8
B.	Calls due to refundings	12.9	15.8	17.2	45.9	13.7	17.0	13.5	44.2
C.	*Advance refundings*	*5.6*	*5.9*	*7.0*	*18.5*	*9.4*	*11.1*	*8.7*	*29.2*
D.	*Current refundings*	*7.3*	*9.9*	*10.2*	*27.4*	*4.3*	*5.9*	*4.8*	*15.0*
E.	Maturing bonds	31.9	27.3	34.0	93.2	30.6	21.7	33.0	85.3
F.	Net Issuance*	-9.7	-17.9	-20.1	-47.7	-4.1	-11.5	-7.1	-22.7
G.	Coupons paid	15.6	15.4	14.5	45.5	12.7	13.0	12.6	38.3
F	Net Issuance*	-9.7	-17.9	-20.1	-47.7	-4.1	-11.5	-7.1	-22.7
H.	Net cash reinvested	25.3	33.3	34.6	93.2	16.8	24.5	19.7	61.0

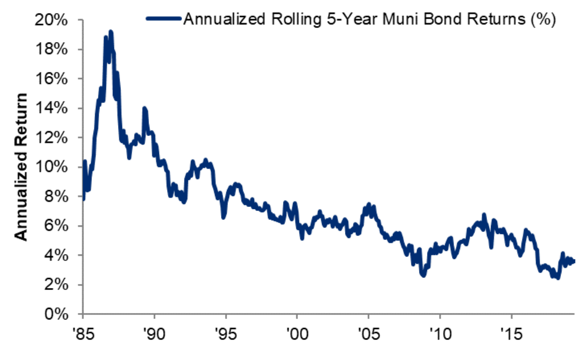
Source: Citi Research as of May 2019.

Figure 23: Our favorite fixed income asset classes



Source: Factset and Bloomberg as of June 5, 2019; Note: Muni tax-equivalent yield uses average state tax rate for NY and CA.

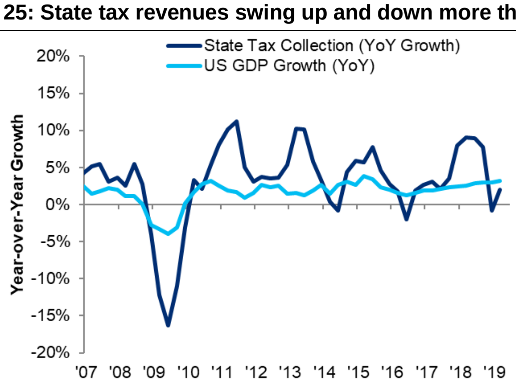
Figure 24: Rolling 5-year muni returns



Source: Factset as of July 12, 2019.

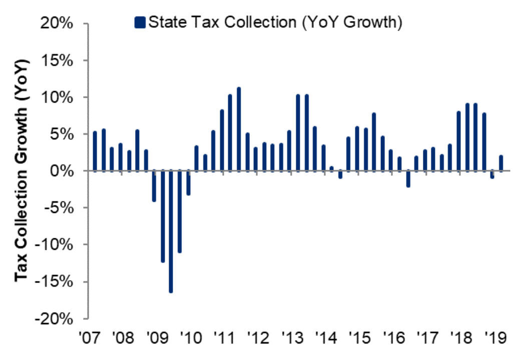
Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only.

Figure 25: State tax revenues swing up and down more than GDP



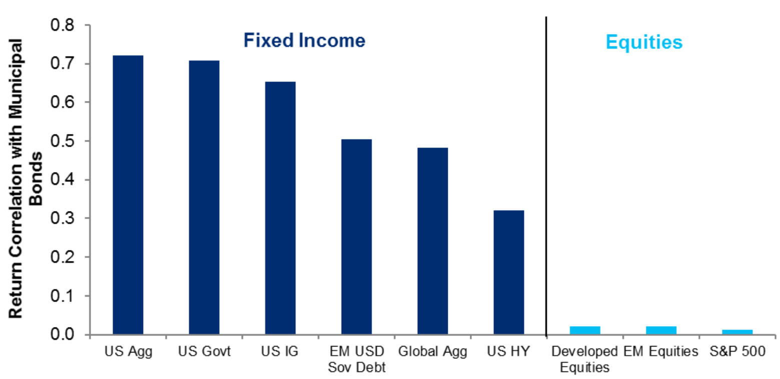
Source: Haver as of July 12, 2019

Figure 26: State tax revenue



Source: Factset as of July 12, 2019. Uses data back to 2000.

Figure 27: Municipal bond correlations with other asset classes



Source: Factset as of June 2019. Indices are unmanaged. An investor cannot invest directly in an index. They are shown for illustrative purposes only.

Asset Allocation Definitions

Asset classes	Benchmarked against
Global equities	MSCI All Country World Index, which represents 48 developed and emerging equity markets. Index components are weighted by market capitalization.
Global bonds	Barclays Capital Multiverse (Hedged) Index, which contains the government -related portion of the Multiverse Index, and accounts for approximately 14% of the larger index.
Hedge funds	HFRX Global Hedge Fund Index, which is designed to be representative of the overall composition of the hedge fund universe. It comprises all eligible hedge fund strategies; including but not limited to convertible arbitrage, distressed securities, equity hedge, equity market neutral, event driven, macro, merger arbitrage and relative value arbitrage. The strategies are asset-weighted based on the distribution of assets in the hedge fund industry.
Commodities	Dow Jones-UBS Commodity Index, which is composed of futures contracts on physical commodities traded on US exchanges, with the exception of aluminum, nickel and zinc, which trade on the London Metal Exchange (LME). The major commodity sectors are represented including energy, petroleum, precious metals, industrial metals, grains, livestock, softs, agriculture and ex-energy. The Thomson Reuters / Core Commodity Index is designed to provide timely and accurate representation of a long-only, broadly diversified investment in commodities through a transparent and disciplined calculation methodology.
Cash	Three-month LIBOR, which is the interest rates that banks charge each other in the international inter-bank market for three-month loans (usually denominated in Eurodollars).

Equities	
Developed market large cap	MSCI World Large Cap Index, which is free-float adjusted and weighted by market capitalization. The index is designed to measure the equity market performance of the large cap stocks in 23 developed markets. Large cap is defined as stocks representing roughly 70% of each market's capitalization.
US	Standard & Poor's 500 Index, which is a capitalization-weighted index that includes a representative sample of 500 leading companies in leading industries of the US economy. Although the S&P 500 focuses on the large cap segment of the market, with over 80% coverage of US equities, it is also an ideal proxy for the total market.
Europe ex UK	MSCI Europe ex UK Large Cap Index, which is free-float adjusted and weighted by market capitalization. The index is designed to measure large cap stock performance in each of Europe's developed markets, except for the UK.
UK	MSCI UK Large Cap Index, which is free-float adjusted and weighted by market capitalization. The index is designed to measure large cap stock performance in the UK.
Japan	MSCI Japan Large Cap Index, which is free-float adjusted and weighted by market capitalization. The index is designed to measure large cap stock performance in Japan.
Asia Pacific ex Japan	MSCI Asia Pacific ex Japan Large Cap Index, which is free-float adjusted and weighted by market capitalization. The index is designed to measure the performance of large cap stocks in Australia, Hong Kong, New Zealand and Singapore.
Developed market small and mid-cap (SMID)	MSCI World Small Cap Index, which is a capitalization-weighted index that measures small cap stock performance in 23 developed equity markets.
Emerging market	MSCI Emerging Markets Index, which is free-float adjusted and weighted by market capitalization. The index is designed to measure equity market performance of 24 emerging markets.

Bonds	
Developed sovereign	Citi World Government Bond Index (WGBI), which consists of the major global investment grade government bond markets and is composed of sovereign debt, denominated in the domestic currency. To join the WGBI, the market must satisfy size, credit and barriers-to-entry requirements. In order to ensure that the WGBI remains an investment grade benchmark, a minimum credit quality of BBB–/Baa3 by either S&P or Moody's is imposed. The index is rebalanced monthly.
Emerging sovereign	Citi Emerging Market Sovereign Bond Index (ESBI), which includes Brady bonds and US dollar -denominated emerging market sovereign debt issued in the global, Yankee and Eurodollar markets, excluding loans. It is composed of debt in Africa, Asia, Europe and Latin America. We classify an emerging market as a sovereign with a maximum foreign debt rating of BBB+/Baa1 by S&P or Moody's. Defaulted issues are excluded.
Supranationals	Citi World Broad Investment Grade Index (WBIG)—Government Related, which is a subsector of the WBIG. The index includes fixed rate investment grade agency, supranational and regional government debt, denominated in the domestic currency. The index is rebalanced monthly.
Corporate investment grade	Citi World Broad Investment Grade Index (WBIG)—Corporate, which is a subsector of the WBIG. The index includes fixed rate global investment grade corporate debt within the finance, industrial and utility sectors, denominated in the domestic currency. The index is rebalanced monthly.
Corporate high yield	Bloomberg Barclays Global High Yield Corporate Index. Provides a broad-based measure of the global high yield fixed income markets. It is also a component of the Multiverse Index and the Global Aggregate Index.
Securitized	Citi World Broad Investment Grade Index (WBIG)—Securitized, which is a subsector of the WBIG. The index includes global investment grade collateralized debt denominated in the domestic currency, including mortgage - backed securities, covered bonds (Pfandbriefe) and asset-backed securities. The index is rebalanced monthly.
Municipal	Bloomberg Barclays Municipal Bond Index is a broad-based benchmark that measures the investment grade, US dollar-denominated, fixed tax-exempt bond market. The index includes state and local general obligation, revenue, insured, and pre-refunded bonds

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Bond rating equivalence
Alpha and/or numeric symbols used to give indications of relative credit quality. In the municipal market, these designations are published by the rating services. Internal ratings are also used by other market participants to indicate credit quality.

Bond credit quality ratings	Rating agencies		
Credit risk	**Moody's[1]**	**Standard and Poor's[2]**	**Fitch Ratings[2]**
Investment Grade			
Highest quality	Aaa	AAA	AAA
High quality (very strong)	Aa	AA	AA
Upper medium grade (Strong)	A	A	A
Medium grade	Baa	BBB	BBB
Not Investment Grade			
Lower medium grade (somewhat speculative)	Ba	BB	BB
Low grade (speculative)	B	B	B
Poor quality (may default)	Caa	CCC	CCC
Most speculative	Ca	CC	CC
No interest being paid or bankruptcy petition filed	C	D	C
In default	C	D	D

1 The ratings from Aa to Ca by Moody's may be modified by the addition of a 1, 2, or 3 to show relative standing within the category.
2 The ratings from AA to CC by Standard and Poor's and Fitch Ratings may be modified by the addition of a plus or a minus to show relative standing within the category.

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