

The ETF Angle

Treasury ETFs could be riskier than you think

ETF Research

Treasuries are for trading

Evidence of the shift to a “5%” world is stronger than ever (see our 8 August 2023 report): consumers expect >4% inflation over the next 5-10 years (Exhibit 3), while market-implied inflation metrics are near decade highs (Exhibit 5). Most fixed income portfolios are comprised of 70-90% interest rate/inflation exposure – very risky in a time of big government spending and tight labor markets. We believe that investors should consider Prudent Yield credit assets and use Treasuries sparingly (see *The RIC Report: A new bond strategy for the end of 60/40*).

10-year yield >4.5% means more pain for bond holders

BofA Global Research’s Paul Ciana thinks that the US 10-year Treasury yield could climb toward 4.5-4.6% in 3Q23 (see the report, *Technical Advantage: Breaking up is hard to do*). Popular Treasury ETFs, such as IEF and TLT, could lose another 4-8% if yields spike by the end of September. Paul thinks that the long-term chart points to a 5-5.5% 10-year yield, which would add to pain for bond holders already in their third straight down year (Exhibit 4).

Soft landing means Fed is unlikely to cut until mid-2024

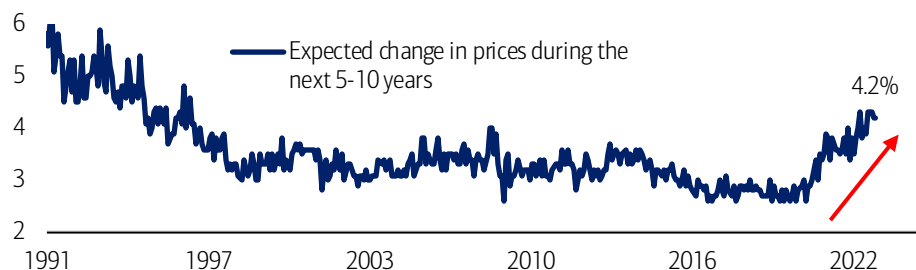
BofA Global Research forecasts no recession, but a resilient economy is likely to keep interest rates and bond yields higher for longer. BofA Global Research economists do not expect the Fed to start cutting rates until the middle of next year and forecast 5% Fed funds by the end of 2024. “Cash” ETFs give investors access to the front end of the Treasury curve that tracks the Fed funds rate (Exhibit 1).

Investors have embraced duration

Flows speak louder than words. Investors are positioned for recession, inflation crash, and Fed cuts – evident from \$31.7bn inflows to Treasury bond ETFs on pace for a record year (Exhibit 6 and 7). Long-term bond funds look increasingly vulnerable to a sharp move higher in yields. The pain trade is an economy in which food/energy/shelter prices catch fire, eating up extra consumer wages, and the Fed is forced to say “this is fine.” An inflation rebound, more hikes, and barely there GDP could mean stagflation and more pain ahead for heedless bond enthusiasts.

Exhibit 3: Inflation expectations are becoming unanchored

University of Michigan survey of consumers, mean inflation expectations



Source: BofA Research Investment Committee, Bloomberg

BofA GLOBAL RESEARCH

BofA Securities does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 4 to 6. Analyst Certification on page 3.

12591518

Timestamp: 09 August 2023 04:04PM EDT

09 August 2023

Exchange-Traded Funds
United States
Other Financials

Jared Woodard

Investment & ETF Strategist
BofAS
+1 646 855 2600
jared.woodard@bofa.com

John Glascock

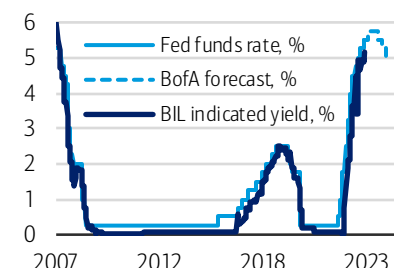
Investment & ETF Strategist
BofAS
+1 646 855 3402
john.glascock@bofa.com

Phoebe Block

Investment & ETF Strategist
BofAS
+1 646 241 5941
phoebe.block@bofa.com

Exhibit 1: Cash ETF yields track the Fed

Indicated yield for BIL versus Fed funds rate



Source: BofA ETF Research

BofA GLOBAL RESEARCH

Exhibit 2: US Treasury ETF coverage

Ticker, focus, yield, rating

Ticker	Focus	Yield	Rating
BIL	"Cash"	5.2%	1-NV
SHV	"Cash"	5.1%	1-NV
MINT	"Cash"	4.9%	3-NV
SCHO	Short-Term	4.3%	1-NV
VGSH	Short-Term	3.6%	1-NV
SHY	Short-Term	3.1%	2-NV
SCHR	Intermediate	3.0%	1-NV
VGIT	Intermediate	2.6%	2-NV
GOVT	Intermediate	3.2%	3-NV
IEI	Intermediate	2.4%	3-NV
TLT	Long-Term	3.4%	1-NV
SPTL	Long-Term	3.3%	2-NV
IEF	Long-Term	3.0%	2-NV
EDV	Long-Term	3.7%	3-NV

Source: BofA ETF Research

BofA GLOBAL RESEARCH

Fragility in Treasury ETFs is clear

Exhibit 4: US 10-year Treasury yields could hit 5-5.5% after long-term channel breakout

US 10-year yield – Monthly chart (G1203)



Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 5: Market-based inflation expectations highest since 2014

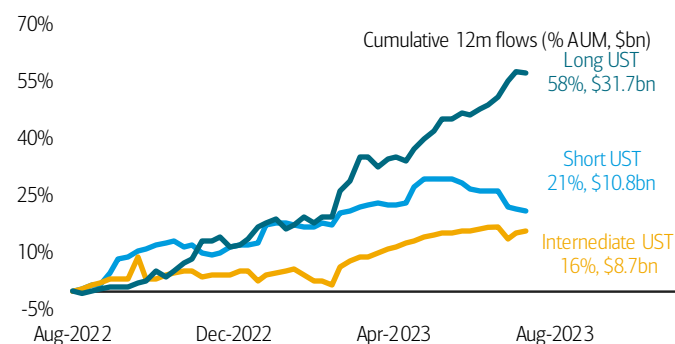
5-year, 5-year USD inflation swap



BofA GLOBAL RESEARCH

Exhibit 6: Investors are still overweight duration

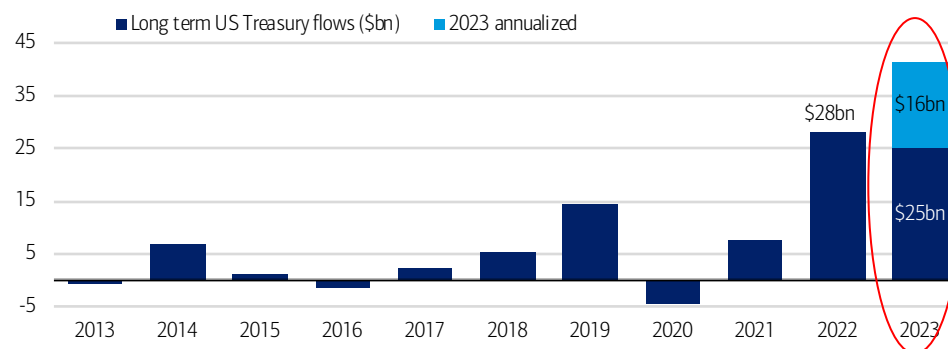
Flows into different categories of US Treasury ETFs, % of assets under management (AUM)



Source: BofA ETF Research, Bloomberg; X axis = flows % AUM for BofA covered US Treasury ETFs
BofA GLOBAL RESEARCH

Exhibit 7: 2023 could annualize to biggest inflows ever (\$41bn) for long-term US Treasury ETFs

Annual flows, covered long-term US Treasury ETFs



Source: BofA ETF Research, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 8: ETFs mentioned

ETFs mentioned, ticker, name, focus, relevant statistics

Ticker	Name	Focus	Duration	Weighted-average maturity	Yield	Rating	Price
BIL	SPDR Bloomberg 1-3 Month T-Bill ETF	Ultra Short	0.13	0.14	5.2%	1-NV	91.54
SHV	iShares Short Treasury Bond ETF	Ultra Short	0.25	0.26	5.1%	1-NV	110.12
MINT	PIMCO Enhanced Short Maturity Active Exchange-Traded Fund	Ultra Short	0.94	1.09	4.9%	3-NV	99.66
SCHO	Schwab Short-Term U.S. Treasury ETF	Short-Term	1.83	1.96	4.3%	1-NV	48.00
VGSH	Vanguard Short-Term Treasury ETF	Short-Term	1.83	1.96	3.6%	1-NV	57.72
SHY	iShares 1-3 Year Treasury Bond ETF	Short-Term	1.83	1.96	3.1%	2-NV	81.11
SCHR	Schwab Intermediate-Term U.S. Treasury ETF	Intermediate	5.05	5.66	3.0%	1-NV	49.08
VGIT	Vanguard Intermediate-Term Treasury ETF	Intermediate	5.05	5.67	2.6%	2-NV	58.45
GOVT	iShares US Treasury Bond ETF	Intermediate	6.01	8.56	3.2%	3-NV	22.66
IEI	iShares 3-7 Year Treasury Bond ETF	Intermediate	4.35	4.80	2.4%	3-NV	115.21
TLT	iShares 20+ Year Treasury Bond ETF	Long-Term	17.02	26.08	3.4%	1-NV	97.07
SPTL	SPDR Portfolio Long Term Treasury ETF	Long-Term	15.58	23.38	3.3%	2-NV	28.45
IEF	iShares 7-10 Year Treasury Bond ETF	Long-Term	7.42	8.39	3.0%	2-NV	95.37
EDV	Vanguard Extended Duration Treasury ETF	Long-Term	24.10	25.25	3.7%	3-NV	79.41

Source: BofA ETF Research, Bloomberg

BofA GLOBAL RESEARCH

Analyst Certification

I, Jared Woodard, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

Special Disclosures

BofA Securities is currently acting as financial advisor to IMM Private Equity Inc in connection with its proposed sale of 30% stake of AirFirst Co Ltd, which was announced on June 9, 2023.



Disclosures

Important Disclosures

Exchange-Traded Funds Investment Rating Distribution: Global Group (as of 30 Jun 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	77	20.32%	Buy	50	64.94%
Hold	293	77.31%	Hold	222	75.77%
Sell	9	2.37%	Sell	6	66.67%

^{R1} Exchange-traded funds (ETFs), or the ETF providers, that were investment banking clients of BofA Securities or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only ETFs. An ETF rated 1-FV is included as a Buy; an ETF rated 2-FV, 3-FV, 1-NV, 2-NV, 3-NV, 1-UF or 2-UF is included as a Hold; and an ETF rated 3-UF is included as a Sell.

EXCHANGE-TRADED FUNDS (ETF) INVESTMENT OPINION KEY: Opinions reflect both an Outlook Rating and a Category Rating. OUTLOOK RATINGS reflect the analyst's assessment of the ETF's attractiveness relative to other ETFs within its category (including sector, region, asset class, thematic, and others). There are three outlook ratings: 1 - the ETF is more attractive than covered peers in the same category over the next 12 months; 2 - the ETF is similarly attractive to covered peers in the same category over the next 12 months; and 3 - the ETF is less attractive than covered peers in the same category over the next 12 months. CATEGORY RATINGS, indicators of the analyst's view of the ETF's category and which incorporate published views of BofA Global Research department analysts, are: FV - Favorable view, NV - Neutral view and UF - Unfavorable view.

Price Charts for the securities referenced in this research report are available on the [Price Charts website](#), or call 1-800-MERRILL to have them mailed.

BofAS or one of its affiliates acts as a market maker for the equity securities recommended in the report: iShares 3-7 UST ETF, iShares 7-10 UST ETF, iShares Cash UST ETF, iShares Long UST, iShares Med UST, iShares Short UST, PIMCO Actv Short UST, Schwab Med UST, Schwab Short UST, SPDR Long UST ETF, SPDR T-Bill ETF, Vanguard IntermedUST, Vanguard Long UST, Vanguard Short UST.

BofAS or an affiliate was a manager of a public offering of securities of this issuer within the last 12 months: Allianz, BlackRock, Inc., Charles Schwab, State Street.

The issuer is or was, within the last 12 months, an investment banking client of BofAS and/or one or more of its affiliates: Allianz, BlackRock, Inc., Charles Schwab, State Street.

BofAS or an affiliate has received compensation from the issuer for non-investment banking services or products within the past 12 months: Allianz, BlackRock, Inc., Charles Schwab, State Street, Vanguard Group Inc.

The issuer is or was, within the last 12 months, a non-securities business client of BofAS and/or one or more of its affiliates: Allianz, BlackRock, Inc., Charles Schwab, State Street, Vanguard Group Inc.

BofAS or an affiliate has received compensation for investment banking services from this issuer within the past 12 months: Allianz, BlackRock, Inc., Charles Schwab, State Street.

BofAS or an affiliate expects to receive or intends to seek compensation for investment banking services from this issuer or an affiliate of the issuer within the next three months: Allianz, BlackRock, Inc., Charles Schwab, State Street.

BofAS together with its affiliates beneficially owns one percent or more of the shares of this fund. If this report was issued on or after the 9th day of the month, it reflects the ownership position on the last day of the previous month. Reports issued before the 9th day of the month reflect the ownership position at the end of the second month preceding the date of the report: iShares 3-7 UST ETF, iShares 7-10 UST ETF, iShares Cash UST ETF, iShares Long UST, iShares Med UST, iShares Short UST, PIMCO Actv Short UST, Schwab Short UST, SPDR Long UST ETF, SPDR T-Bill ETF, Vanguard IntermedUST, Vanguard Long UST, Vanguard Short UST.

BofAS or one of its affiliates is willing to sell to, or buy from, clients the common equity of the issuer on a principal basis: iShares 3-7 UST ETF, iShares 7-10 UST ETF, iShares Cash UST ETF, iShares Long UST, iShares Med UST, iShares Short UST, PIMCO Actv Short UST, Schwab Med UST, Schwab Short UST, SPDR Long UST ETF, SPDR T-Bill ETF, Vanguard IntermedUST, Vanguard Long UST, Vanguard Short UST.

The issuer is or was, within the last 12 months, a securities business client (non-investment banking) of BofAS and/or one or more of its affiliates: Allianz, BlackRock, Inc., Charles Schwab, State Street, Vanguard Group Inc.

Due to the nature of strategic analysis, the issuers or securities recommended or discussed in this report are not continuously followed. Accordingly, investors must regard this report as providing stand-alone analysis and should not expect continuing analysis or additional reports relating to such issuers and/or securities.

BofA Global Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.

BofAS and/or its affiliates participate in the creation and redemption of these ETFs and are an authorized participant for such ETFs: iShares 3-7 UST ETF, iShares 7-10 UST ETF, iShares Cash UST ETF, iShares Long UST, iShares Med UST, iShares Short UST, PIMCO Actv Short UST, Schwab Med UST, Schwab Short UST, SPDR Long UST ETF, SPDR T-Bill ETF, Vanguard IntermedUST, Vanguard Long UST, Vanguard Short UST.

Other Important Disclosures

The covered issuer and/or one or more of its affiliates holds 5% or more of the total issued share capital of Bank of America Corporation: BlackRock, Inc., Vanguard Group Inc.

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for any recommendation in relation to an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report and in relation to a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including BofA Securities trading desks.

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.

Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

Refer to [BofA Global Research policies relating to conflicts of interest](#).

"BofA Securities" includes BofA Securities, Inc. ("BofAS") and its affiliates. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. "BofA Securities" is a global brand for BofA Global Research.

Information relating to Non-US affiliates of BofA Securities and Distribution of Affiliate Research Reports:

BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF). BofA Securities Europe SA ("BofASE") with registered address at 51, rue La Boétie, 75008 Paris is registered under no. 842 602 690 RCS Paris. In accordance with the provisions of French Code Monétaire et Financier (Monetary and Financial Code), BofASE is an établissement de crédit et d'investissement (credit and investment institution) that is authorised and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers. BofASE's share capital can be found at www.bofam.com/BofASEdiscclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan



Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI; BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSF); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Investment Industry Regulatory Organization of Canada; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; BofA Japan: BofA Securities Japan Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; BofA India: BofA Securities India Limited, regulated by the Securities and Exchange Board of India (SEBI); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Brazil): Merrill Lynch S.A. Corretora de Títulos e Valores Mobiliários, regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofASE (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by BofAS Japan, a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofAS India; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the [Electronic Communications Disclaimers](#) for further information.

This information has been prepared and issued by BofAS and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. BofAS and/or MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to BofAS and/or MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through BofAS and/or MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information. For clients that are not accredited investors, expert investors or institutional investors Merrill Lynch (Singapore) Pte Ltd accepts full responsibility for the contents of this information distributed to such clients in Singapore.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Securities. This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Securities clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Securities, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. Digital assets are extremely speculative, volatile and are largely unregulated. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

This report may contain a short-term trading idea or recommendation, which highlights a specific near-term catalyst or event impacting the issuer or the market that is anticipated to have a short-term price impact on the equity securities of the issuer. Short-term trading ideas and recommendations are different from and do not affect a stock's fundamental equity rating, which reflects both a longer term total return expectation and attractiveness for investment relative to other stocks within its Coverage Cluster. Short-term trading ideas and recommendations may be more or less positive than a stock's fundamental equity rating.

BofA Securities is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned herein. Investors in such securities and instruments, including ADRs, effectively assume currency risk.

BofAS or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BofAS or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Securities, through business units other than BofA Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Securities is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information.

In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS). If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

ETFs are redeemable only in Creation Unit size through an Authorized Participant and may not be individually redeemed. ETFs also are redeemable on an "in-kind" basis. The mechanism for creation and redemption of ETFs may be disrupted due to market conditions or otherwise.

The public trading price of an ETF may be different from its net asset value, and an ETF could trade at a premium or discount to its net asset value.

Investors in ETFs with international securities assume currency risk.

U.S. exchange-listed, open-end ETFs must be offered under and sold only pursuant to a prospectus. U.S. exchange-listed ETFs may not be marketed or sold in a number of non-U.S. jurisdictions and may not be suitable for all investors. Investors should consider the investment objectives, risks, charges and expenses of the ETF carefully before investing. The prospectus for the ETF

contains this and other information about the ETF. Clients may obtain prospectuses for the ETFs mentioned in this report from the ETF distributor or their Merrill Global Wealth Management financial advisor. The prospectuses contain more complete and important information about the ETFs mentioned in this report and should be read carefully before investing. BofAS or one of its affiliates receives licensing fees in connection with certain Select Sector Indices, Select Sector SPDR Funds, and the use of various marks associated with the foregoing. Such fees are paid from The Select Sector SPDR Trust ("Trust"), in respect of each Select Sector SPDR Fund, based on the average aggregate daily net assets of such Select Sector SPDR Fund (based on net asset value as described in the Trust's prospectus). Such fees also may be made in respect of other ETF providers for the right to create ETFs based on the Select Sector Indices, or different versions thereof.

"Standard & Poor's®", "S&P®", "S&P 500®", "Standard & Poor's 500", "500", "Standard & Poor's Depositary Receipts®", "SPDRs®", "Select Sector SPDR" and "Select Sector Standard & Poor's Depositary Receipts" are trademarks of The McGraw-Hill Companies, Inc. and have been licensed for use in connection with the listing and trading of Select Sector SPDRs on the AMEX. The stocks included in each Select Sector Index (upon which the Select Sector SPDRs are based) were selected by the index compilation agent in consultation with S&P from the universe of companies represented by the S&P 500 Index. The composition and weightings of the stocks included in each Select Sector Index can be expected to differ from the composition and weighting of stock included in any similar S&P 500 sector index that is published and disseminated by S&P.

For clients in Wealth Management, to the extent that the securities referenced in this report are ETFs or CEFs, investors should note that (1) the views and ratings presented by BofA Global Research personnel may vary from those of other business units of BofA Securities, including the Due Diligence group within the Chief Investment Office of MLPF&S ("CIO Due Diligence"); and (2) the CIO Due Diligence review process is used to determine the availability of an ETF or CEF for purchase through the Wealth Management division of MLPF&S and its affiliates.

Copyright and General Information:

Copyright 2023 Bank of America Corporation. All rights reserved. IQDatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Securities clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Securities. BofA Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Securities and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Securities.

Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel's knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Securities in connection with the legal proceedings or matters relevant to such proceedings.

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofAS or any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Securities and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Securities is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Securities. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Securities is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Securities is under no obligation to update this information and BofA Securities ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Securities will not update any fact, circumstance or opinion contained herein.

Subject to the quiet period applicable under laws of the various jurisdictions in which we distribute research reports and other legal and BofA Securities policy-related restrictions on the publication of research reports, fundamental equity reports are produced on a regular basis as necessary to keep the investment recommendation current.

Certain outstanding reports or investment opinions relating to securities, financial instruments and/or issuers may no longer be current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with BofAS or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BofA Securities nor any officer or employee of BofA Securities accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.