# BofA SECURITIES

# Liquid Insight

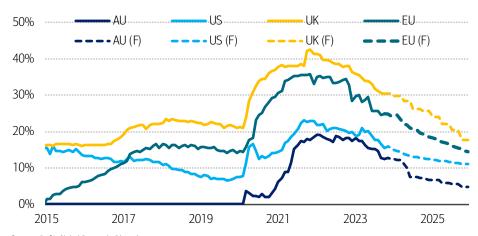
# Losing our liquidity

## Key takeaways

- Australian funding markets have started to tighten as banks prepare to repay AUD 104bn in TFF loans to the RBA in 2024.
- Global excess liquidity is set to decline as Fed QT continues & TLTRO (Europe), TFSME (UK) and TFF (AU) repayments come due.
- In Australia, we recommend selling Jun24 bank bills vs OIS and we close our recommendation to pay Mar24 6m 6s3s.

# By Oliver Levingston, Ronald Man, Agne Stengeryte, Katie Craig and Mark Cabana

Chart of the Day: Excess liquidity, % GDP Liquidity drain to accelerate in 2024



Source: BofA Global Research, Bloomberg

\*Excess liquidity defined as bank reserves less minimum requirements (if applicable) plus deposits at the central bank by domestic institutions via repurchase agreements (repo) (if applicable).

BofA GLOBAL RESEARCH

# Falling excess reserves = tighter AU funding markets

Over the past few weeks, Australian funding markets have started to tighten as Australian banks prepare to repay AUD 104bn in Term Funding Facility (TFF) loans to the Reserve Bank of Australia (RBA) in 2024. We forecast a drawdown in bank reserves in Australia will occur against the backdrop of declining excess liquidity worldwide. Central bank efforts to reduce the size of their balance sheets will likely accelerate the drawdown of excess liquidity in the US, UK and Euro Area in 2024 (Chart of the Day). In this note, we consider the timing of liquidity depletion in the US, Euro area and the UK, and discuss how we would trade this market in Australia.

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.

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 7 to 9. Analyst Certification on page 6. 12624225

Timestamp: 07 November 2023 05:00AM EST

Bof A Securities does and seeks to do business with issuers covered in its research

### Rates Strategist

Oliver Levingston

Global

MLI (UK)

Merrill Lynch (Australia) +61 2 9226 5173 oliver.levingston@bofa.com

07 November 2023

Rates and Currencies Research

Global Rates & Currencies Research

Ronald Man Rates Strategist MLI (UK) +44 20 7995 1143 ronald.man@bofa.com

Agne Stengeryte Rates Strategist MLL (UK) +44 75 41694477 agne. stengeryte @bofa.com

Katie Craig Rates Strategist **BofAS** +1 646 855 6625 katie.craig@bofa.com

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

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

Janice Xue Emerging Asia FI/FX Strategist Merrill Lynch (Hong Kong) +852 3508 8587 janice.xue@bofa.com

See Team Page for List of Analysts

#### Liquid Insight ---- D..bl:--+:---

Recent Publications	
6-Nov-23	RBA preview: One more hike
2-Nov-23	Tangible USD risk premium
1-Nov-23	Bank of England preview:
	extended hold
31-Oct-23	Nov FOMC preview: spooked by
	<u>real rates</u>
30-Oct-23	Bol preview: Trick or
	tweak?
26-Oct-23	Turmoil markets in G10
	<u>FX</u>
25-Oct-23	Interest expense
	boosts deficit & supply
	<u>forecasts</u>
24-Oct-23	ECB preview: waiting for Decem

forecasts

Bank of Canada preview - A haw 23-Oct-23

19-Oct-23 The rates sell-off and the USD ra historical perspective

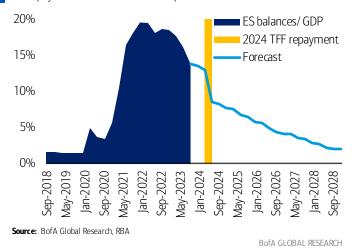
BofA GLOBAL RESEARCH

### Australian funding markets to tighten further as TFF looms

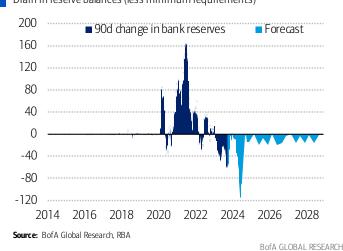
Over the past few weeks, funding markets have started to show signs of tightness as Australia prepares for Term Funding Facility (TFF) repayments to the RBA by the major banks in 2024. The spread Australia's four major banks pay over cash to issue bank bills has widened from around Obps to 7bps over the past three weeks (Exhibit 4).

Australian banks face a record funding task in 2024 as AUD 104bn of AUD 188bn TFF loans are set to mature (vs AUD 84bn repaid in 2023). The TFF maturity schedule is also highly concentrated in Q2 2024. More than 85% of TFF loans due to be repaid in 2024 will roll off in May and June. The pace of liquidity drain will be the fastest in Australian history and we see money market spreads as likely to normalize and even overshoot given the speed at which bank reserves will be depleted (Exhibit 2).

**Exhibit 1: Reserve balances to drain fast in 2024** TFF repayment in 2024 to reduce surplus balances



# **Exhibit 2: 90d change in AU surplus bank reserves (AUD bn)** Drain in reserve balances (less minimum requirements)

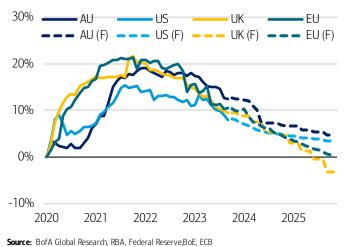


#### International backdrop

Australian TFF repayments in 2024 will also occur against the backdrop of declining global liquidity. We forecast central banks' balance-sheet reduction will further deplete excess liquidity in the US, UK and Euro Area but the timing, speed and effects will vary. For some markets, excess liquidity could return to pre-pandemic levels in the next 18-24 months (Exhibit 3).

Exhibit 3: Excess liquidity, % GDP (Dec 2019 = 0)

UK and Europe to return to pre-pandemic liquidity profile by Q4 2025



BofA GLOBAL RESEARCH

**Exhibit 4: Funding market spreads showing signs of tightness** Forward bank bill term structure steeper, 3m bills-OIS wider

Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

8

6

2

0

-2

#### US

The Fed has been drawing down its excess liquidity, which we define as total reserve balances plus the Fed's ON RRP, via quantitative tightening (QT) since June 2022. QT involves allowing maturing US Treasuries and MBS to roll off of the balance sheet up to a \$60b and \$35b monthly cap, respectively.

In addition to QT, the Fed's Bank Term Funding Program (BTFP) could contribute to a reduction of excess liquidity. The program is slated to wind down by March 2025 but we see risks it could be extended if rates are not lower or if banks are liquidity challenged. Currently, the BTFP is at its peak of \$109b in loans outstanding. We expect it to remain around these levels until at least March 2024, the new loan expiration date. We see risks the new loan expiration date could get pushed forward until March 2025.

We expect the Fed will keep pushing to shrink excess liquidity until (1) US recession / sharp economic slowdown (2) UST market functioning issue (3) US bank reserve scarcity. The Fed baseline as published in the NY Fed Open Market Desk annual report sees QT ending with reserves / GDP at 9%. In the Fed's baseline for QT and incorporating BTFP loan reduction, we estimate excess liquidity will decline by \$1.2tn in 2024 with an additional \$500b in 2025. This Fed base case would see reserves hit 9% of GDP and ON RRP at \$0. Risks are skewed to QT ending earlier due to bank behavior that implies they are liquidity scarce (see the report Fed QT: banks fighting to keep liquidity); this risk case could see Fed QT end as soon as the ON RRP facility reaches zero which we project in 2H '24 or 1H '25. If reserve scarcity happens earlier than the Fed projects, the standing repo facility (SRF) will act as a soft ceiling on repo and will function as an automatic stabilizer to add liquidity back into the system.

#### Euro area

The euro area equivalent of the TFF is the targeted longer-term refinancing operation (TLTRO) programme. TLTRO operations started maturing in September 2022, but there remains €0.5tm outstanding from a peak of €2.1tm. All TLTROs will mature by the end of 2024 and these maturities will contribute more to the Eurosystem's balance sheet decline than QT in 2024.

Euro area banks are responding by terming other liabilities, such as customer deposits and debt issuance (Exhibit 5). This serves two purposes: 1) replace the loss of term funding from TLTROs and 2) lock in reserves for HQLA. We forecast euro money market rates to widen in 2024 as excess liquidity declines on the Eurosystem's balance sheet reduction and an expected increase in minimum reserve requirements.

#### UK

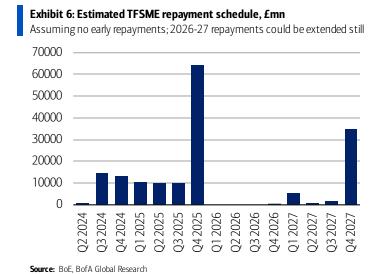
The UK equivalent of the TFF is the TFSME (Term Funding Scheme with additional incentives for Small and Medium Enterprises). Nearly three quarters of TFSME loans will mature by end-2025 (Exhibit 6). Our Quantitative Tightening (QT) and TFSME maturity calculations imply reserves at the Bank of England (BoE) approaching the Preferred Minimum Range of Reserves (PMRR) by end-2025. We estimate that reserves will drop by over £100bn over the course of 2024 and some £200bn over 2025 from current levels. The BoE's latest estimate of the PMRR lies in the region of £335-495bn (Hauser, 3 Nov). To test where the true PMRR might be, the Bank has introduced a weekly market-wide Short Term Repo (STR) facility which offers unlimited amounts of reserves against Gilt collateral at Bank Rate. More will likely need to be done to ensure alternative liquidity sources as reserves decline in the UK.



#### Exhibit 5: Rates on new deposits in euro area

Banks have attracted more term deposits by paying up





BofA GLOBAL RESEARCH

#### How we would trade in Australia

We like to position for wider bills-OIS spreads by paying June 2024 bills-OIS basis (BOB). TFF maturities are highly concentrated in May and June 2024 and will see a faster pace of reserve drain than at any point in Australian history. We forecast 3m bill-OIS spreads will return to their pre-pandemic historical equilibrium after the TFF concludes and note the 3m bill-OIS spread averaged 30bps in the five years to Feb 2020. We enter the trade at 15bps with a target of 30bps and a stop of 8bps.

### Reserve shortages may occur more quickly after QE

The main risk to selling bill futures vs OIS is that liquidity will still remain more abundant than before the pandemic after the TFF has fully unwound. In the absence of more aggressive balance-sheet reduction by the RBA, banks' excess reserves as a percentage of GDP would remain significantly higher than in 2019 through 2024/25, and the cash buffers held by domestic banks provide them flexibility in managing their funding task.

Yet the spike in US money market rates in September 2019 when excess reserves were around 7% of US GDP demonstrated the change in reserve demand curves that typically occur after quantitative easing. Researchers at the Federal Reserve have found the reserve demand curve has tended to be nonlinear and may shift higher and steeper at higher levels of bank assets as a percentage of GDP. This means reserve shortages could occur when reserve balances are much higher as a percentage of GDP than in previous historical periods. As our US strategists note, the Federal Reserve has endorsed this intellectual framework and now sees the lowest comfortable level of bank reserves at around 8% of GDP (see US Rates Watch: Fed QT, 22 September 2023).

Unlike major G10 peers, the decline in liquidity from Term Funding Facility repayments in 2023/24 is Australia's first ever attempt at draining liquidity after QE and it would be historically and comparatively unusual if excess reserves returned to pre-pandemic levels without reserve shortages.

#### Pay June 2024-starting 3m bills-OIS basis (BOB)

Moreover, June 2024 BOB is only pricing limited steps toward funding market normalisation. June 2024 levels are about 15bps below pre-pandemic equilibrium spread (c. 30bps) and we see a high likelihood of 3m bank bills cheapening to OIS as banks' TFF



4

<sup>&</sup>lt;sup>1</sup> See Afonso, Gara, Domenico Giannone, Gabriela La Spada and John Williams (2022), *Scarce Abundant or Ample? A Time-Varying Model of the Reserve Demand Curve*, Staff Report 1019, Federal Reserve Bank of New York; Wright, Jonathan (2023), 'The Extent and Consequences of Federal Reserve Balance Sheet Shrinkage', *Brookings Papers on Economic Activity*, Fall 2022, pp. 259-275.

repayments approach in the first half of 2024 given the pace of liquidity drain in mid-2024.

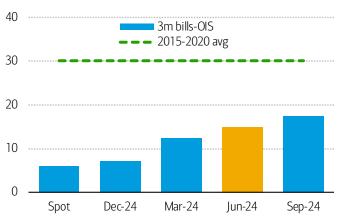
In our view, the greatest uncertainty is whether reserve scarcity will reach pre-pandemic levels with excess liquidity in Australia around 7.5% of GDP. Yet even if post-TFF equilibrium rates are lower than pre-pandemic levels, given how large and concentrated maturities are in May and June next year, we also see meaningful upside risk of spreads overshooting their post-TFF equilibrium level as markets digest a step-change in bank reserves around mid-2024. We recommend paying Jun24 BOB and enter the trade at 15bps with a target of 30bps and a stop of 8bps. As noted above, the risk to the trade is that excess liquidity in Australia will settle at a higher level after TFF repayments come due.

#### Close Mar24 6m 6s3s trade

Our recommendation to pay March 2024-starting 6m 6s3s is above our entry level (current level 18bps, entry 15bps, target 27bps). On a technical basis, 6m BBSW daily volumes are showing early signs of rolling over (Exhibit 9). Similarly, spot 6m 6s3s curve is now at highly elevated levels vs recent history and may also be starting to inflect (Exhibit 10). We therefore close the trade.

# Exhibit 7: Forward-starting 3m bills-OIS spreads

We recommend paying June 2024 3m bills vs OIS

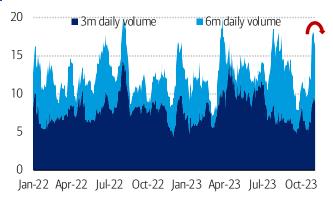


Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

### Exhibit 9: 6m BBSW daily volume in rate set window

6m daily volumes are volatile but showing signs of normalising

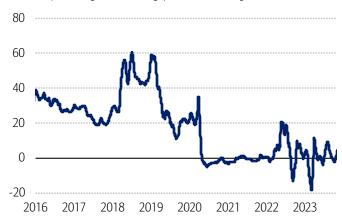


Source: BofA Global Research, ASX

BofA GLOBAL RESEARCH

#### Exhibit 8: 3m bills-OIS spreads (bps)

Bills-OIS spreads tightened during quantitative easing



Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

### Exhibit 10: 6m 6s3s looks like it has temporarily peaked

We close the recommendation to pay Mar24 6m 6s3s



Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH



# **Notable Rates and FX Research**

- Global Rates, FX & EM Year Ahead 2023 Year Ahead 2023: Pivot ≠ Peak, 20 Nov 2022
- The only game changer, Global FX Weekly, 3 Nov 2023
- Yellen the dove, Global Rates Weekly, 3 Nov 2023
- Officials still against USD strength, Liquid Cross Border Flows, 30 Oct 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: The only game changer 03 November 2023

Global Rates Weekly: Yellen the dove 03 November 2023

## **Analyst Certification**

I, Oliver Levingston, 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): 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): Merrill Lynch (Israel) imited, 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 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 in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securit

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

+1 646 855 6007

paul.ciana@bofa.com

#### John Shin

FX Strategist

+1 646 855 9342

joong.s.shin@bofa.com

#### Vadim Iaralov

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

+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

+44 20 7995 1143

## Michalis Rousakis

FX Strategist

+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.

