



Bond Market Update

March 2024



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 Taxable Asset Classes

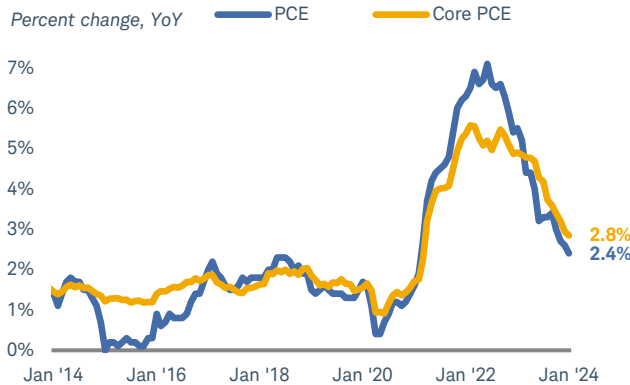


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 Municipal Bonds

Schwab Center for Financial Research perspective

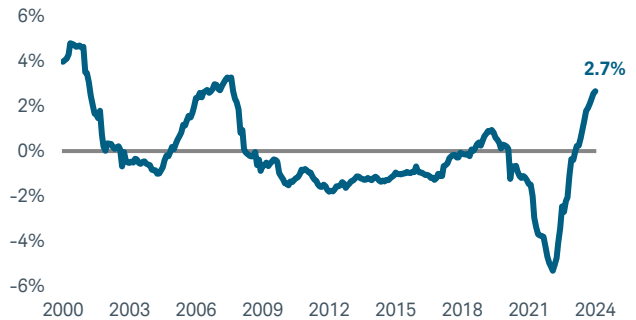
- **Inflation pressures continue to ease.** Although core PCE (the Fed's benchmark inflation index) rose on a month/month basis in February, the overall trend is moving steadily lower. We expect it to continue.
- **Real Fed funds rate is at the highest level since 2007.** Adjusted for inflation, real rates are high, leaving room for the Fed to cut the policy rate later this year. A sustained period of high real rates will likely slow investment and spending.
- **2-year Treasury yield vs. Fed funds rate.** Expectations for Fed policy moves continue to be volatile. Currently the market is aligned with the Fed's dot plot from December indicating 3 rate cuts of 25 basis points each in 2024, based on the level of 2-year Treasury yields.
- **We continue to favor extending duration to lock in current yields.** The prospect of Fed rate cuts and lower inflation should mean lower yields in the second half of the year. We suggest using periods when yields rebound to extend duration to the benchmark of the Aggregate Bond Index which is about 6.3 years.

PCE and Core PCE are still trending lower



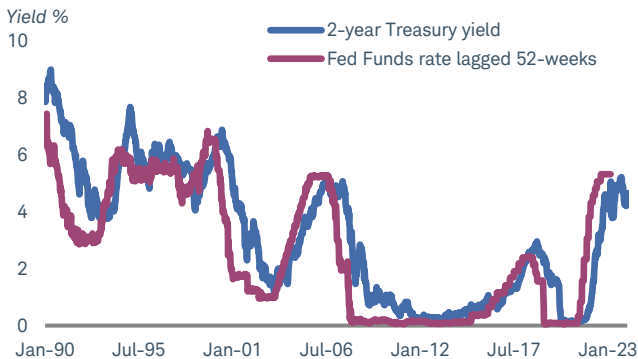
Source: Bloomberg. PCE: Personal Consumption Expenditures Price Index (PCE DEFY Index), Core PCE: Personal Consumption Expenditures: All Items Less Food & Energy (PCE CYOY Index), percent change, year over year. Monthly data as of 1/31/2024.

The "real" Federal funds rate has continued to rise as the inflation rate has declined



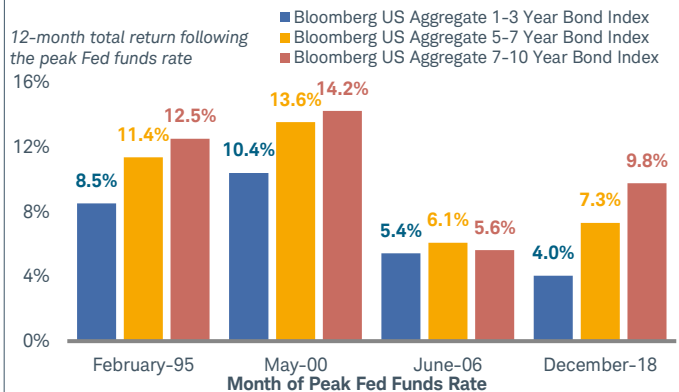
Source: Bloomberg. Federal Funds Target Rate Upper Bound (FDTR Index) minus Core PCE: US Personal Consumption Expenditures Ex Food & Energy Deflator SA (PCE CYOY Index). Monthly data as of 1/31/2023.

The 2-year Treasury yield is a good indicator of where the market expects the Fed funds rate to be in one year



Source: Bloomberg. Generic United States 2 Year Government Note (GT2 Govt) and US Federal Funds Effective Rate (continuous series) (FEDL01 Index). Data as of 2/29/2024. Past performance is no guarantee of future results.

12-month total return after the Fed funds rate hit its peak



Source: Bloomberg. Twelve-month total returns for each period are as of month-end. Total return includes interest, capital gains, dividends, and distributions realized over a period. Past performance is no guarantee of future results. Indexes are unmanaged, do not incur management fees, costs, and expenses and cannot be invested in directly.



Corporate Bond Market Update

March 2024



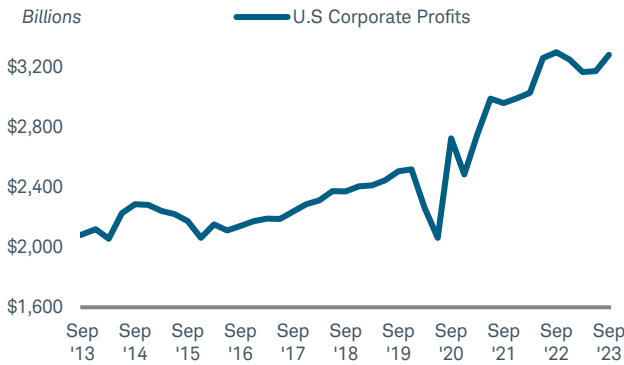
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Schwab Center for Financial Research perspective

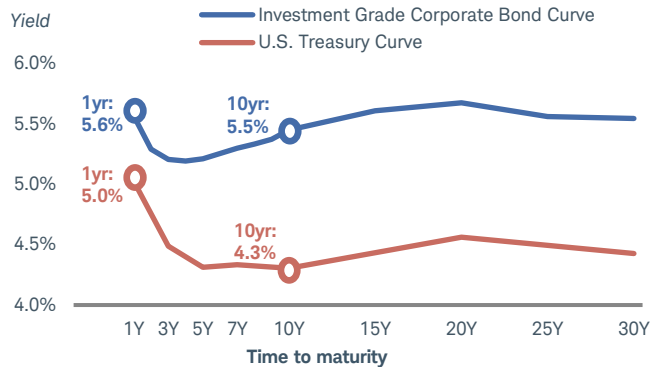
- **Corporations have generally weathered the increase in interest rates.** Corporate profits are approaching the all-time highs from late 2022 as the economy remains resilient. This should help keep corporate bond prices supported, but low spreads—the extra yield above comparable Treasuries—prevent us from being more optimistic.
- **Investment grade corporate bonds remain attractive** and may make sense for investors considering a “barbell” strategy that focuses on both short- and longer-term bonds. By considering corporate bonds in the seven- to 10-year range, investors don’t need to sacrifice much yield the way Treasury investors do.
- **High-yield: consider in moderation.** Low spreads should limit the upside potential, but we acknowledge that the outlook is rosier than we assumed just a few months ago. While headlines about maturing high-yield bonds may seem concerning, corporations generally try to refinance debt and extend maturities in advance, as shown below.
- **Preferred securities can make sense** for income-oriented investors willing to ride out some ups and downs. The average price of the ICE BofA Fixed Rate Preferred Securities Index ended February near \$92 which is low relative to the 15-year average. Banking concerns may keep volatility elevated, however.

Corporate profits are near all-time highs



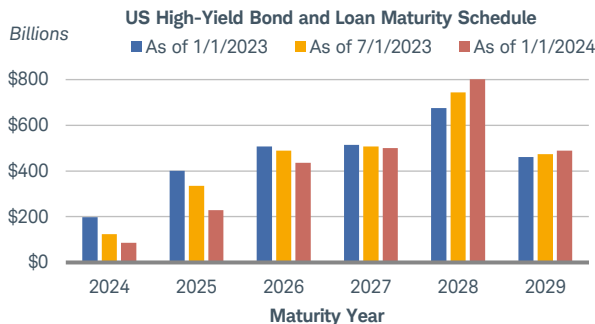
Source: Bloomberg, using quarterly data as of 3Q23. US Corporate Profits With IVA and CCA Total SAAR (CPFTTOT Index).

A “barbell” strategy with IG corporates means investors don’t need to sacrifice yield with longer maturities



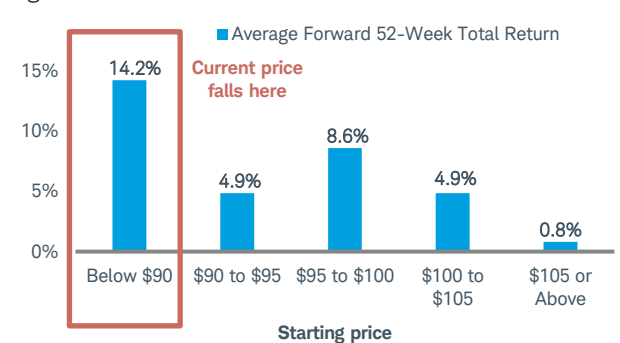
Source: Bloomberg, as of 2/27/2024. US Treasury Actives Curve (YCGT0025 Index) and USD US Corporate IG BVAL Yield Curve (BVSC0076 Index). **Past performance is no guarantee of future results.**

High-yield bond issuers have already been refinancing upcoming maturities



Source: Bloomberg. Columns represent the amount of maturing bonds and loans for each respective year. Bonds and loans include those with the following characteristics: Rated BB+/Ba1 or below by Standard and Poor’s and Moody’s Investors Services, respectively, denominated in the US dollar, amount outstanding of \$100 million or more, and the screen does not include bonds or loans issued by financial institutions.

Preferred prices this low have been followed by relatively high total returns over time



Source: Schwab Center for Financial Research and Bloomberg. Forward 52-week total returns of the ICE BofA Fixed Rate Preferred Securities Index using weekly data from 5/5/1989 through 2/23/2024. **Past performance is no guarantee of future results.** Indexes are unmanaged, do not incur management fees, costs and expenses, and cannot be invested in directly.



Municipal Bond Market Update

March 2024



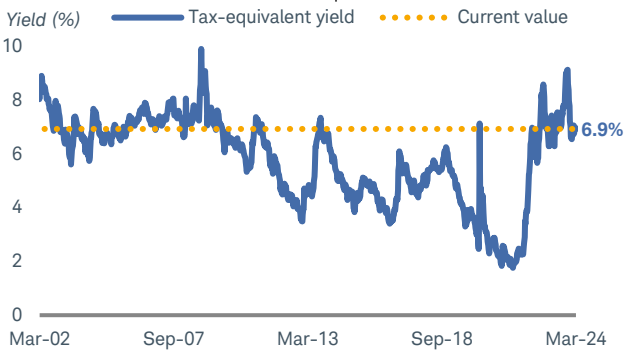
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Schwab Center for Financial Research perspective

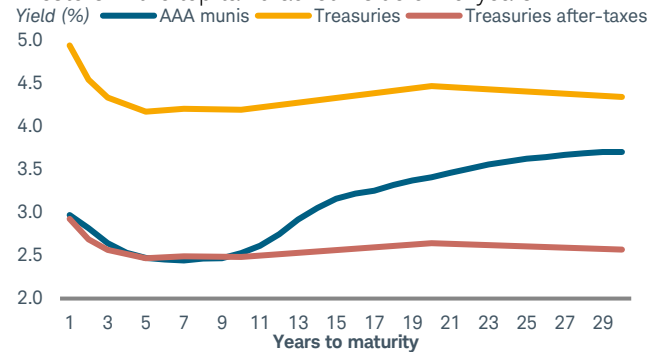
- **Consider some lower rated investment grade munis.** The sweet spot for credit is A rated issuers in our view. Credit quality has remained a bright spot in muniland, and we don't expect that to change soon. Also, the higher yields that lower rated issuers generally offer should help offset price declines if rates move higher.
- **Low relative yields are likely here to stay.** The average 10-year muni-to-Treasury ratio has steadily declined from above 100% in 2015 to 60% in 2024 likely due to supply and demand factors. Since 2015, the market value of munis outstanding has only increased 4% but demand for tax-exempt income has increased due to factors such as an aging and wealthier population.
- **Investors who are not in the top Federal tax brackets should consider Treasuries or CDs** instead of AAA rated munis if looking for highly rated investment options. After considering the impact of taxes, AAA munis yield less than Treasuries for investors who are not in the top tax bracket inside of 10-years.
- **Munis aren't exempt from all taxes.** A benefit of municipal bonds is that the interest income they pay is generally exempt from Federal income taxes. However, other taxes may apply. Read our recent [publication](#) for more.

The tax-equivalent yield for a broad index of munis is near 7% for investors in the top tax bracket



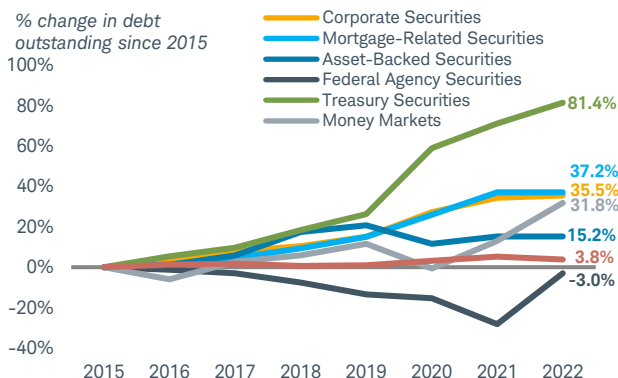
Source: Bloomberg. Bloomberg Municipal Bond Index (LMBIYW Index). Weekly data as of 3/1/2024. Past performance is no guarantee of future results.

AAA-rated munis yield close to Treasuries after-taxes for investors in the top tax bracket inside of 10-years



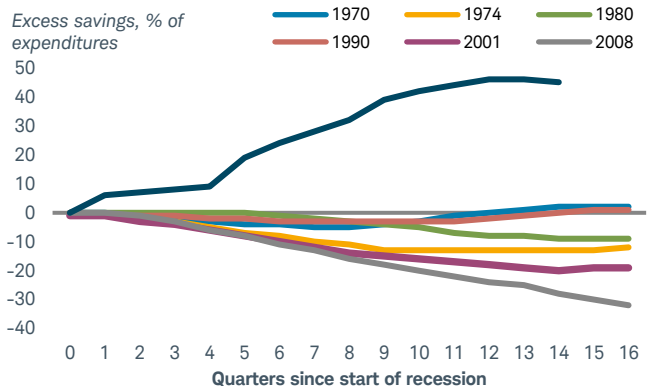
Source: Bloomberg, as of 3/1/2024. "Treasuries after-taxes" assumes a 37% Federal and 3.8% ACA tax for a total of 40.8%. Past performance is no guarantee of future results. For illustrative purposes only.

The market value of munis outstanding has only increased by about 4% since 2015



Source: SIFMA, as of Q3 2023 which is the most recent data available.

Unlike past recessions, states have accumulated savings following the 2020 recession

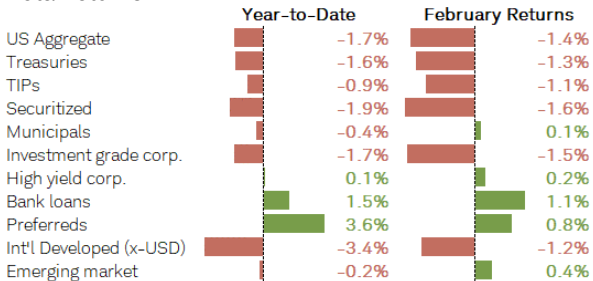


Source: Dallas Federal Reserve, as of December 19, 2023

Schwab Center for Financial Research strategy

- **Consider continuing to extend duration.** The peak in Treasury yields is likely behind us given the drop in inflation and our expectation that the fed funds rate is at its peak. Ten-year Treasury yields appear fairly valued in the 3.5% to 4.0% region. We expect declining short-term yields to steepen the yield curve in 2024.
- **Credit:** Investment grade corporate bonds still appear attractive given average yields near 5% or more. We are less cautious on high-yield bonds today, but with spreads approaching their cyclical lows we stop short of suggesting overweight allocations. A potential soft landing should keep preferred security prices supported, but with large exposure to financial institutions, any potential banking concerns could pull their prices down a bit.
- **Munis:** Absolute yields are attractive for high income earners in our view. Total returns relative to Treasuries may face headwinds in the near-term because of low muni-to-Treasury ratios and seasonal factors. Credit conditions are starting to show cracks but remain strong. We like the 5- to 7-year part of the curve.

Total returns



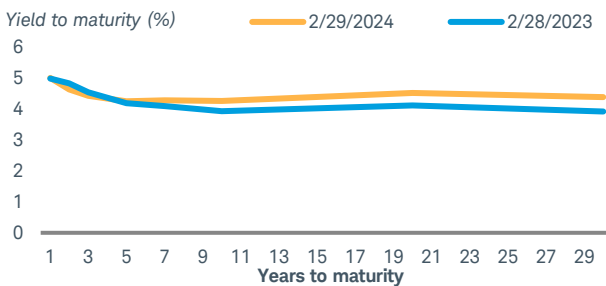
Source: Bloomberg. Returns from 12/29/2023 through 2/29/2024 and from 1/31/2024 through 2/29/2024. See disclosures for indexes used. **Past performance is no guarantee of future results.**

Key metrics

	Current	One-month ago
2-yr. Treasury yield (%)	4.62	4.21
5-yr. Treasury yield (%)	4.25	3.84
10-yr. Treasury yield (%)	4.25	3.91
30-yr. Treasury yield (%)	4.38	4.17
10-yr. TIPS Breakeven (%)	2.32	2.25
2/10 Spread (BPS)	-37.1	-29.8
Dollar Index	1,243.8	1,238.1
5-yr. MOB spread (%)	58.0	62.4
10-yr. MOB spread (%)	59.4	62.9
IG Corporate OAS (BPS)	96	96
HY Corporate OAS (BPS)	309	343

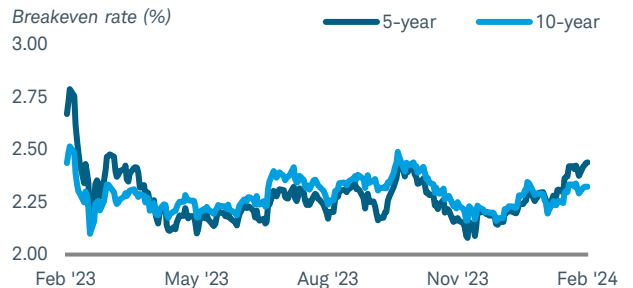
Source: Bloomberg, as of 2/29/2024. **Past performance is no guarantee of future results.**

Treasury yield curve



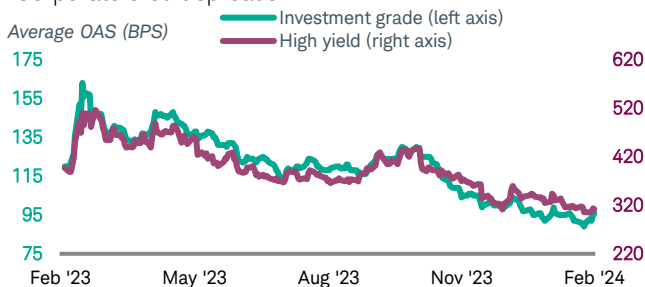
Source: Bloomberg US Treasury Actives Curve, as of 2/29/2024. For illustrative purposes only. **Past performance is no guarantee of future results**

TIPS breakeven rates



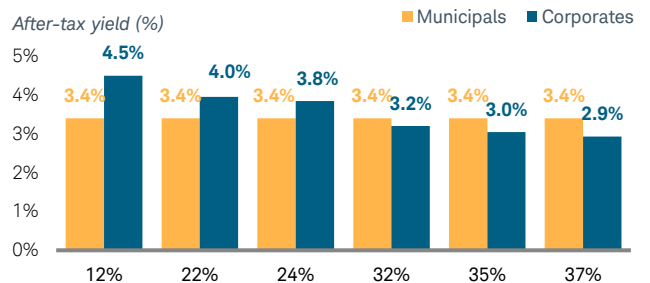
Source: Bloomberg, as of 2/29/2024. U.S. Breakeven 5 Year (USGGBE05 Index) and US Breakeven 10 Year (USGGBE10 Index).

Corporate credit spreads



Source: Bloomberg, as of 2/29/2024. Bloomberg US Corporate Bond Index and Bloomberg US Corporate High-Yield Bond Index. 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.

Municipal bond yields vs. after-tax corporate bond yields



Source: Bloomberg Municipal Bond Index and Bloomberg US Corporate Bond Index, as of 2/29/2024. Corporates assume an additional 5% state income tax and 3.8% ACA tax for the 32% and above brackets. **Past performance is no guarantee of future results.**

Important Disclosures

All views and opinions in this update are as of March 1, 2024.

The information provided here is for general informational purposes only and should not be considered an individualized recommendation or personalized investment advice. The investment strategies mentioned here may not be suitable for everyone. Each investor needs to review an investment strategy for his or her own particular situation before making any investment decision. All expressions of opinion are subject to change without notice in reaction to shifting market conditions. Data contained herein from third-party providers is obtained from what are considered reliable sources. However, its accuracy, completeness, or reliability cannot be guaranteed. Examples provided are for illustrative purposes only and not intended to be reflective of results you can expect to achieve.

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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. Lower rated securities are subject to greater credit risk, default risk, and liquidity risk.

Tax-exempt bonds are not necessarily a suitable investment for all persons. Information related to a security's tax-exempt status (federal and in-state) is obtained from third parties, and Charles Schwab & Co., Inc. does not guarantee its accuracy. Tax-exempt income may be subject to the Alternative Minimum Tax (AMT). 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 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. Treasury Inflation-Protected Securities are guaranteed by the US Government, but inflation-protected bond funds do not provide such a guarantee.

Bank loans typically have below investment-grade credit ratings and may be subject to more credit risk, including the risk of nonpayment of principal or interest. Most bank loans have floating coupon rates that are tied to short-term reference rates like the Secured Overnight Financing Rate (SOFR), so substantial increases in interest rates may make it more difficult for issuers to service their debt and cause an increase in loan defaults. A rise in short-term reference rates typically result in higher income payments for investors, however. Bank loans are typically secured by collateral posted by the issuer, or guarantees of its affiliates, the value of which may decline and be insufficient to cover repayment of the loan. Many loans are relatively illiquid or are subject to restrictions on resales, have delayed settlement periods, and may be difficult to value. Bank loans are also subject to maturity extension risk and prepayment risk.

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.

Preferred securities are a type of hybrid investment that share characteristics of both stock and bonds. They are often callable, meaning the issuing company may redeem the security at a certain price after a certain date. Such call features, and the timing of a call, may affect the security's 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 their prices may fall 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.

Mortgage-backed securities (MBS) may be more sensitive to interest rate changes than other fixed income investments. They are subject to extension risk, where borrowers extend the duration of their mortgages as interest rates rise, and prepayment risk, where borrowers pay off their mortgages earlier as interest rates fall. These risks may reduce returns.

Some of the statements in this document may be forward looking and contain certain risks and uncertainties.

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

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Schwab does not recommend the use of technical analysis as a sole means of investment research.

Supporting documentation for any claims or statistical information is available upon request.

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

Past performance is no guarantee of future results, and the opinions presented cannot be viewed as an indicator of future performance.

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Index Definitions/Important Information

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

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

The **Bloomberg U.S. Corporate Bond Index** ("Investment grade corp") 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 U.S. Treasury Index** ("Treasuries") 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 U.S. Corporate High-Yield Bond Index** ("High yield corp") 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 U.S. Municipal Bond Index** ("Municipals") 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. The AAA, AA, A, Baa, 1 Year (1-2), 3 Year (2-4), 5 Year (4-6), 7 Year (6-8), 10 Year (8-12), 15 Year (12- 17), 20 Year (17-22), and Long Bond (22+) are all subindices.

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

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

The **Bloomberg 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 Global Aggregate ex USD Bond Index** ("Intl 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.

The **Morningstar LSTA US Leveraged Loan Index** ("Bank Loans") is designed to deliver comprehensive, precise coverage of the US leveraged loan market. Underpinned by PitchBook | LCD data, the index brings transparency to the performance, activity, and key characteristics of the market.

The **U.S. Dollar Index** measure the value of the dollar relative to a basket of U.S. trade partners' currencies. It is a weighted geometric mean of the dollar's value relative to other currencies.

The **TIPS breakeven inflation rate** is the difference between the nominal yield on a fixed-rate investment and the real yield (fixed spread) on an inflation-linked investment of similar maturity and credit quality.

BVAL tax-exempt munis curve is populated with high quality US municipal bonds with an average rating of AAA from Moody's and S&P. The yield curve is built using non-parametric fit of market data obtained from the Municipal Securities Rulemaking Board, new issues calendars, and other proprietary contributed prices. Represents 5% couponing. Index names/tickers ending in T or Y (eg BVMB10T, BVMB10Y) are based off a rolling tenor.

Source: Bloomberg Index Services Limited. BLOOMBERG® is a trademark and service mark of Bloomberg Finance L.P. and its affiliates (collectively "Bloomberg"). Bloomberg or Bloomberg's licensors own all proprietary rights in the Bloomberg Indices. Neither Bloomberg nor Bloomberg's licensors 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 **Municipal-Over-Bonds (MOB) Spread** is the ratio between the yield on a municipal bond and a Treasury bond with the same time to maturity.

Basis points (BPS) One basis point (BPS) is equal to one one-hundredth of 1 percent.

The Moody's investment grade rating scale is Aaa, Aa, A, and Baa, and the sub-investment grade scale is Ba, B, Caa, Ca, and C. Standard and Poor's investment grade rating scale is AAA, AA, A, and BBB and the sub-investment-grade scale is BB, B, CCC, CC, and C. Ratings from AA to CCC may be modified by the addition of a plus (+) or minus (-) sign to show relative standing within the major rating categories. Fitch's investment-grade rating scale is AAA, AA, A, and BBB and the sub-investment-grade scale is BB, B, CCC, CC, and C.