Bond Market Update

July 2021

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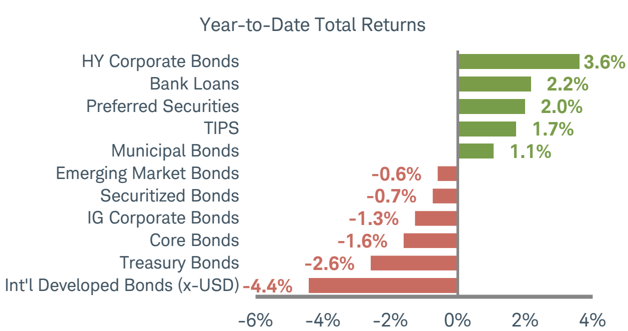
Schwab Center for Financial Research perspective

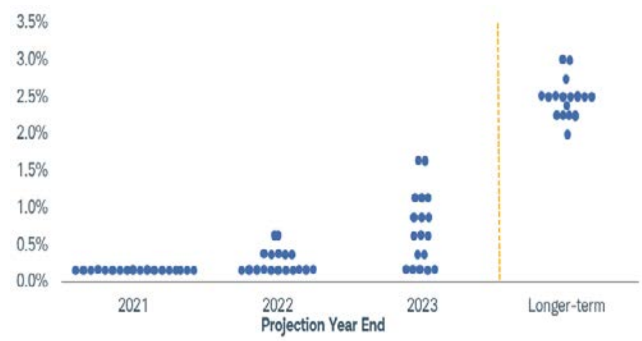
- **Risk paid off in the first half of 2021.** The riskiest segments of the fixed income market outperformed core bonds due to the strong economic rebound supporting corporate fundamentals. We continue to suggest keeping duration below benchmark due to the risk of rising interest rates in the second half of the year.
- **The Fed hints at an earlier liftoff for rate hikes.** Short-term Treasury yields rose while long-term yields inched lower when the Fed's dot plot changed from zero to two rate hikes in 2023. The Fed needs to taper its bond purchases first however, which may reduce demand for longer-term bonds.
- **The yield curve may flatten over the short-term.** As the market priced earlier Fed rate hikes, the yield curve flattened. More rate hikes sooner rather than later should translate to lower growth and inflation, leading to a flatter yield curve. However, with real yields in negative territory, there is still room for nominal yields to move up.
- **We have a neutral outlook for emerging-market (EM) bonds.** The quick rise in the dollar, the high interest rate sensitivity to Treasuries, and China's dampening of credit growth all contribute to a less optimistic view of EM bonds. EM bonds are likely fairly valued now, meaning that there is little room for further price appreciation.

Core bonds have had a rough first half of 2021



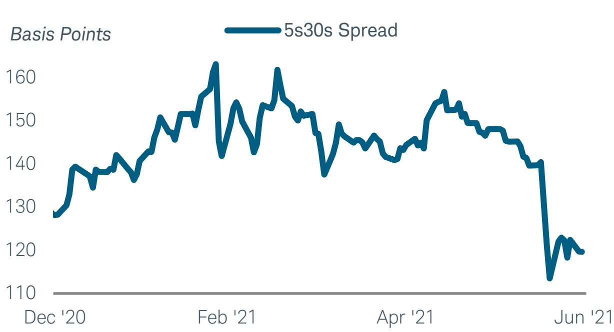
Source: Bloomberg**. Returns from 12/31/2020 through 6/3022021.** Returns assume reinvestment of interest and capital gains. See disclosures for indexes used. **Past performance is no guarantee of future results.**

The Fed sees two rate hikes in 2023 as likely



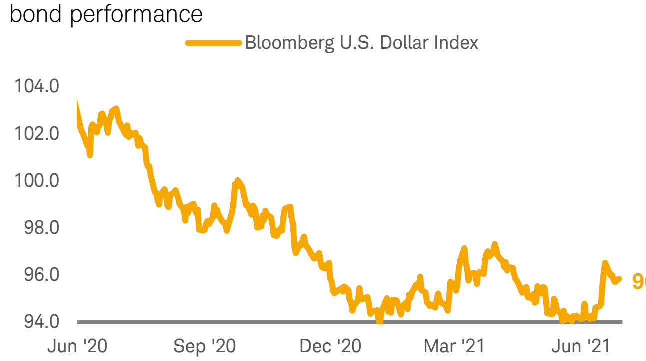
Source: Bloomberg. FOMC Dot Plot as of 6/16/2021. **Past performance is no guarantee of future results.**

With the news of sooner rate hikes than expected, the yield curve has flattened



Source: Bloomberg, using daily data as of 6/30/2021. Market Matric U.S. Sell 5-year & Buy 30-Year Bond Yield Spread (USYC5Y30 Index). **Past performance is no guarantee of future results.**

The recent spike in the dollar hurts emerging market bond performance



Source: Bloomberg, using daily data as of 6/30/2021. Bloomberg Dollar Spot Index (BBDX Index). **Past performance is no guarantee of future results.**

Corporate Bond Market Update

July 2021

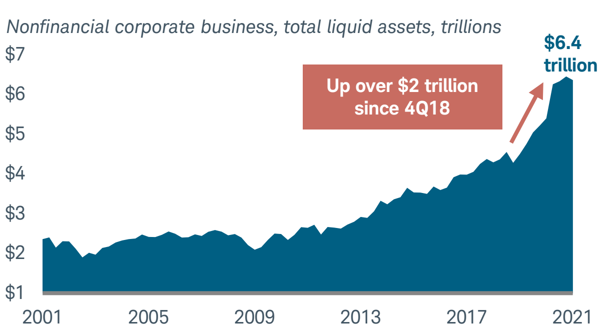
Collin Martin, CFA

Director, Fixed Income Strategist
Taxable Asset Classes

Schwab Center for Financial Research perspective

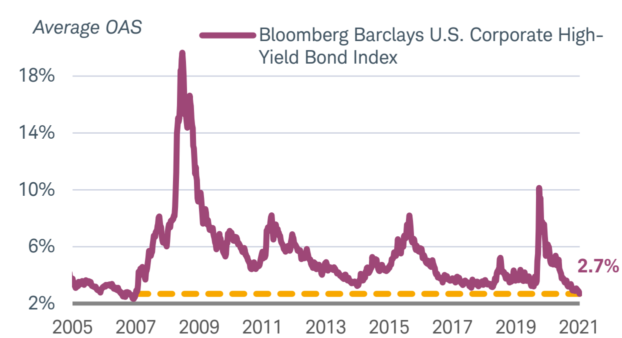
- **Corporate fundamentals are strong.** Total liquid assets on corporate balance sheets have surged over the past few years as corporations have issued more and more debt but have kept much of the proceeds on their balance sheets. The rise in corporate debt outstanding is a concern over the long-run, but over the short-run corporations should be well positioned to service their debt as a result of those liquid assets and the strong growth outlook.
- **High-yield corporate bond spreads continue to drop.** High-yield spreads have only been lower 2% of the time over the last two decades. Investors can still consider high-yield bonds in moderation, but the low level of spread compensation—the lowest level since June 2007—is beginning to make us a bit more cautious.
- **Good news for preferred stockholders: strong Federal Reserve stress test results.** The Fed removed the common stock dividend and share buyback limits that it imposed in 2020 as a result of the pandemic. In order for banks to make common stock dividends, they need to make preferred stock dividends first.
- **Bad news for preferred stockholders: price appreciation is limited.** Total returns will likely be driven more by coupon payments than price appreciation through the end of the year.

Corporations have a large amount of liquid assets sitting on their balance sheets



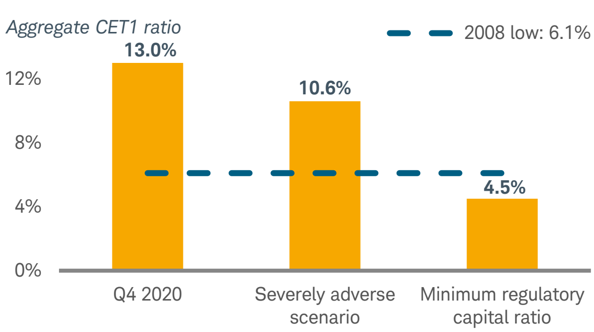
Source: Bloomberg, using quarterly data as of 1Q2021. FOF Nonfarm Nonfinancial Corporate Business Liquid Assets NSA (NFCBCBLA Index)

High-yield bond spreads have set another post-financial crisis low



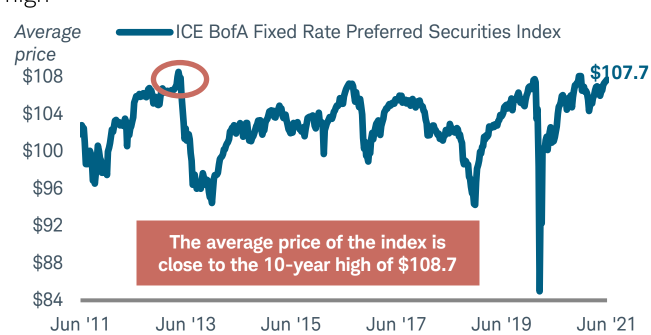
Source: Bloomberg, using weekly data as of 6/30/2021. Option-adjusted spreads (OAS) are quoted as a fixed spread, or differential, over U.S. Treasury issues. OAS is a method used in calculating the relative value of a fixed income security containing an embedded option, such as a borrower's option to prepay a loan.

U.S. financial institutions are generally well capitalized



Source: Federal Reserve, "Dodd-Frank Act Stress Test 2021: Supervisory Stress Test Results," June 2021. The Common Equity Tier 1 Ratio is calculated as common equity tier 1 capital divided by risk-weighted assets and is meant to show how well a financial institution can withstand financial stress.

Preferred securities prices are approaching their 10-year high



Source: Bloomberg, using weekly data as of 6/30/2021.
Past performance is no guarantee of future results.

Municipal Bond Market Update

July 2021

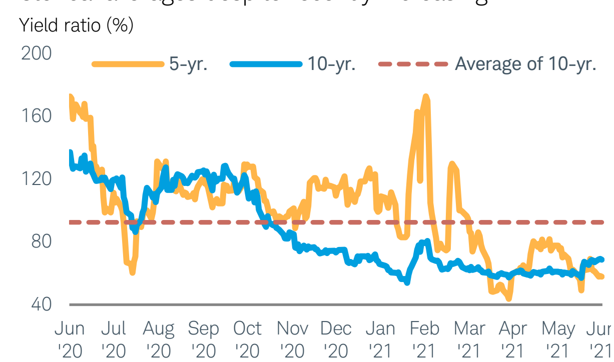
Cooper Howard, CFA

Director, Fixed Income Strategist
Municipal Bonds

Schwab Center for Financial Research perspective

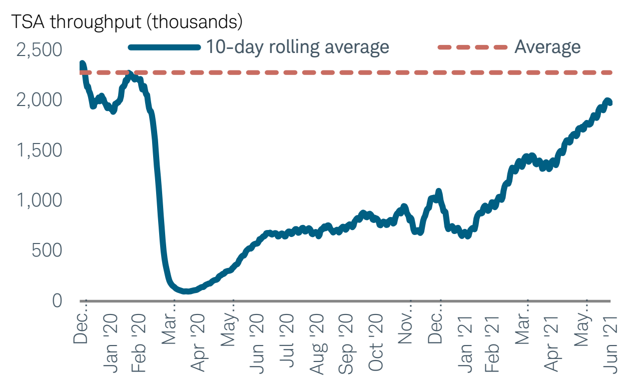
- **We expect muni yields to stay low relative to treasuries.** The 5- and 10-year MOB (Municipal-Over-Bond) spreads recently increased to 57.9% and 68.6% respectively but are still well below their longer-term averages. We believe yields for munis relative to Treasuries should continue to stay low due to many factors such as concerns over higher tax rates, favorable supply and demand dynamics, and easing credit risks.
- **The takeoff in air travel should bode well for airports.** TSA traveler throughput has been steadily increasing and is nearly 95% of pre-pandemic levels[1]. We expect travel to continue to improve in the near-term, which will bode well for airports issuers and their auxiliary revenue streams.
- **Reopening schools should give a boost to employment.** Employment in state and local government education has fallen by over 581,000 jobs since February 2020. We expect employment to improve in the fall as schools reopen which should give a boost to economic growth.
- **High yield munis aren't that attractive**. Defaults have been declining and the outlook for many issuers is favorable. However, yields for high-yield munis relative to investment grade munis are near the lowest it's been in a decade.

The 5- and 10-year MOB spreads are still well below historical averages despite recently increasing



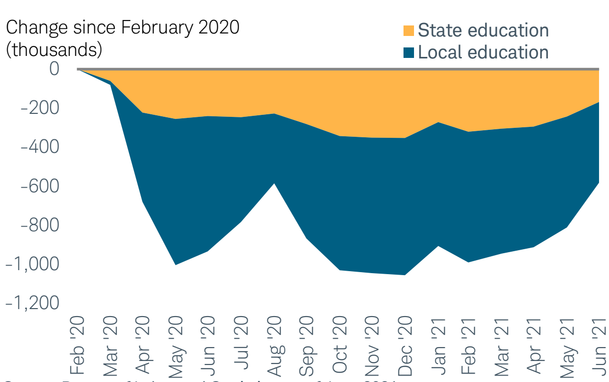
Source: Bloomberg, as of 6/30/21. Average is the 3-year average.

Airline travel has steadily been increasing



Source: Transportation Security Administration, as of 6/28/2021. Average is from 1/1/19 to 2/28/20.

State and local education jobs are still well below their pre-COVID levels



Source: Bureau of Labor and Statistics, as of June 2021

The yield advantage for high yield munis relative to investment grade munis is near the lowest in a decade

Source: Bloomberg Barclays Indices, as of 6/30/21

1. Based on the average from 1/1/19 to 2/28/20

Important Disclosures

All views and opinions in this update are as of July 2, 2021.

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Investing involves risk including loss of principal.

Fixed income securities are subject to increased loss of principal during periods of rising interest rates. Fixed-income investments are subject to various other risks including changes in credit quality, market valuations, liquidity, prepayments, early redemption, corporate events, tax ramifications and other factors.

High-yield bonds and lower rated securities are subject to greater credit risk, default risk, and liquidity risk.

Diversification strategies do not ensure a profit and do not protect against losses in declining markets.

Preferred securities are often callable, meaning the issuing company may redeem the security at a certain price after a certain date. Such call features may affect yield. Preferred securities generally have lower credit ratings and a lower claim to assets than the issuer's individual bonds. Like bonds, prices of preferred securities tend to move inversely with interest rates, so they are subject to increased loss of principal during periods of rising interest rates. Investment value will fluctuate, and preferred securities, when sold before maturity, may be worth more or less than original cost. Preferred securities are subject to various other risks including changes in interest rates and credit quality, default risks, market valuations, liquidity, prepayments, early redemption, deferral risk, corporate events, tax ramifications, and other factors.

Tax-exempt bonds are not necessarily suitable for all investors. Information related to a security's tax-exempt status (federal and in-state) is obtained from third parties, and Schwab does not guarantee its accuracy. Tax-exempt income may be subject to the alternative minimum tax. Capital appreciation from bond funds and discounted bonds may be subject to state or local taxes. Capital gains are not exempt from federal income tax.

Treasury Inflation Protected Securities (TIPS) are inflation-linked securities issued by the US Government whose principal value is adjusted periodically in accordance with the rise and fall in the inflation rate. Thus, the dividend amount payable is also impacted by variations in the inflation rate, as it is based upon the principal value of the bond. It may fluctuate up or down. Repayment at maturity is guaranteed by the US Government and may be adjusted for inflation to become the greater of the original face amount at issuance or that face amount plus an adjustment for inflation.

International investments involve additional risks, which include differences in financial accounting standards, currency fluctuations, geopolitical risk, foreign taxes and regulations, and the potential for illiquid markets. Investing in emerging markets may accentuate these risks.

Currencies are speculative, very volatile and are not suitable for all investors.

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Index Definitions

Indexes are unmanaged, do not incur management fees, costs and expenses, and cannot be invested in directly.

The **Bloomberg Barclays U.S. Aggregate Index** ("Core Bonds") represents securities that are SEC-registered, taxable, and dollar denominated. The index covers the U.S. investment grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities, and asset-backed securities. These major sectors are subdivided into more specific indices that are calculated and reported on a regular basis.

The **S&P/LSTA U.S. Leveraged Loan 100 Index** ("Bank Loans") is a market value-weighted index designed to measure the performance of the U.S. leveraged loan market. The index consists of 100 loan facilities drawn from a larger benchmark - the S&P/LSTA (Loan Syndications and Trading Association) Leveraged Loan Index (LLI).

The **ICE BofA Fixed Rate Preferred Securities Index** ("Preferred Securities") tracks the performance of fixed-rate USD-denominated preferred securities issued in the U.S. domestic market.

The **S&P 500 Index** measures the performance of 500 leading publicly traded U.S. companies from a broad range of industries. It is a float-adjusted market-capitalization weighted index,

The **Bloomberg Barclays U.S. Corporate Bond Index** ("IG Corporate Bonds") covers the U.S. dollar (USD)-denominated investment-grade, fixed-rate, taxable corporate bond market. Securities are included if rated investment-grade (Baa3/BBB-/BBB-) or higher using the middle rating of Moody's, S&P and Fitch ratings services. This index is part of the Bloomberg Barclays U.S. Aggregate Bond Index (Agg

The **Bloomberg Barclays U.S. Treasury Index** ("U.S. Treasury Bonds") includes public obligations of the U.S. Treasury excluding Treasury Bills and U.S. Treasury TIPS. The index rolls up to the U.S. Aggregate. Securities have $250 million minimum par amount outstanding and at least one year until final maturity.

The **Bloomberg Barclays U.S. Corporate High-Yield Bond Index** ("HY Corporate Bonds") covers the USD-denominated, non-investment grade, fixed-rate, taxable corporate bond market. Securities are classified as high-yield if the middle rating of Moody's, Fitch, and S&P is Ba1/BB+/BB+ or below.

The **Bloomberg Barclays U.S. Municipal Bond Index** ("Municipal Bonds") is a broad-based benchmark that measures the investment grade, U.S. dollar-denominated, fixed tax-exempt bond market. The index includes state and local general obligation, revenue, insured and pre-refunded bonds. This index has "Aaa", "Aa", "A", and "Baa" sub-indexes.

The **Bloomberg Barclays Emerging Markets USD Aggregate Bond Index** ("EM USD Bonds") includes USD-denominated debt from emerging markets in the following regions: Americas, Europe, Middle East, Africa, and Asia.

The **Bloomberg Barclays Securitized Bond Index** ("Securitized") represents the securitized section of the Barclays US Aggregate.

The **Bloomberg Barclays U.S. Treasury Inflation Protected Securities (TIPS) Index** ("TIPS") is a market value-weighted index that tracks inflation-protected securities issued by the U.S. Treasury. To prevent the erosion of purchasing power, TIPS are indexed to the non-seasonally adjusted Consumer Price Index for All Urban Consumers, or the CPI-U (CPI).

The **Bloomberg Barclays Global Aggregate ex USD Bond Index** ("Int'l Developed Bonds (x-USD") provides a broad-based measure of the global investment-grade fixed-rate debt markets. The two major components of this index are the Pan-European Aggregate, and the Asian-Pacific Aggregate Indices.

Source: Bloomberg Index Services Limited. BLOOMBERG® is a trademark and service mark of Bloomberg Finance L.P. and its affiliates (collectively "Bloomberg"). BARCLAYS® is a trademark and service mark of Barclays Bank Plc (collectively with its affiliates, "Barclays"), used under license. Bloomberg or Bloomberg's licensors, including Barclays, own all proprietary rights in the Bloomberg Barclays Indices. Neither Bloomberg nor Barclays approves or endorses this material, or guarantees the accuracy or completeness of any information herein, or makes any warranty, express or implied, as to the results to be obtained therefrom and, to the maximum extent allowed by law, neither shall have any liability or responsibility for injury or damages arising in connection therewith.

The **5-Year/5-Year Inflation Swap Rate** is a common measure used by central banks and dealers to look at the market's future inflation expectations. The rate is calculated using the following formula: USD: 2*USSWIT10 Curncy - USSWIT5 Curncy