Domestic Investment Grade Fixed Income Market Summary

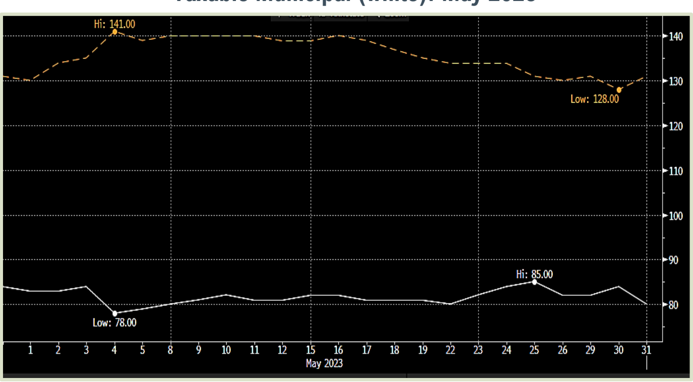
May 2023

Treasury Yields Climbed on Fed Policy Projections and Improved Economic Outlook

- Market sentiment improved in May as factors such as resilient economic data and perceived stability in the banking sector led to projections for a potentially less dovish Federal Reserve ("Fed") through the remainder of the year, resulting in a bear flattening of the Treasury yield curve.
  - Yields on T-Bills maturing in early June rose sharply during May as the early June projected exhaustion date approached without a debt ceiling compromise. By month-end, however, T-Bill rates normalized with a deal reached to suspend the debt ceiling for two years.
  - The 2-year Treasury rate increased 40 basis points (bps) on expectations that the Fed will not cut rates as aggressively as previously projected following the end of the current rate hike cycle.
  - 5-10 year Treasury yields rose 22-27 bps on continued resiliency in the economy despite tighter financial conditions which may lead to a "high for longer" Fed policy.
- According to the futures market, investors now expect one more 25 bp rate hike following the Fed's early May hike that brought the target to a 5% and 5.25% range. Thereafter, cuts are projected to bring the year-end level to around 4.91%, roughly 44 bps higher than projections at the end of April.
- The Institute for Supply Management surveys showed less contraction than expected in April within the manufacturing sector and greater growth than anticipated within the services industry with prices paid notably higher for both.
- The economy added 253,000 nonfarm jobs in April, outpacing the 185,000 expectation but with a 149,000 net downward revision for the previous two months. The unemployment rate declined to 3.4% (expected: 3.6%), and average hourly earnings rose 0.5% (expected: 0.3%).
- The Consumer Price Index (CPI) matched expectations with both the overall and core readings rising 0.4% in April. The year-over-year growth rate slowed for the tenth consecutive month at a still elevated 4.9% but below 5% for the first time since April 2021.

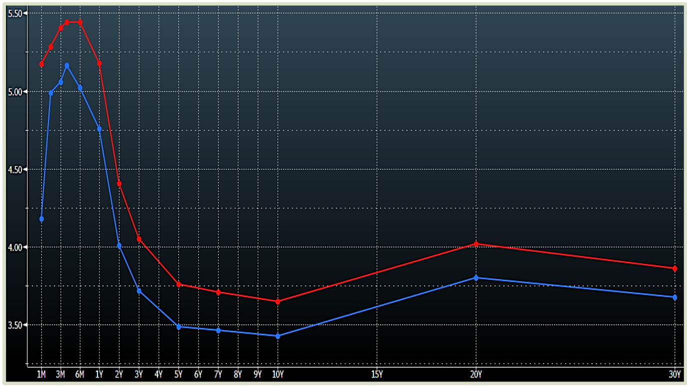
Segment	May Return	2023 Return
Bloomberg Barclays Intermediate Government Credit Index	-0.74%	2.19%
ICE BofA 1-10 Year US Treasury Index	-0.75%	2.02%
ICE BofA 1-10 Year US Inflation-Linked Treasury Index	-1.14%	2.01%
ICE BofA 1-10 Year Corporate Index	-0.70%	2.64%
ICE BofA 1-10 Year Taxable Municipal Index	-0.57%	3.35%

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



Maturity	4/30/23 Treasury	5/31/23 Treasury	Change
2-Year	4.01%	4.41%	+0.40%
5-Year	3.49%	3.76%	+0.27%
7-Year	3.46%	3.71%	+0.25%
10-Year	3.43%	3.65%	+0.22%
30-Year	3.68%	3.86%	+0.18%

Treasury Yield Curve: 4/30/23 (blue) vs. 5/31/23 (red)



TIPS Lagged Nominals; Credit Markets Outperformed Slightly Despite Heavy Issuance

- Treasury Inflation Protected Securities (TIPS) underperformed nominal Treasuries as expectations for a higher Fed funds rate pulled inflation expectations slightly lower.
  - TIPS issues maturing in 1-10 years returned -1.13% in May, trailing duration-adjusted nominal Treasuries by 56 bps and wiping out the year-to-date excess return.
  - The 10-year TIPS inflation break-even rate fell 4 bps to 2.17%, approaching the lowest year-to-date level of 2.10%.
  - More sensitive to the Fed's perceived aggressive stance on inflation, the 5-year TIPS inflation break-even rate declined 18 bps to 2.06% in May, the lowest level in 2023.
- Credit markets continued to improve following a sharp widening of spreads in March due to bank failures and concerns that contagion will severely impact the broad economy.
- Intermediate investment grade corporate bonds posted a -0.70% total return in May, outpacing Treasuries by 16 bps when adjusted for duration.
- The relative strength came in the face of significant issuance as corporations pulled deals forward ahead of potential market volatility surrounding the debt ceiling, highlighted by Pfizer's $31 billion debt offering.
  - 1-10 year investment grade corporate debt has returned 2.64% year-to-date, outperforming duration-adjusted Treasuries in each month except March and by a total of 69 bps.
- With less of a supply headwind, intermediate taxable municipal bonds outperformed Treasuries by a wider margin than corporates by providing 32 bps of alpha over government bonds in May.
  - 1-10 year issues have returned 3.35% in 2023 with a strong 134 bps of excess return over duration-neutral 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.

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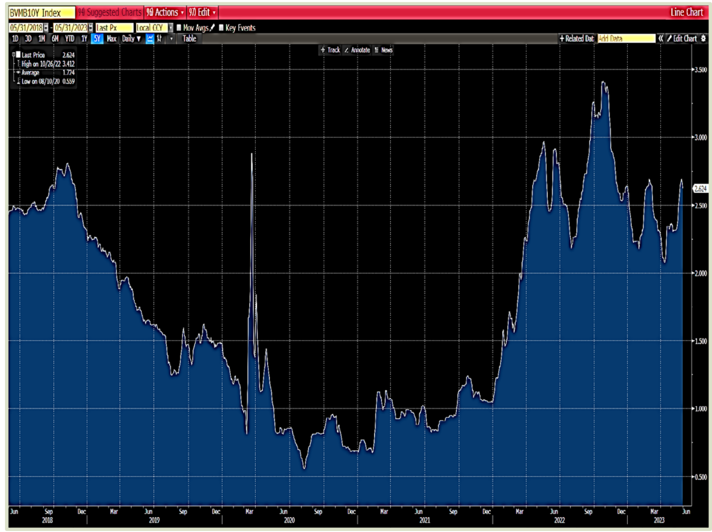
Municipal Yields Rose Along With Treasury Rates

- Municipal yields rose 16-39 bps in May, and the curve bear flattened.
- Municipals outperformed their taxable counterparts during the first half of the month as tax-exempt bond investors reengaged with the market following April weakness that saw yields rise 9-31 bps across the curve.
    - The 10-year AAA municipal-to-Treasury yield ratio slipped to as low as 66% in early May before ending the month above 70%.
- However, municipal yields followed Treasury rates higher over the second half of the month fueled by a confluence of factors including hawkish Fed commentary, better than expected economic data, and receding banking sector angst.
- Despite soft primary market activity in May, expensive relative valuations along with selling pressure from bank portfolio liquidations helped push tax-exempt yields higher for the month.
    - The month's yield rise was expressed most in the short-to-intermediate part of the curve, as the 5-year AAA municipal yield was up 38 bps to 2.76% versus a 16 bp rise in the 20-year AAA municipal yield to 3.33%.
- In May, the 10-year AAA municipal yield rose 30 bps to 2.65%, over 90 bps above the 5-year average of 1.72%.
- The 10-year AAA municipal-to-Treasury yield ratio moved higher in May to 73% but remains below the 5-year historical average of 86%.
    - In order to reach the 86% "normalized" relative value metric, the 10-year AAA municipal yield must rise 49 bps to 3.14% assuming an unchanged 10-year Treasury rate.
    - Relative valuations can be enhanced through callable bonds and less-liquid structures like coupons below the standard 5% issue.
- The tax-exempt curve inversion deepened as the term premium between 2-year and 10-year AAA municipal debt declined 9 bps to -43 bps.

Maturity	4/30/23 Muni	5/31/23 Muni	Change	% of U.S. Govt 5/31/23
2-Year	2.69%	3.08%	0.39%	69.84%
5-Year	2.38%	2.76%	0.38%	73.40%
7-Year	2.30%	2.65%	0.35%	71.43%
10-Year	2.35%	2.65%	0.30%	72.60%
15-Year	2.95%	3.17%	0.22%	84.99%
20-Year	3.17%	3.33%	0.16%	82.84%
30-Year	3.39%	3.55%	0.16%	91.97%

- Retail demand remained tepid as municipal bond fund flows were negative for the fourth consecutive month.
    - Investors withdrew $1.7 billion out of weekly and monthly reporting municipal bond funds in May with year-to-date outflows climbing to $7.7 billion.
- While the 2-year and 10-year year AAA municipal spread remained inverted in May, the tax-exempt curve normalizes with an upward slope beyond ten years and positive curvature versus the 2-year AAA municipal rate starting in fourteen years.

10-Year AAA Municipal Yie ld: 2018-2023



- The SIFMA Municipal Swap Index (7-day high grade market index comprised of tax-exempt VRDNs) ended the month at 3.56%, 69% of the Fed funds rate versus a 5-year historical average of around 81%.
    - June 1st reinvestment funds traditionally absorb available VRDN balances as a temporary placeholder, likely exerting downward pressure on the SIFMA Index over the coming weeks despite the already stretched relative valuation.
    - This surge in reinvestment demand typically cools over the ensuing weeks as investors redeploy their cash equivalents back into longer-term municipal bonds.
- After ticking up in April, tax-exempt issuance declined about $3 billion in May to $27 billion, generally consistent with the 5-year average for the month, according to JP Morgan data.
    - June through August traditionally represents a period of technical strength for municipal debt, as demand from principal and interest payments outstrips new issuance with net supply expected to dip to -$33 billion over this period, according to JP Morgan estimates.
    - Banks, who collectively hold roughly 15% of the $3.9 trillion outstanding municipal debt according to SIFMA data (includes bonds and direct loans), could be a source of additional supply in the market beyond the ongoing portfolio liquidations by FDIC, receiver of Signature Bank and Silicon Valley Bank who retained BlackRock to sell bonds in an orderly manner.
- Tax-exempt rates reflated higher along with Treasury yields in May, resulting in another month of losses, as the ICE BofA 1-12 Year Municipal Securities Index produced a -0.82% total return; year-to-date performance remained in positive territory at +0.76%.

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.