

Liquid Insight

Don't pay BOB: bank funding task falls

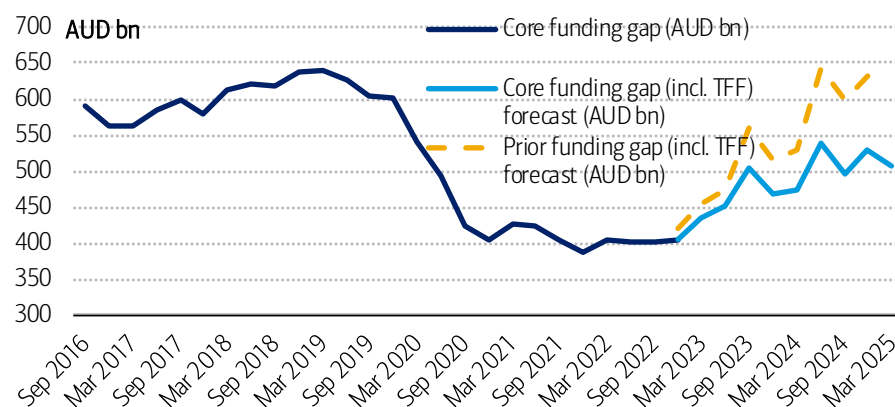
Key takeaways

- We lower our forecast for AU bank funding tasks. Tighter spreads make long-term wholesale issuance attractive.
- Super fund cash allocations have fallen but likely to act as source of liquidity in a risk event.
- The AT1 and AT2 maturity profile in 2023/24 is manageable, but AT1 bond issuance faces headwinds.

By Oliver Levingston and Lefu Li

Exhibit 1: Core funding gap likely to fall to \$106bn

Lower estimates driven by downward revisions to deposit and credit growth forecasts



Source: BofA Global Research, Australian Prudential Regulatory Authority (APRA), Reserve Bank of Australia (RBA)

BofA GLOBAL RESEARCH

AU bank funding tasks fall

We have amended our forecast for the core funding gap, which falls to \$106bn out to March 2025 on the back of lower credit expansion and robust deposit growth (Exhibit 1). Tighter spreads make long-term wholesale issuance attractive at these levels, and we see banks meeting their funding task primarily through a mix of deposits and long-dated issuances. Super fund cash allocations have fallen but, in our view, the superannuation system is likely to be an additional source of deposit funding in case of a credit event.

Our forecast is consistent with our bank equities analysts' decision to revise down their estimates for system credit and deposit growth over the forecast period. In this note, we discuss the near-term outlook for deposit and wholesale funding, the importance of super funds' asset allocation decisions, and the outlook for AT1 and AT2 capital bonds issued by major AU banks after the offshore bank turmoil in March.

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 8 to 10.

12545614

Timestamp: 18 April 2023 03:58AM EDT

18 April 2023

Rates and Currencies Research
Global

Global Rates & Currencies Research
MLI (UK)

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

Lefu Li, CFA
Research Analyst
Merrill Lynch (Hong Kong)
+852 3508 2142
lefu.li@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 Insight
Recent Publications

- 16-Apr-23 [Yen-carry trade redux](#)
- 13-Apr-23 [What the IMF didn't say about real yields](#)
- 12-Apr-23 [Les Misérables: A year later](#)
- 11-Apr-23 [Bank of Canada preview: On hold with a hawkish message](#)
- 6-Apr-23 [Scandies FX: NOKSEK higher](#)
- 5-Apr-23 [Fed + FHLB to the liquidity rescue](#)
- 4-Apr-23 [EGB credit rating cycle turns less positive](#)
- 3-Apr-23 [RBA/RBNZ preview: Nearing a pause](#)
- 30-Mar-23 [Sudden tumult for G10 FX](#)
- 29-Mar-23 [US rates forecasts & balance of risks](#)

BofA GLOBAL RESEARCH

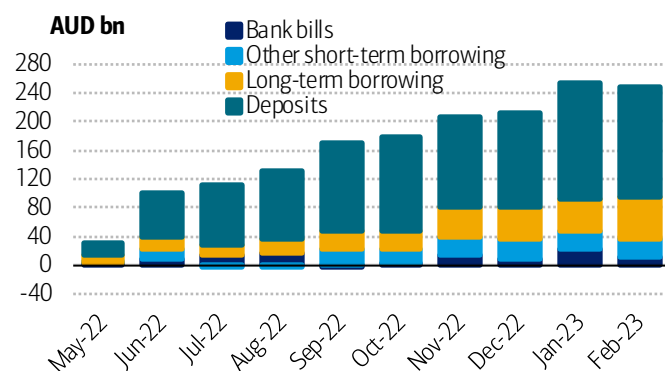
New normal for bank funding

After reducing our assumptions for major banks' credit and deposit growth, we no longer forecast a return of wholesale funding requirements to 2016-19 levels. Trend levels for wholesale funding are likely to be defined by three trends:

1. **Deposit funding likely to remain robust:** Since the RBA started hiking rates in May 2022, deposit funding has contributed more than \$150bn of \$240bn additional funding to AU banks. As the hiking cycle matured, business deposit growth decelerated but household and financial deposit growth remained robust. Our commodity team has [upgraded their forecast for iron ore \(see Global Metals Weekly – 4 April\)](#), Australia's largest bulk commodity export, which suggests net cash inflows into the banking system from offshore will continue adding liquidity.

Exhibit 2: Deposit growth has reduced funding task since May 2022

Deposits likely to remain strong

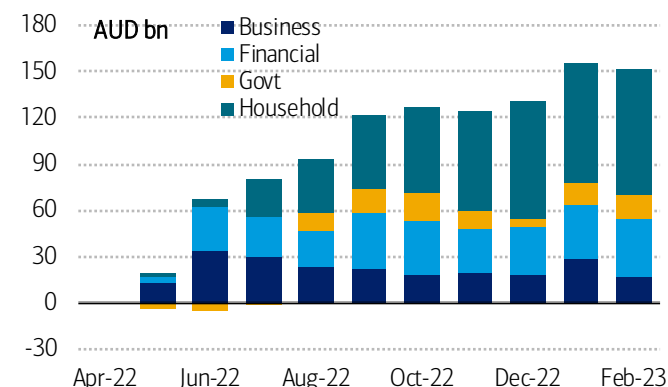


Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 3: Household deposits still fuelling cash growth

Business deposit growth declining as financials stabilize



Source: BofA Global Research, Bloomberg

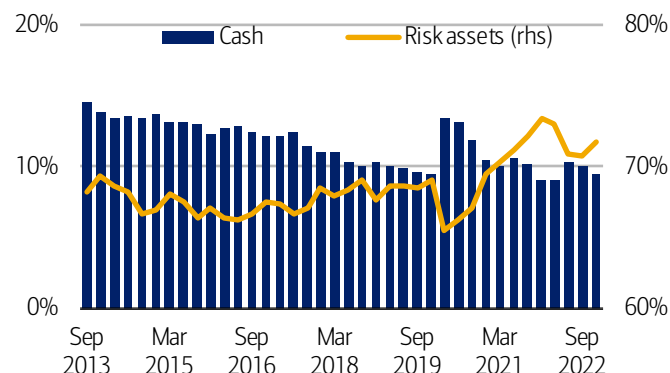
BofA GLOBAL RESEARCH

2. **Super fund cash allocations will provide buffer in slowdown:**

Superannuation fund cash allocations fell again in Q4 2022 as allocations to risk assets surged (Exhibit 4). Australian and listed international equities continued to attract the majority of additional inflows from superannuation funds (Exhibit 5). Industry super funds have seen a surge in AU fixed-income investments as cash allocations fell, suggesting a slightly more cautious outlook than the system as a whole (Exhibit 6). A surge in cash allocations in March 2020 indicate that super funds will provide significant additional liquidity in a crisis, adding receiving pressure to bills in the aftermath of a tail-risk event.

Exhibit 4: Cash allocations continue to fall

Cash allocation down from 13.5% in March 2020 to 9.5% in Dec 2022

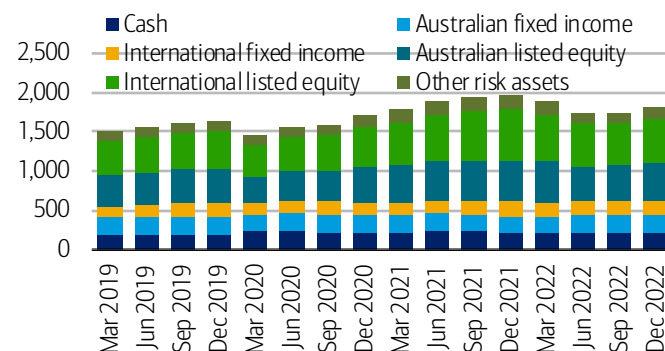


Source: BofA Global Research, APRA

BofA GLOBAL RESEARCH

Exhibit 5: Super inflows to equities continue to rise

Cash allocations spiked in March 2020

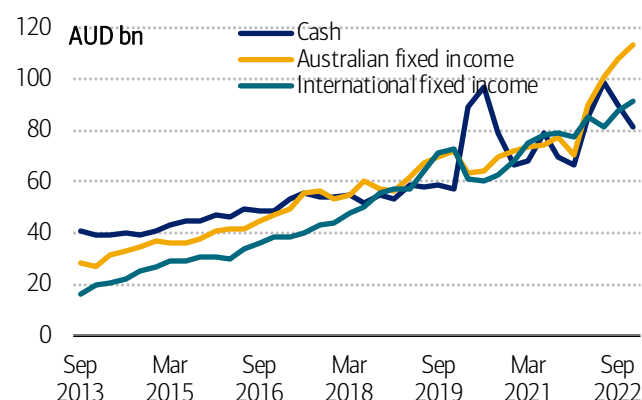


Source: BofA Global Research, APRA

BofA GLOBAL RESEARCH

Exhibit 6: Industry super – allocations to cash drop, fixed income surge

Cash holdings have been volatile since March 2020



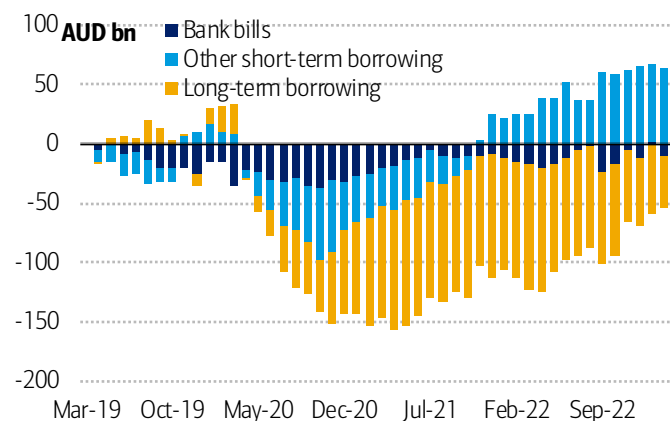
Source: BofA Global Research, APRA

BofA GLOBAL RESEARCH

3. **Major bank wholesale funding tasks will continue to be met through long-term issuance and deposit funding:** The TFF substantially reduced the major banks' funding requirements, and we continue to see banks meeting their funding task through long-term wholesale issuance (Exhibit 7). Major banks tend to have a weighted average maturity of around 4.5-5.0 years to match the average life of their assets (primarily, residential mortgages). Although bank issuance usually steps down in Q2/Q3, banks' wholesale issuance in 2023 is in line with volumes in 2022, which saw the highest level of issuance since 2009 (Exhibit 8). Although yields have returned to levels around 2016, a lower spread to 3m bank bills suggests banks are likely to maintain a strong appetite for issuance at current levels while attracting new deposits with rates around the same level.

Exhibit 7: The TFF depressed long-term wholesale funding

Bank issuance in 2023/24 likely to remain elevated

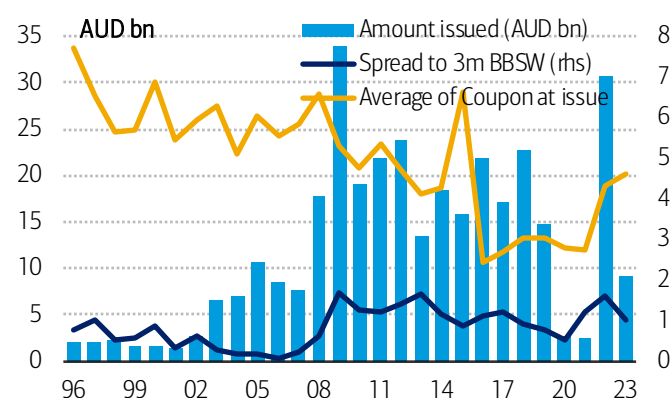


Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 8: Yields on 3-7yr issuance rising, spread to BBSW falling

2023 set for record issuance

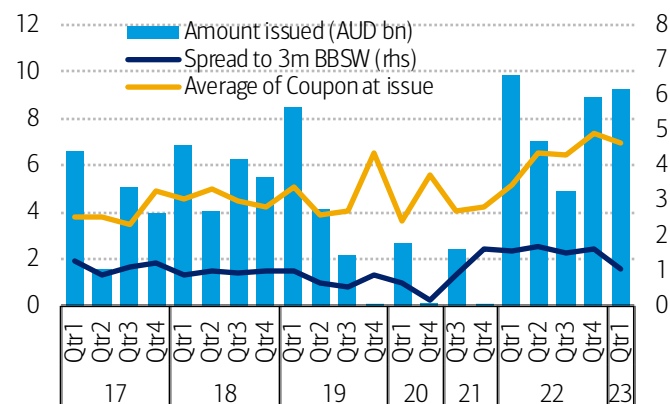


Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 9: Spreads fell sharply in Q1 23

Long-term issuance to rebound strongly in May



Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Australia AT1 and tier-2 funding costs

After the credit events in US and Europe, we note the yield level has increased substantially for Australia AT1 bonds. AT1 bonds with a call date in 2027 are currently yielding about 10% with a par value below 90. The price has dropped about 5pt from end-Feb 2023, as yields widened 40bp. However, investor sentiment is much better for tier-2 bonds, especially since Deutsche Bank's early redemption of a tier-2 bond on 24 March 2023 (see our European team's report: [Deutsche Bank: What about DB?](#)). In terms of tier-2, the newly issued NAB 10-year bullet tier-2 was trading at 248bp, with a G-spread and a dollar price of 103.2. The yield is 6.0%, lower than the issuance yield at 6.4%, which looks very decent for a 10-year bullet bond.

We believe Australia banks should be still able to issue USD tier-2 at a reasonable price. We note ANZ, CBA and NAB issued in total USD2.7bn-equivalent tier-2 bond year-to-date. This has helped them to raise their tier-2 buffer with only about USD4-5bn funding gap now vs USD7bn at end-2022.

Exhibit 10: Update our estimations on the tier-2 shortfall at end March'23

The universe of this exhibit covers the tier-2 bonds in different currencies. The amounts all in USD bn.

	Total Tier 2 outstanding	Tier 2 Shortfall in Feb.23*	New issued tier 2 issued	Current Tier 2 Shortfall
ANZ	16.0	1.5	0.7	0.9
CBAAU	16.5	3.5	1.2	2.3
NAB	14.1	0.2	0.8	(0.7)
WSTP	15.6	1.1	-	1.1
MQGAU	5.1	0.8	-	0.8

Source: Bloomberg.

*Feb. 8, 2023, please see our report Banks - Australia: Australia banking sector credit outlook 2023 08 February 2023

BofA GLOBAL RESEARCH

Challenging picture for AT1; tier-2 better positioned

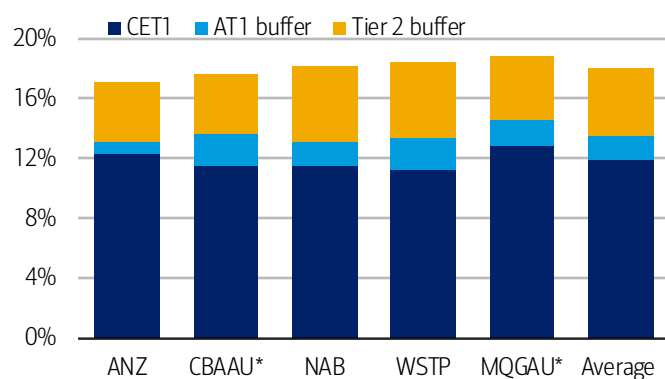
In general, we do not expect to see much AT1 issuance in 2023 given the strong capitalisation of Australian banks and high Australian AT1 yields. Tier-2 issuance for the rest of 2023 should be about USD4-5bn based on the tier-2 shortfall estimation.

Australian banks have strong capitalization with average CET1 ratio /tier-1 /CAR at 11.9%/13.6%/18.0%. Australian banks may continue to face difficulty in AT1 issuance if cash rates remain unchanged across the forecast period, as our economists expect. High non-call risk, particularly for the Australian banks, as well as concerns about AT1's write-off globally given the developments in Europe and US mid-size banks make the outlook for AT1 issuance challenging. AT2 bonds are likely to remain a sustainable asset class given the capital regulation framework has been focused on tier-2 buffers since 2019 when APRA confirmed a tier-2 buffer at 5% of risk-weighted-assets.

The maturity wall seems very manageable with about USD2bn tier-2 matured/called in 2023, and that for 2024 at USD5.7bn. Among all tier-2 bonds, only USD300mn in 2023 and USD800mn in 2024 are denominated by USD, so the refinancing need in the USD bond market is quite manageable, in our view. The outlook for AT1 bonds, especially the USD-denominated AT1, is more challenging. We note that investor appetite is likely to be limited and given yield to call (YTC) at 10% for USD-denominated AT1, banks are unlikely to maintain significant issuance in this market.

Exhibit 11: Australian bank capitalisation

In general, Australian banks have strong capitalization, with average CET1 ratio /tier-1 /CAR at 11.9%/13.6%/18.0%.



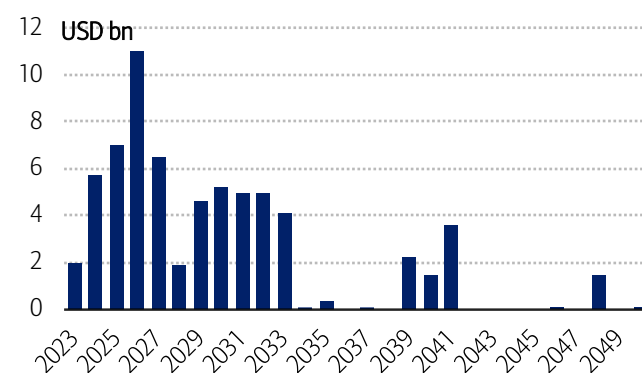
Source: BofA Global Research, Company disclosure

* For CBAAU the most recent period is Dec-22 as YE is June; for MQGAU, most recent period is 1H23 as YE is March; others' most recent period is FY22 as YE is September

BofA GLOBAL RESEARCH

Exhibit 12: All-currencies tier-2 maturity profile

The maturity wall seems very manageable with about USD2bn tier-2 matured/called in 2023, and that for 2024 at USD5.7bn.



Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Trading a lower funding task

The best expressions of a lower wholesale funding requirements for the major AU banks are forward-starting and term BBSW-OIS basis (BOB) flattening trades. The BOB curve is trading steep on the assumption that funding conditions will tighten. 1s2s BOB spiked

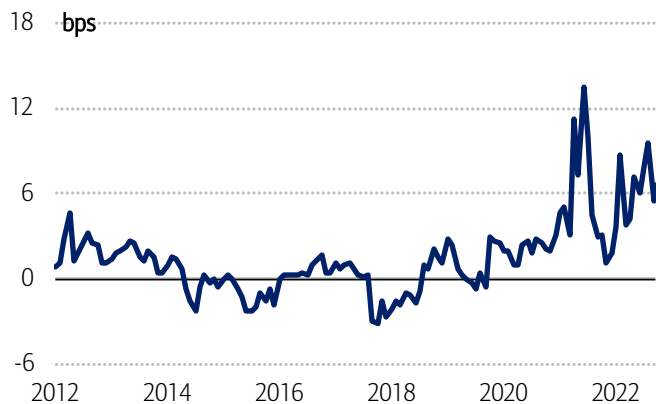


to around 10bp during the banking turmoil in March and is currently trading around 6bp (Exhibit 13). In both cases, though, the near-term risks of further steepening from abundant liquidity in the front dates make us cautious to enter the trade and we look for better levels or a clear catalyst to trade loose funding markets.

Our recommendation to receive 2s3s 6s3s has moved closer to target and was premised on funding normalization. We close the position at 0bp (target -1.8bp, entry 0.6bp).

Exhibit 13: Receive 1s2s BOB at more attractive levels

Positive carry but current level has two-sided risks



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
- [After the IMF](#), **Global FX Weekly**, 14 Apr 2023
- Finger on the pause button, **Global Rates Weekly**, 14 Apr 2023
- [As the market dust settles](#), **Liquid Cross Border Flows**, 3 Apr 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: After the IMF 14 April 2023](#)

[Global Rates Weekly: Finger on the pause button 14 April 2023](#)



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.bofam.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 (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; 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 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.

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 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.

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 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
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.

