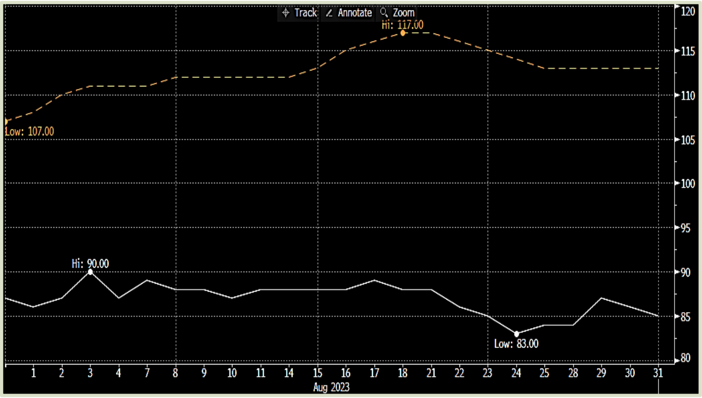
Treasury Yields Continued Moving Higher on Economic Growth Prospects

- Treasury rates continued their ascent through the first three weeks of the month, particularly on the long-end of the curve, as solid economic data further suppressed recession concerns and pushed the 10-year yield to as high as 4.36%.
- A rally during the latter part of August pulled rates lower, fully offsetting the prior move in the 2-year rate which ended August nearly unchanged and reducing the magnitude of the increase in the 10-year rate which concluded the month up 15 bps to 4.11%.
- For the second consecutive month, curve inversion lessened due to the sharper rise in longer-term rates with the 2-year and 10-year yield spread increasing 16 bps to -76 bps.
- The Fed did not formally meet in August, but Chairman Powell spoke at the annual Jackson Hole Conference, mixing hawkish comments professing the central bank's job to bring inflation down further with dovish remarks about proceeding carefully moving forward and striking a data dependent tone.
- The Bureau of Labor Statistics reported a 187,000 increase to nonfarm payrolls in July (expected: 200,000), but the unemployment rate unexpectedly ticked lower to 3.5%, and average hourly earnings increased 0.4% compared to an anticipated 0.3% gain.
- The overall and core Consumer Price Indices (CPI) both matched projections at 0.2% in July with the shelter component cooling but still providing most of the overall index gains.
  - Year-over-year CPI grew faster than the previous month (3.2% vs. 3.0%) for the first time in more than a year while the core index remained elevated at 4.7%.
- Retail sales surged 0.7% in July (expected: 0.4%) with strength in non-store retailers, including e-commerce, likely helped by the month's Amazon Prime Day promotions.

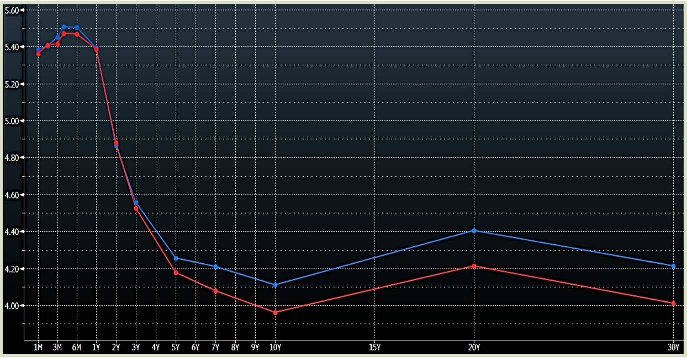
Segment	August Return	2023 Return
Bloomberg Barclays Intermediate Government Credit Index	-0.01%	1.75%
ICE BofA 1-10 Year US Treasury Index	0.06%	1.26%
ICE BofA 1-10 Year US Inflation-Linked Treasury Index	-0.42%	1.58%
ICE BofA 1-10 Year Corporate Index	-0.11%	2.98%
ICE BofA 1-10 Year Taxable Municipal Index	0.03%	2.80%

1-10 Year IG Credit Spreads: Corporate (orange) and Taxable Municipal (white): August 2023



Maturity	7/31/23 Treasury	8/31/23 Treasury	Change
2-Year	4.88%	4.87%	-0.01%
5-Year	4.18%	4.26%	+0.08%
7-Year	4.08%	4.21%	+0.13%
10-Year	3.96%	4.11%	+0.15%
30-Year	4.01%	4.21%	+0.20%

Treasury Yield Curve: 7/31/23 (blue) vs. 8/31/23 (red)



TIPS Lagged Nominals While Credit Closely Tracked Benchmark Treasuries

- Treasury Inflation Protected Securities (TIPS) performed relatively poorly, particularly within longer maturities, as inflation expectations declined, and real yields rose during the month.
  - TIPS maturing in 1-10 years returned -0.42%, underperforming nominal Treasuries by -44 bps when adjusted for duration.
  - The 10-year TIPS inflation break-even rate declined 13 bps to 2.24% as the real yield on the issue reached an intra-month high of 2.01% before ending August at 1.87%, an increase of 28 bps month-over-month.
- Credit markets generally followed Treasuries in August despite solid economic data and an increasingly optimistic outlook, indicating that risk premiums may not have much room to decline further.
- 1-10 year investment grade corporate bonds returned -0.11% in August, lagging Treasuries by -8 bps, the first month of negative excess return for the sector since March and only the second such month this year.
  - Longer maturing corporate bonds mirrored Treasuries as the weakest portion of the curve in absolute terms; however, short-term issues performed slightly worse relative to duration-adjusted Treasuries.
  - Performance was essentially even across the rating spectrum with BBB rated corporate issuers lagging Treasuries by -7 bps compared to -8 bps of underperformance by A and better rated names.
  - The negative total return month pulled year-to-date corporate bond performance down to 2.98%, which still outpaces Treasuries by 194 bps after adjusting for duration.
- Intermediate taxable municipal bonds performed slightly better than corporates, earning 0.03% in August, 10 bps more than duration-neutral Treasuries.
  - The 2.80% year-to-date total return represents 184 bps of alpha over duration-adjusted Treasuries.

Source: Bloomberg; Bureau of Economic Analysis; Federal Reserve; ICE BofA; Veritable, L.P.
All numbers are estimates. See Disclosures for index descriptions and additional information.

Municipals Yields Advanced Higher and Curve Steepened; Underperformed Treasuries

- 1-5 year municipal yields rose 8-22 bps in August, and 7+ year tax-exempt rates were higher by 35-37 bps.
- After outperforming Treasuries over the previous two months, municipals underperformed in August due in part to buyer fatigue given stretched tax-exempt relative valuations.
    - Municipal underperformance was most pronounced in the intermediate part of the curve, as 7-10 year municipal yields climbed 35-36 bps versus a 13-15 bp rise in comparable Treasury yields.
- The favorable technical environment waned toward month-end as new issuance climbed and reinvestment activity decelerated.
- For the month, the 10-year AAA municipal rate jumped 36 bps to 2.93%, closing August near the 2023 yield peak.
- Municipal underperformance pushed the 10-year AAA municipal-to-Treasury yield ratio higher to end August at 71%, above the 70% threshold but still well-below the 5-year historical average of 86%.
    - To reach the 86% historical average yield ratio, the 10-year AAA municipal yield must rise 60 bps to 3.53% (assuming an unchanged 10-year Treasury rate) – above the October 2022 cyclical yield peak of 3.41% and a level one would regard as the "second bite of the apple" opportunity.
    - Despite improved relative valuations across the curve, taxable crossover opportunities remain a viable alternative in front-end maturities for traditional tax-exempt investors residing in high tax rate states.
- The sharp rise in longer-term municipal yields relative to short-term maturities resulted in curve compression, as the term premium between 2-year and 10-year AAA municipal debt rose 22 bps to -21 bps.

Maturity	7/31/23 Muni	8/31/23 Muni	Change	% of U.S. Govt 8/31/23
2-Year	3.00%	3.14%	0.14%	64.48%
5-Year	2.66%	2.88%	0.22%	67.61%
7-Year	2.53%	2.88%	0.35%	68.41%
10-Year	2.57%	2.93%	0.36%	71.29%
15-Year	3.07%	3.42%	0.35%	82.21%
20-Year	3.30%	3.65%	0.35%	82.77%
30-Year	3.51%	3.88%	0.37%	92.16%

- Retail demand receded as municipal bond fund flows turned negative in August following July's gains, marking outflows in five of the last six months.
    - Refinitiv-Lipper reported August flows out of weekly and monthly municipal bond funds totaling $350 million through the week ended August 30; year-to-date outflows rose to $7.6 billion.
- Downward price pressure in Treasuries coupled with rich relative valuations led to reduced demand for longer-term debt for most of August.
    - However, absolute tax-exempt yields near 2023 highs and improved relative valuations generated greater investor interest toward month-end.

10-Year AAA Municipal Yie ld: 2018-2023

- August reinvestment demand pulled the SIFMA Municipal Swap Index, [7-day high grade market index comprised of tax-exempt variable rate demand notes (VRDN)] to as low as 3.00% before normalizing to end the month at 4.06% (75% of the funds rate).
    - With the end of the summer reinvestment season, VRDN rates should experience less volatility absent a surge in demand given attractive front-end rates and the inverted curve.
- According to SIFMA data, August municipal public issuance increased 40% versus July to $38 billion and was roughly consistent with August 2022 totals.
    - Cumulative year-to-date issuance is roughly 11% below the same period a year ago.
    - Despite the jump in monthly issuance, net supply remained in negative territory in August at roughly -$5.3 billion according to Bloomberg data.
    - According to JP Morgan estimates, net supply is expected to rise to positive levels in September and October totaling roughly $12 billion before returning to negative territory to end the year.
    - The post Labor Day "positive net supply" environment could act as a performance headwind for municipals over the next two months upon which relative valuations may cheapen. However, if new issue supply underwhelms and demand for duration strengthens as the Fed nears the end of their current rate hike cycle, relative valuations could normalize at lower levels versus historical averages.
    - Treasury market weakness and uninspiring relative valuations resulted in the ICE BofA 1-12 Year Municipal Securities Index producing a -0.56% total return; year-to-date performance remained positive at +1.03%.

Source: Bloomberg; ICE; JP Morgan; MRSB; Refinitiv; SIFMA; Veritable, L.P.
All numbers are estimates. See Disclosures for index descriptions and additional information.

Disclosures

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Index Descriptions *(Investors cannot invest directly in an index)*

Bloomberg Barclays Intermediate Government Credit Index is a total returns index of U.S. dollar denominated U.S. Treasuries, government-related securities, and investment grade U.S. corporate securities that have a remaining maturity of greater than or equal to 1 year and less than 10 years. Securities must have $250 million or more of outstanding face value and must be fixed rate and non-convertible.

Consumer Price Index (CPI) is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. The yearly (or monthly) growth rates represent the inflation rate. The CPI is published by the US Bureau of Labor Statistics on a monthly basis.

ICE BofA 1-10 Year US Treasury Index is a subset of ICE BofA Treasury Index including all securities with a remaining term to final maturity greater than or equal to 1 year and less than 10 years.

ICE BofA 1-10 Year US Inflation-Linked Treasury Index is a subset of ICE BofA US Inflation-Linked Treasury Index including all securities with a remaining term to final maturity greater than or equal to 1 year and less than 10 years.

ICE BofA 1-10 Year Corporate Index measures the performance of investment grade corporate bonds of both U.S. and non-U.S. issuers that are U.S. dollar-denominated and publicly issued in the U.S. domestic market with a remaining term to final maturity greater than or equal to 1 year and less than 10 years.

ICE BofA 1-10 Year Taxable Municipal Index is designed to track the performance of U.S. dollar-denominated taxable municipal debt publicly issued by U.S. states and territories, and their political subdivisions, in the U.S. market with a remaining term to final maturity greater than or equal to 1 year and less than 10 years.

ICE BofA 1-12 Year Municipal Securities Ind*ex* is a subset of ICE BofA Municipal Securities Index including all securities with a remaining term to final maturity less than 12 years. The ICE BofA Municipal Securities Index is market capitalization weighted and tracks the performance of U.S. dollar denominated investment grade tax-exempt debt publicly issued by U.S. states and territories, and their political subdivisions, in the U.S. domestic market. Qualifying securities must have at least one-year remaining term to final maturity, at least 18 months to final maturity at the time of issuance, a fixed coupon schedule and an investment grade rating (based on an average of Moody's, S&P and Fitch).

The Securities Industry and Financial Markets Association (SIFMA) Municipal Swap Index is a 7-day high-grade market index comprised of tax-exempt Variable Rate Demand Notes (VRDNs) with certain characteristics. The Index is calculated and published by Bloomberg. The Index is overseen by SIFMA's Municipal Swap Index Committee.