

# **European Watch**

# Riksbank review: one more then let's see

#### Forecast one more hike

We change our Riksbank forecast. We expect one more 25bp rate hike from the Riksbank in September to 4.0% terminal. We previously forecast 3.75% terminal. We forecast the policy rate at 3.25% at end-2024 (+25bp) and 2.0% at end-2025 (unchanged).

#### One more heave

The Riksbank today raised its policy rate 25bp to 3.75% as we and consensus expected. This was a step down from the previous 50bp hike, but in-line with the Riksbank's previous guidance. This disappointed the market, which had priced an approximately 50% probability of a 50bp rate hike (conditional on 25bp being delivered). The Riksbank forecasts the policy rate to be increased "at least one more time this year". Consistent with that guidance the Riksbank raised their terminal rate forecast to 4.05%. The Riksbank continues to forecast the first rate cut in late-2025 after core inflation has sustainably returned to target.

# Higher terminal, but maybe less conviction

In short, the Riksbank seems to be saying 'probably one more hike then let's see'. While the Riksbank guides to a higher terminal now, they seem to have slightly less conviction in the next hike than the previous one. In the previous policy meeting the Riksbank had used the firmer language that the policy rate would "probably be raised further by 0.25 percentage points in June or September". The Monetary Policy Report suggests to us that the Riksbank is trying to shift even more data dependent."

## Hawkish risks from Krona and stronger labour market

The Riksbank responded to stronger than expected core inflation, particularly stronger services inflation. The weaker currency also contributes. The Riksbank argues there are good reasons to expect inflation to slow, with global cost inflation dropping, inflation expectations anchored, and the two-year wage deal in place keeping wage growth under control. So they expect to stop hiking soon. But they present a scenario in which the Krona falls a further 6% over time which – combined with a faster FX pass-through – would in the Riksbank's view require an additional – persistent – 50bp of hikes to a c. 4.5% terminal. The Riksbank does not target SEK, but it matters for the inflation outlook. They also argue the resilience of the labour market could require more hikes.

# Speed up bond sales to support currency

The Riksbank seems cautious about hiking rates further given the interest sensitivity of the economy. So, as well as hiking they sped up bond sales from SEK 3.5bn a month to 5bn to support the currency. We suspect this also modestly disappointed market expectations of likely faster sales. They say of faster bond sales "All in all, this can contribute to a stronger krona and improve the Riksbank's." In our view the Riksbank will probably not want to speed up bond sales much more given the pace of decline of the balance sheet now programmed in (continued on next page with FX commentary).

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.

Bof A 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 5 to 7.

12574163

Timestamp: 29 June 2023 10:45AM EDT

#### 29 June 2023

Macro Europe

Robert Wood **UK Economist** MLI (UK) +44 20 7996 7415 robert.d.wood@bofa.com

Michalis Rousakis FX Strategist MLI (UK) +44 20 7995 0336 michalis.rousakis@bofa.com

## SEK - dovish Riksbank vs markets. We see downside risks

The Riksbank was on the dovish side of *market* expectations, which helps explain the slight SEK weakness vs. G10 FX following its decision. Into the meeting, markets were pricing a good chance of a larger move and a slightly higher terminal, while the announced Quantitative Tightening (QT) pace was no more hawkish than expected.

What surprised us hawkishly is the Riksbank's guidance to at least one more hike, which we think may be their last one although this will also depend on SEK and the ECB. Still, we were not as convinced (as their terminal would perhaps suggest) by their tone.

SEK's weakness has gone beyond our bearish expectations, yet we still see risks for more and prolonged SEK weakness because: (1) We remain concerned about the highly rate sensitive Swedish households. (2) We see risks around property markets, particularly commercial real estate. (3) We expect a stronger USD and are bearish on risk.

We think Riksbank is between a rock and a hard place unless and until inflation starts falling meaningfully. Our more constructive view on SEK towards year-end partly reflects our base case of inflation falling fast enough in the next months. For this we think the Riksbank has good reasons to count on Sweden's higher rate sensitivity, lower wage growth, and tighter fiscal stance vs. its G10 peers.

We think a lower Riksbank terminal vs. that of other central banks would initially be negative for SEK but, assuming this reflects lower inflation and not a "blinking" Riksbank, this could suggest upside risks for SEK later – by lowering "hard-landing" risks.

To this end, until inflation, particularly core, starts falling meaningfully, markets will likely continue pricing "hard-landing" risks, which would likely result in an increasingly muted SEK reaction to rates (we discuss this in Do rates still matter for FX? 26 June 23). And, if inflation proves overly sticky on its way down, Riksbank will not be in an enviable position at all.

Two more comments. On QT: while the announced faster pace of bond sales is unlikely to help SEK much near term, both because it was at best in line with expectations and because we do not think its marginal signaling value for SEK is meaningful at this stage of their tightening cycle, it is nevertheless a positive medium-term development, that addresses some of the client feedback we have received in recent months.

Second, we do not think the Riksbank's intention to potentially hedge part of its FX reserves will have any meaningful impact on SEK. And, to be fair, the Riksbank made clear this should not be seen as part of monetary policy or as an FX intervention.

#### Exhibit 1: Riksbank policy-rate projections (percent)

Terminal revised up 40bp

	Q2-23	Q3-23	Q4-23	Q1-24	Q2-24	Q3-24	Q4-24	Q1-25	Q2-25	Q3-25	Q4-25	Q1-26	Q2-26
June guidance	3.32	3.75	3.99	4.05	4.05	4.05	4.05	4.05	4.05	4	3.92	3.83	3.75
April guidance	3.32	3.6	3.65	3.65	3.65	3.65	3.65	3.65	3.65	3.6	3.52	3.43	3.35

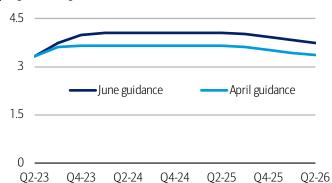
Source: Riksbank (Monetary Policy Report June 2023). Note: Values are in percent and show quarterly averages.

BofA GLOBAL RESEARCH



### Exhibit 2: Riksbank policy-rate projections (percent)

Higher for longer



**Source:** Riksbank (Monetary Policy Report June 2023). Note: Values are in percent and show quarterly averages.

BofA GLOBAL RESEARCH

### **Exhibit 4: Key Riksbank forecasts**

Updated forecasts

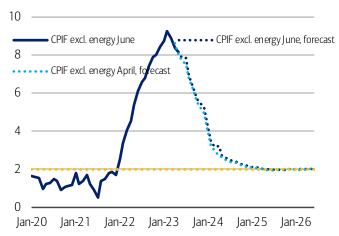
	2021	2022	2023	2024	2025
CPIF	2.4 (2.4)	7.7 (7.7)	5.9 (5.9)	2.4 (2.3)	1.8 (1.8)
CPIF excl. energy	1.4 (1.4)	5.9 (5.9)	7.4 (7.3)	2.8 (2.6)	2.0 (2.0)
GDP	6.1 (5.4)	2.8 (2.6)	-0.5 (-0.7)	0.0 (0.2)	1.8 (1.8)
Household consumption	6.3 (6.3)	1.9 (2.1)	-2.4 (-1.2)	0.7 (0.6)	1.9 (2.0)
Gross fixed capital formation	7.1 (6.0)	6.1 (5.2)	-2.6 (-4.6)	-3.0 (-2.8)	2.2 (2.0)
Final domestic demand	5.4 (5.0)	2.4 (2.2)	-1.4 (-1.4)	-0.1 (0.0)	1.7 (1.7)
Employment gap	-1.3 (-1.3)	0.6 (0.6)	1.3 (0.5)	0.0 (-0.8)	-0.3 (-0.8)
GDP gap	-2.0 (-1.4)	-0.3 (0.2)	1.2 (0.5)	-0.8 (-1.2)	-0.8 (-1.3)
Hours gap	0.6 (0.4)	1.9 (1.5)	0.0 (-0.6)	-1.6 (-2.0)	-1.1 (-1.5)

**Source:** Riksbank (Monetary Policy Report June 2023). Previous forecasts in brackets. Annual % changes for CPIF, GDP and consumption. Final domestic demand refers to its contribution to GDP growth in percentage points. Employment, GDP, and hours gap show percentage deviation from the Riksbank's assessed potential levels.

BofA GLOBAL RESEARCH

### Exhibit 6: CPIF ex energy, percent (Riksbank forecast)

CPIF ex energy stickier through Mar-24

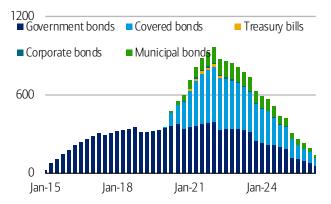


**Source:** Riksbank (Monetary Policy Report June 2023). Dotted lines are Riksbank forecasts.

BofA GLOBAL RESEARCH

### Exhibit 3: Projected Riksbank asset holdings (amounts in SEK billion)

Riksbank to increase its sale of government bonds to SEK 5bn/month

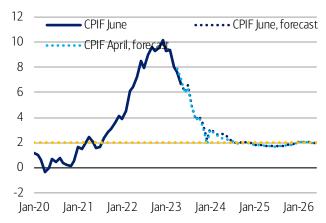


Source: Riksbank (Monetary Policy Report April 2023). Riksbank guidance for Apr-23 onwards.

BofA GLOBAL RESEARCH

### Exhibit 5: CPIF, percent (Riksbank forecast)

Small forecast revisions to headline CPIF beyond the front end

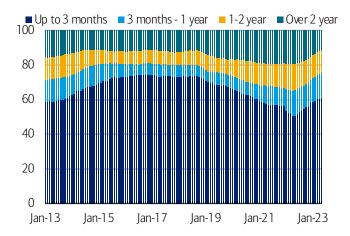


Source: Riksbank (Monetary Policy Report February 2023). Dotted lines are Riksbank forecasts.

BofA GLOBAL RESEARCH

# Exhibit 7: Households loans' remaining rate fixation periods, percent

As of May c. 25% of loans had remaining fixation period of more than 1Y



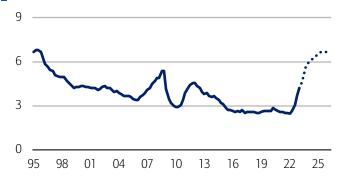
Source: Statistics Sweden via Riksbank MPR June 2023

BofA GLOBAL RESEARCH



## Exhibit 8: Interest-to-income ratio, % of disposable income

Interest to-income ratio expected at mid-90s levels



Source: Statistics Sweden, Riksbank. Dotted line shows Riksbank forecast.

BofA GLOBAL RESEARCH

## Exhibit 9: Housing prices and investment, 2019 Q4=100

Riksbank expects a meaningful drop in housing investment but house prices to not fall below pre-Covid levels



**Source:** Statistics Sweden, Valueguard, Riksbank. Dotted lines are Riksbank forecasts.

BofA GLOBAL RESEARCH

# **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.

Individuals identified as economists do not function as research analysts under U.S. law and reports prepared by them are not research reports under applicable U.S. rules and regulations. Macroeconomic analysis is considered investment research for purposes of distribution in the U.K. under the rules of the Financial Conduct Authority.

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 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.

