

Liquid Insight

UST curve steepening: not so fast

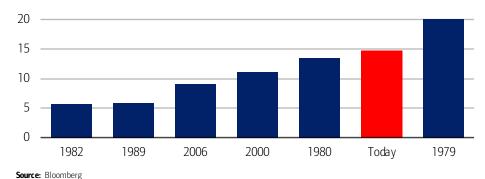
Key takeaways

- The US rates market expects a rapid steepening of the UST curve, led by early and fast Fed cuts; we are skeptical
- Typical bull steepening based on rapid and unexpected cuts + future hikes priced; bear steepening possible but less frequent
- We think the market is already well positioned in steepeners and vulnerable to a less dovish Fed

By M. Cabana, M. Swiber, R. Axel, & B. Braizinha

Exhibit 1: 2s10s curve inversion duration in months

The current UST 2s10s curve inversion is already the 2nd longest in history back to '79



BofA GLOBAL RESEARCH

Steep heights for the curve trade

The BofA US rates strategy team has offered caution on trading the UST market in curve steepeners, preferring instead to focus on the timing of duration longs. Our justification: the forwards seem easier to beat being outright long vs in steepeners.

We still hold this view. Over the next 1Y the UST 2s10s curve is already pricing nearly 55bps of steepening while the 10Y is only pricing a rate decline of 5-10bps. To us, the forwards seem easier to beat on duration vs the curve.

The divergence in curve vs duration pricing is likely rooted in (1) history (2) timing & magnitude of Fed rate cuts. The market is aware UST 2s10s curve inversions typically don't last long, usually due to quick recession onsets (Exhibit 1). The market also thinks the Fed is done hiking and will be cutting in May, with low likelihood of cuts by Dec '23.

To beat the 2s10s forwards, rates will likely require a sharp deterioration in US data or unprecedented fast build-up of long-dated term premium. We think both are unlikely. As a result, steepeners may be frustrated as Fed cuts continue to fade.

Trading ideas and investment strategies discussed herein may give rise to significant risk and are not suitable for all investors. Investors should have experience in relevant markets and the financial resources to absorb any losses arising from applying these ideas or strategies.

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 6 to 8. Analyst Certification on page 5.

06 September 2023

Rates and Currencies Research

Global Rates & Currencies Research MLI (UK)

Mark Cabana, CFA

Mark Cabana, CFA Rates Strategist BofAS +1 646 855 9591 mark.cabana@bofa.com

Meghan Swiber, CFA Rates Strategist BofAS +1 646 855 9877 meghan.swiber@bofa.com

Ralph Axel Rates Strategist BofAS +1 646 855 6226 ralph.axel@bofa.com

Bruno Braizinha, CFA Rates Strategist BofAS +1 646 855 8949 bruno.braizinha@bofa.com

Adarsh Sinha FX Strategist Merrill Lynch (Hong Kong) +852 3508 7155 adarsh.sinha@bofa.com

Janice Xue Rates Strategist Merrill Lynch (Hong Kong) +852 3508 8587 janice.xue@bofa.com

See Team Page for List of Analysts

Liquid InsightRecent Publications

14-Aug-23

5-Sep-23 Bank of Canada preview – on hold: 5.0% is likely the terminal rate

4-Sep-23 Better keep a hawkish bias

31-Aug-23 2Q EPS was all about margins, demand now in focus

30-Aug-23 Navigating FX by the R-stars

29-Aug-23 China clouds USD outlook

28-Aug-23 Summer strength in G10 FX

17-Aug-23 Jackson Hole FAQ: late summer guide

16-Aug-23 Growth-inflation trade-off and FX

15-Aug-23 Bullish on Bullock, bearish on growth

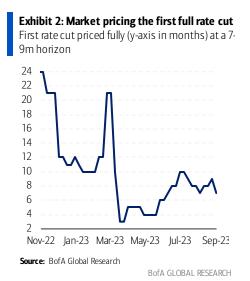
BofA GLOBAL RESEARCH

Do not expect large cuts to EGB

Steeper, yes, but slower

Our forecasts imply a 2s10s steepening much slower than the market. We think the 2s10s curve dis-inverts in mid '25, the market expects dis-inversion in 4Q24. The divergence in this view rests with the timing & magnitude of Fed cuts. Market pricing of Fed cuts & timing of curve dis-inversion are shown in Exhibit 2, Exhibit 3, & Exhibit 4.

The market thinks core inflation will soon stabilize below 0.2% mom & allow for quick Fed cuts (Exhibit 5). We are skeptical and suspect the Fed may be as well. As a result of the more skeptical view on inflation, BofA economists think cuts will be later & slower.



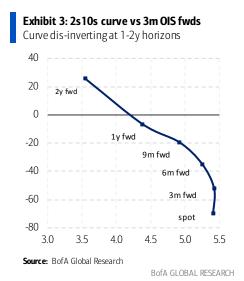


Exhibit 4: 3m OIS fwd levels at which 2s10s curve dis-invert

Curve expected to dis-invert at 3m OIS levels c.4.15% (c.18m horizon)

4.7

4.3

3.9

3.5

3.1

2.7

Sep-22 Dec-22 Mar-23 Jun-23 Sep-23

Source: BofA Global Research

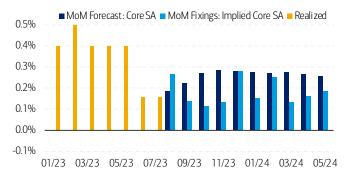
BofA GLOBAL RESEARCH

Sticky core inflation could lead the Fed to reiterate risks to more hikes & higher for longer. This could be seen via Fed speak in coming weeks + the September FOMC dots. Any signal of Q4 rate hikes or <100bps of '24 cuts will likely push the market to re-price the UST front end higher & frustrate steepeners.

Even if inflation stabilizes at a 2% run-rate, the Fed will likely remain cognizant of its last inflation fight in the 1970s in which easing occurred too soon and inflation returned. The Fed may remain on hold with a more hawkish bias longer than the data would otherwise suggest as they seek to avoid the mistakes of their prior inflation fight.

Exhibit 5: Realized vs expected MoM Core SA CPI

Market is expecting readings to consolidate around/below 0.2%



Source: BofA Global Research, Note: SA factor, non-core components implied from Econ forecast

BofA GLOBAL RESEARCH

Exhibit 6: 2y10y vs 1y forward and Fed funds rate

2y10y above forwards when Fed funds rate is declining & to a greater extent than expected



BofA GLOBAL RESEARCH

Steepening more likely to be driven by bull vs bear dynamics

History suggests the UST 2s10s curve is much more likely to dis-invert via a bull vs bear steepening. Recall, bull steepening = lower front end rates lead steepening; bear steepening higher back end rates lead steepening. A history of UST curve steepenings suggests a bull steepening is much more likely vs a continued bear steepening.

We think continued bull steepening would have to come alongside growing conviction in cuts. Conviction in cuts would need to be driven by continued stable & low readings of core inflation or a softening of labor dynamics. We are skeptical core inflation will remain so low with a reasonable tight US labor market. Labor market softening will likely need to lead the bull steepening; Friday's report suggests the economy is not there yet.

The bear steepening dynamic observed in recent weeks is unusual at this point in the cycle and was driven by a repricing of the neutral rate and concerns around the broader supply/demand backdrop. A continued bear steepening would require further evidence of these dynamics. While we cannot rule this out, a continued moderation in data is likely to be more consistent with a bull steepening that is traditionally observed in the later part of the cycle as the Fed cuts (see the report: The curve dynamic and the neutral rate and Liquid Insight: Finding a higher "neutral" ground August 2023).

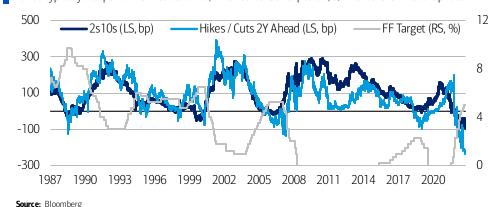
Given the cuts priced next year, we are hesitant to recommend outright steepeners. From a carry perspective, the 2y10y would need to steepen more than 50bps to work.

Typical bull steepening recipe = rapid & unexpected cuts + future hikes pricedSteepeners tend to beat forwards when the Fed is rapidly cutting rates, when cuts are unexpected by the market, & when future hikes are priced (Exhibit 6, Exhibit 7). Each of these factors were present the recent bull steepening cycles including '92, '02-03, & '09.

Not all cycles have these traits, esp when bear steepening. For example, bear steepening in 2013 was due to the "taper tantrum" & in 2021 it was due to vaccines progress / COVID re-opening.

Today, the most typical bull steepening ingredients are not present. Fed cuts are well expected & priced. The Fed is also expected to be cutting from restrictive territory to near neutral, which means the potential for future hikes is limited. New steepeners today are likely betting on a rapid US growth slowdown or fast term premium buildup.

Exhibit 7: 2s10s, hikes / cuts over next 2Y, & FF target 2s10s typically steepens when Fed cuts fast, when cuts are unexpected, & when future hikes are priced



BofA GLOBAL RESEARCH

Positioning: fast money in steepners

Our positioning work also suggests that the fast money community may already be holding steepener positions. Our top-down positioning model suggests CTAs are in steepeners & short (Exhibit 4). This implies that a turn in momentum could see meaningful covering from these investors.

CFTC data also endorses this with leveraged funds holding a greater concentration of shorts at the back-end vs front-end vs history (Exhibit 5). While in part this may reflect an outright view on the market, it is also likely a result of a growing long position from asset managers that is more concentrated further out the curve vs history.



Exhibit 8: CTA positioning in longer duration and shorter duration bonds

Top-down model suggests CTAs added shorts in long duration bonds



Exhibit 9: 5y percentile of relative curve positioning, lower percentile = larger relative long positioning at front-end vs back-end (steeper)

LFs appear to be positioned for steeper curve while AM longs more concentrated further out the curve vs history



Source: BofA Global Research, Bloomberg, Note: reflects the 5y percentile of the difference of positioning in TU, FV vs TY – WN from CFTC data.

BofA GLOBAL RESEARCH

Bottom line: we continue to believe the forwards are easier to beat being outright long vs in steepeners. The steepening trade is already very well priced in the forwards and is rooted in past history + timing & magnitude of Fed rate cuts. The curve typically disinverts due to lower front-end rates rather than higher back-end rates. We think the market is already well positioned in steepeners and is vulnerable to a hawkish Fed.



Notable Rates and FX Research

- Global Rates, FX & EM Year Ahead 2023 Year Ahead 2023: Pivot ≠ Peak, 20 Nov 2022
- <u>Little else matters</u> **Global FX Weekly**, 1 Sep 2023
- Belabored day Global Rates Weekly, 1 Sep 2023
- Support for USD vs. GBP, CHF, CAD; EM interventions, Liquid Cross Border Flows, 21 Aug 2023

Rates, FX & EM trades for 2023

For a complete list of our open trade recommendations, as well as our trade recommendations closed over the past 12 months, see the reports below:

Global FX weekly: Little else matters 01 September 2023

Global Rates Weekly: Belabored day 01 September 2023

Analyst Certification

I, Mark Cabana, CFA, 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.



Disclosures

Important Disclosures

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.

BofA Securities fixed income analysts regularly interact with sales and trading desk personnel in connection with their research, including to ascertain pricing and liquidity in the fixed income markets

Other Important Disclosures

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.

This report may refer to fixed income securities or other financial instruments that may not be offered or sold in one or more states or jurisdictions, or to certain categories of investors, including retail investors. Readers of this report are advised that any discussion, recommendation or other mention of such instruments is not a solicitation or offer to transact in such instruments. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor for information relating to such instruments. Rule 144A securities may be offered or sold only to persons in the U.S. who are Qualified Institutional Buyers within the meaning of Rule 144A under the Securities Act of 1933, as amended. SECURITIES OR OTHER FINANCIAL INSTRUMENTS DISCUSSED HEREIN MAY BE RATED BELOW INVESTMENT GRADE AND SHOULD THEREFORE ONLY BE CONSIDERED FOR INCLUSION IN ACCOUNTS QUALIFIED FOR SPECULATIVE INVESTMENT.

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.

The securities or other financial instruments discussed in this report may be traded over-the-counter. Retail sales and/or distribution of this report may be made only in states where these instruments are exempt from registration or have been qualified for sale.

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.

This report, and the securities or other financial instruments discussed herein, may not be eligible for distribution or sale in all countries or to certain categories of investors, including retail investors

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.bofaml.com/BofASEdisclaimer; 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 (HKSFC); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch (Canada): Merrill Lynch (Canada): Merrill Lynch (Mexico): Merrill Lynch (Mexico): Merrill Lynch (Mexico) (Mexico): Merrill Lynch (Mexico): M 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; BofAS 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; BofAS 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 HKSFC; is issued and distributed in Taiwan); is issued and distributed in India by BofAS late and its 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 in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities

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.

Futures and options are not appropriate for all investors. Such financial instruments may expire worthless. Before investing in futures or options, clients must receive the appropriate risk disclosure documents. Investment strategies explained in this report may not be appropriate at all times. Costs of such strategies do not include commission or margin expenses. 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.

This report may contain a trading idea or recommendation which highlights a specific identified near-term catalyst or event impacting a security, issuer, industry sector or the market generally that presents a transaction opportunity, but does not have any impact on the analyst's particular "Overweight" or "Underweight" rating (which is based on a three month trade horizon). Trading ideas and recommendations may differ directionally from the analyst's rating on a security or issuer because they reflect the impact of a near-term catalyst or event.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned in this report. Investors in such securities and instruments

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.

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 inform

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 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.

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.

Research Analysts

US

Ralph Axel

Rates Strategist BofAS

+1 646 855 6226 ralph.axel@bofa.com

Paul Ciana, CMT Technical Strategist

BofAS

+1 646 855 6007 paul.ciana@bofa.com

John Shin FX Strategist

BofAS +1 646 855 9342

joong.s.shin@bofa.com

Vadim laralov

FX Strategist BofAS

+1 646 855 8732

vadim.iaralov@bofa.com

Mark Cabana, CFA

Rates Strategist BofAS

+1 646 855 9591 mark.cabana@bofa.com

Bruno Braizinha, CFA

Rates Strategist BofAS

+1 646 855 8949

bruno.braizinha@bofa.com

Meghan Swiber, CFA

Rates Strategist BofAS

+1 646 855 9877

meghan.swiber@bofa.com

Europe

Ralf Preusser, CFA

Rates Strategist

MLI (UK) +44 20 7995 7331

ralf.preusser@bofa.com

Ruben Segura-Cayuela

Europe Economist

BofA Europe (Madrid) +34 91 514 3053

ruben.segura-cayuela@bofa.com

Mark Capleton

Rates Strategist MLI (UK)

+44 20 7995 6118

mark.capleton@bofa.com

Athanasios Vamvakidis

FX Strategist

MLI (UK) +44 020 7995 0279

athanasios.vamvakidis@bofa.com

Sphia Salim

Rates Strategist MLI (UK)

+44 20 7996 2227 sphia.salim@bofa.com

Kamal Sharma

FX Strategist

MLI (UK) +44 20 7996 4855

ksharma32@bofa.com

Ronald Man

Rates Strategist MLI (UK) +44 20 7995 1143

ronald.man@bofa.com

Michalis Rousakis

FX Strategist MLI (UK)

+44 20 7995 0336

michalis.rousakis@bofa.com

Pac Rim

Adarsh Sinha

FX Strategist Merrill Lynch (Hong Kong) +852 3508 7155 adarsh.sinha@bofa.com

Janice Xue

Rates Strategist Merrill Lynch (Hong Kong) +852 3508 8587 janice.xue@bofa.com

Shusuke Yamada, CFA

FX/Rates Strategist BofAS Japan +81 3 6225 8515 shusuke.yamada@bofa.com

Trading ideas and investment strategies discussed herein may give rise to significant risk and are not suitable for all investors. Investors should have experience in relevant markets and the financial resources to absorb any losses arising from applying these ideas or strategies.

