

## Liquid Insight

## Carry trades after the first rate cut

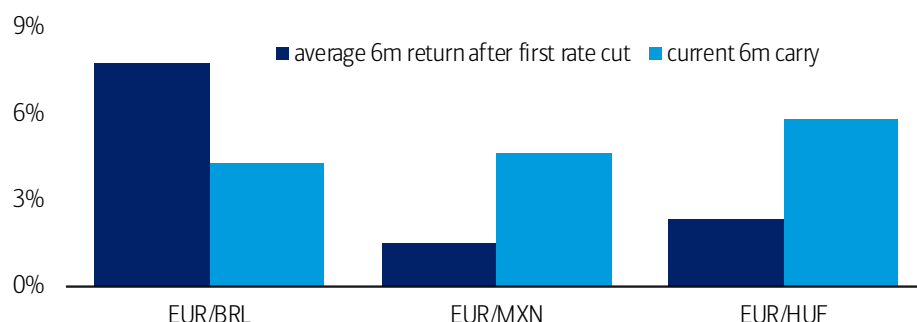
## Key takeaways

- Among popular EMFX carry trades this year, historical EM central bank rate cut analogs see BRL more at risk than MXN and HUF.
- We are more optimistic on BRL and more cautious on MXN this year vs historical analogs.
- Within G10 FX, we see shrinking carry to be more bearish USDJPY only in 2024.

**By Howard Du, Vadim Iaralov, Antonio Gabriel, and Christian Gonzalez**

**Chart of the Day: Among the top carry FX trades in 2023, historical analogs suggest EUR/BRL has higher risk of unwinding after first BCB rate cut**

Avg historical 6m EUR/FX return after first EM central bank rate cut vs current forwards-implied 6m carry



**Source:** BofA Global Research, Bloomberg. Due to data availability, the analysis was from 1999-2023 for EUR/BRL, from 2008-2023 for EUR/MXN, and from 2004-2023 for EUR/HUF.

BofA GLOBAL RESEARCH

## What happens to carry after central banks cut rates

Long BRL, MXN, and HUF vs EUR have been some of the popular FX carry trades since 2021. With the market now expecting several EM central banks to cut rates in 2023, we examine historical FX price actions for BRL, MXN, and HUF vs EUR when each EM central bank first cuts rates after a rate hike cycle. Historical analogs see BRL more at risk than MXN and HUF. The historical average 6m loss after first rate cut for MXN and HUF would still be well-contained by the current level of carry, but not for BRL (Chart of the Day). For this year, we are more optimistic on BRL than in the past, partly due to supportive real rate and fiscal upside. To the contrary, MXN carry unwind in this cycle could turn out to be worse than in the past, due to overcrowded position and MXN's sensitivity to US-originated risk-off shocks. Investors may consider owning relatively cheap 1y EUR/BRL skew as hedge, in our view. Within G10 FX, we expect shrinking carry to become bearish USDJPY only in 2024 when the Fed rate cuts begins.

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 7 to 9.**

12560726

Timestamp: 18 May 2023 12:30AM EDT

18 May 2023

Rates and Currencies Research  
Global

Global Rates & Currencies Research  
MLI (UK)

**Howard Du, CFA**  
G10 FX Strategist  
BofAS  
+1 646 855 6586  
yuhao.du@bofa.com

**Vadim Iaralov**  
FX Strategist  
BofAS  
+1 646 855 8732  
vadim.iaralov@bofa.com

**Antonio Gabriel**  
LatAm Local Markets Strategist  
BofAS  
+1 646 743 5373  
antonio.gabriel@bofa.com

**Christian Gonzalez Rojas**  
LatAm Local Markets Strategist  
BofAS  
+1 646 855 3254  
christian.gonzalezrojas@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

- 17-May-23 [The FX implications of an early pause](#)
- 16-May-23 [AUD rates vol – Distortions on the grid](#)
- 15-May-23 [Approaching the largest TLTRO maturity](#)
- 11-May-23 [Back to basis on UST positioning](#)
- 10-May-23 [Bank of England preview: 25bp and risks of more hikes](#)
- 9-May-23 [The credible compression of USD skew](#)
- 8-May-23 [The USD at the end of hiking cycles](#)
- 4-May-23 [Debt limit stress is back](#)
- 3-May-23 [ECB Preview: To slow or not to slow](#)
- 2-May-23 [FOMC preview: The end of the road](#)

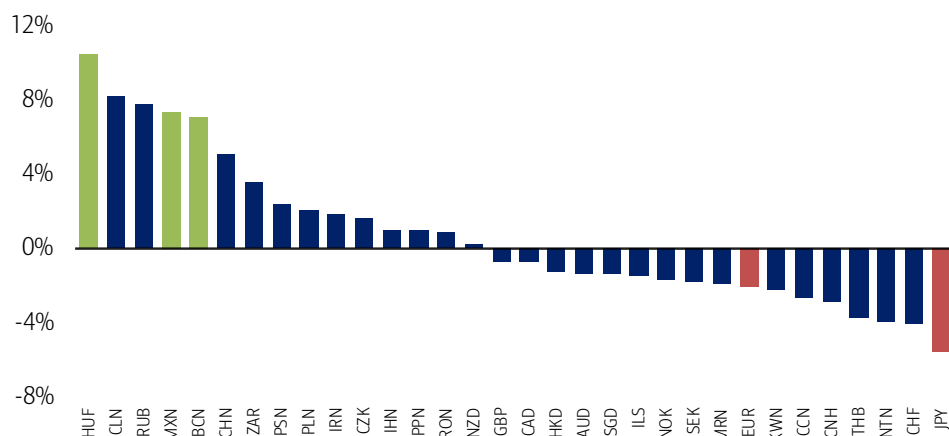
BofA GLOBAL RESEARCH

## Two ends of the global carry spectrum

Global central banks have been aggressively hiking policy rates over the past two years, but at a different pace and reaching different terminal levels. Many investors are now taking advantage of the widened FX carry with long HUF, MXN, and BRL positions (Exhibit 1), given high yields and relative economic stability for these currencies. At the other end of the spectrum, EUR has been the main funding currency for long EM FX positions, largely due to better liquidity for EUR-pairs. Within liquid G10 space, USDJPY would have the widest rate differential. Although carry trades, particularly in EM are becoming more crowded, falling FX vol and benign skew can offer cheap hedges in case of rapid positioning unwind.

### Exhibit 1: HUF, MXN, and BRL have some of the highest carry returns, while JPY has the worst carry among major global FX

Latest annualized 3m carry vs USD



Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

## What historically happened after the first EM central bank rate cut

As policy rates reached peak levels for many EM central banks this year and domestic inflations show cooling signs, investors are starting to focus on the timing of rate cuts ([What's priced in, 14 May 2023](#)). Carry return naturally shrinks after EM central banks lower policy rate, but the effect on FX is less obvious. In this note, we examine historical FX price actions for BRL, MXN, and HUF against the EUR when each EM central bank first cut rates after a rate hike cycle.

### Exhibit 2: FX correlation to EM central bank policy rate is generally negative but MXN is the exception

EUR/FX correlation to EM central bank policy rates

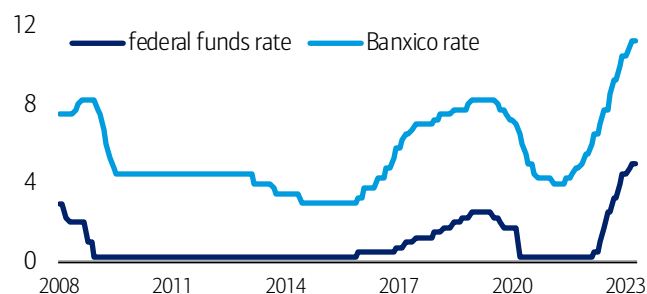
	FX correlation to local CB policy rate	FX correlation to policy rate differential (ECB vs. local CB)
EUR/BRL	-49%	-41%
EUR/MXN	16%	33%
EUR/HUF	-84%	-77%

Source: BofA Global Research, Bloomberg. Due to data availability, the analysis was from 1999-2023 for EUR/BRL, from 2008-2023 for EUR/MXN, and from 2004-2023 for EUR/HUF.

BofA GLOBAL RESEARCH

### Exhibit 3: Banxico policy rate historically has tracked federal funds rate with a long-term correlation of 88%

Historical federal funds rate and Banxico policy rate



Source: BofA Global Research, Bloomberg. Due to data availability, the analysis was from 1999-2023 for EUR/BRL, from 2008-2023 for EUR/MXN, and from 2004-2023 for EUR/HUF.

BofA GLOBAL RESEARCH

## Historical rate cuts suggest BRL longs more at risk than MXN and HUF positions

We first ran a simple correlation between the three EUR/EM pairs against the respective policy rate of each EM central bank, as well as against each EM central bank's policy rate differential vs the ECB. The correlation appears to be negative for EUR/BRL and EUR/HUF and positive for EUR/MXN (Exhibit 2). The result implies when the BCB or NBH cut rates, EUR/BRL and EUR/HUF tend to rally, but EUR/MXN tends to depreciate when the Banxico cuts rates. The result may appear surprising at first glance. However, it should be noted that the historical policy rate for Banxico has tracked the federal funds rate closely with an 88% correlation (Exhibit 3). So because the Federal Reserves would also cut rates when Banxico was cutting, global financial conditions in fact would ease and become more supportive for an EM currency like MXN.

Exhibit 4 shows when EM central banks conducted the first rate cut after a hiking cycle in the past, the local currencies tend to weaken vs the EUR over the next 6 months, but at varying magnitude. Both average and median returns from historical analogs suggest among these three EM currencies, the BRL may see sharper depreciation after the first BCB rate cut (Exhibit 4). The average 6m loss after first rate cut for MXN and HUF would still be well-contained by the current level of carry, but not for BRL (see Chart of the Day).

## Options offer a cheap hedge in EUR/BRL skew

Historically, EUR/BRL skew would widen more than EUR/MXN skew during shocks and ensuing cutting cycles (Exhibit 5). Given current EUR/BRL skew is more than 10% below EUR/MXN, the entry level is attractive for investors to pick up EUR/BRL skew to hedge for potential BRL weakness after the first BCB rate cut, in our view.

### Exhibit 4: EUR/EM tend to broadly rally after first EM central bank rate cut, with BRL weakening the most in the past

EUR/FX 6m return statistics after first EM central bank rate cut

	average 6m return	median 6m return	6m return % up
EUR/BRL	8%	7%	62%
EUR/MXN	2%	1%	67%
EUR/HUF	2%	2%	70%

Source: BofA Global Research, Bloomberg. Due to data availability, the analysis was from 1999-2023 for EUR/BRL, from 2008-2023 for EUR/MXN, and from 2004-2023 for EUR/HUF.

BofA GLOBAL RESEARCH

### Exhibit 5: Current 1y EURBRL skew is cheap relative to EURMXN skew

EURBRL skew had historically widened by more during cutting cycles



Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

## BRL likely to remain resilient despite BCB rate cuts in 2023

In Brazil, fiscal risks took center stage since Lula's runoff election victory. An initial push to remove social spending from the spending cap led to the eventual ditching of the spending cap. Coupled with the administration's rhetoric for unorthodox policies, including directed credit, were the main triggers for Brazil's selloff earlier this year.

More recently, the news flow has been more supportive. The fiscal framework unveiled by the administration was, even if imperfect, better than expected. Furthermore, positive changes have been introduced before the vote in the Lower House next week. These include removing certain spending exceptions in the original bill, as well as strengthening the enforcement for compliance with fiscal targets.



Additionally, while the government certainly exhibits a preference towards a more interventionist policy mix, this has been mostly noise so far. At the same time, tensions between the BCB and the government around the inflation target have significantly cooled from their peak. And while uncertainty still lingers, the balance of risks has tilted towards a more benign scenario, which could potentially involve minor modifications to the framework, like moving it to a 12-month rolling horizon while keeping the numerical target and the band unchanged. Also on the BCB front, we believe the decision to appoint Galipolo to the BCB board should be read as marginally positive news, since it rules out tail risk scenarios, and signals some moderation from within the government.

In Brazil, monetary policy cycles do not tend to be heavily synchronized with the US, which historically has led to somewhat sizable depreciations around easing cycles as the rate spread shrunk. However, despite the rate cuts that we currently see as starting in August, we expect BRL to be more resilient this time, supported by still high real rates, some further upside remaining on the fiscal side, and a potentially virtuous resolution of the inflation target saga. However, the recent BRL rally, which led BRL closer to its fair value, has limited upside for long positions, in our view.

### **Remain cautious about MXN despite attractive carry**

The recent outperformance of the Mexican peso (MXN) has been supported by Mexico's tight monetary and fiscal policy, a narrow current account balance on the back of strong remittances, low policy uncertainty relative to the rest of the region, as well as the positive sentiment driven by the nearshoring narrative. However, in our view, the main driver of MXN strength has been the market's perception that carry-to-vol remains attractive.

Historically, MXN has a low sensitivity to easing cycles given that domestic monetary policy is usually heavily correlated with US monetary policy. In that sense, MXN carry tends to be particularly resilient, which helps limit peso depreciation when monetary policy eases. This has increased the market's perception that MXN is an attractive carry trade.

However, we believe it could be misleading to focus on MXN's high carry-to-vol ratio. In our view, carry-to-vol is not as attractive if we condition on the fact that the probability of an adverse global backdrop is currently high. As observed during the short-lived US banking turmoil over the past few months, the Mexican peso remains highly vulnerable to global risk-off shocks. We are particularly concerned about the potential impact of a deeper-than-expected US recession on the MXN. In such a scenario, MXN could be directly hit by the risk-off shock, the current account could widen due to slowing remittances, and carry could decline as Banxico cuts rates from the widest spread it has had against the Fed in recent history. Finally, heavy long MXN positioning could amplify the impact.

Therefore, we remain cautious about MXN exposure despite the high carry. In our view, risk-reward of long MXN positions is not attractive as volatility would like rise vs what the market currently prices. Finally, we believe that current valuation seems stretched. The Mexican peso is the strongest it has been in real terms since 2008, which in our view is inconsistent with Mexico's deteriorating productivity.

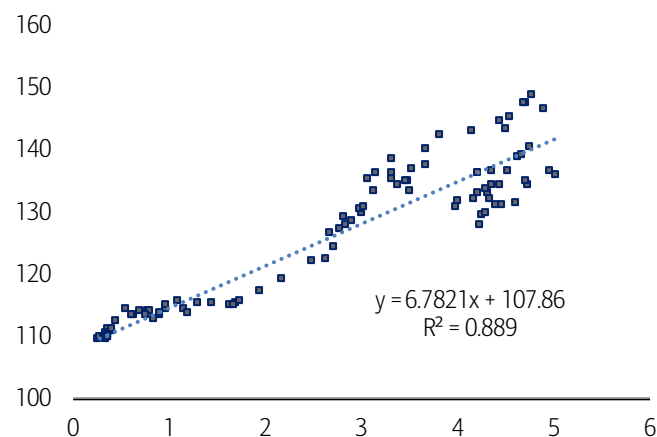
### **More material JPY rally to take place once the Fed also starts cutting in 2024**

Within the liquid G10 space, while USDJPY now has an annualized carry of more than 5%, carry trade demand for this pair has been more muted due to elevated uncertainty with BoJ monetary policy. Regressing USDJPY spot vs 2y US-JP rate differential since the Fed turned more hawkish in June 2021 shows the JPY as fairly valued (Exhibit 6). We maintain a bearish JPY view vs the USD for rest of 2023 and expect the carry factor to be against the JPY as long as the Fed keeps a hawkish guidance and holds the federal funds rate at current level.

Performing the same USDJPY vs rate differential regression but covering an entire rate cycle since 2019 (federal funds rate last peaked in Dec 2018) would suggest JPY as cheap vs interest rate differential (Exhibit 7). We would expect more material JPY rally to occur in 2024, given we see the first Fed rate cut to take place in Q1 2024 ([US Economic Weekly: 05 May 2023](#)). Our official forecast is for USDJPY to rise to 140 by year-end 2023, before falling to 125 by year-end 2024 ([Global FX weekly: 05 May 2023](#)). The risk to our bearish JPY view for this year is an earlier than expected Fed rate cut or BoJ entering a proper rate hiking cycle in 2023.

#### Exhibit 6: JPY appears to be fairly valued vs rate differential at a 2y lookback

2y US-JP rate differential vs USDJPY since June 2021

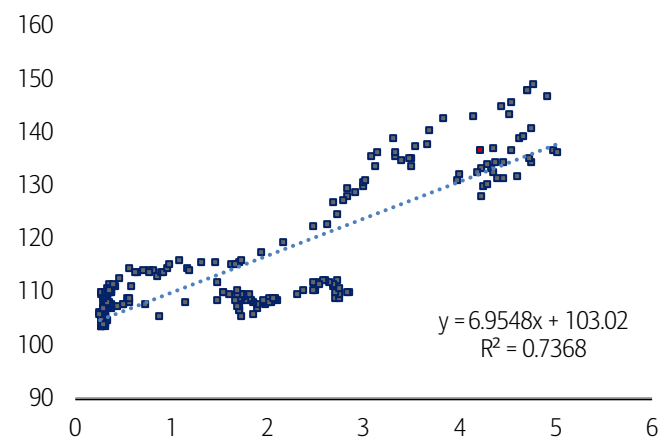


Source: BofA Global Research, Bloomberg. Chart plots rate differential along the x-axis and USDJPY along the y-axis.

BofA GLOBAL RESEARCH

#### Exhibit 7: But looking at USDJPY vs rate differential for a whole cycle would suggest JPY is still cheap vs US-JP rate differential

2y US-JP rate differential vs USDJPY since Jan 2019



Source: BofA Global Research, Bloomberg. Chart plots rate differential along the x-axis and USDJPY along the y-axis.

BofA GLOBAL RESEARCH

#### List of acronyms used in this publication

EM: emerging markets

CB: central banks

ECB: European Central Bank

NBH: National Bank of Hungary

BCB: Central Bank of Brazil

BoJ: Bank of Japan

## Notable Rates and FX Research

---

- **Global Rates, FX & EM Year Ahead 2023 – [Year Ahead 2023: Pivot ≠ Peak](#)**, 20 Nov 2022
- [What to expect when pausing](#), **Global FX Weekly**, 12 May 2023
- [The long and short of it](#), **Global Rates Weekly**, 12 May 2023
- [Corporates buying USD/Asia FX](#), **Liquid Cross Border Flows**, 9 May 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: What to expect when pausing 12 May 2023](#)

[Global Rates Weekly: The long and short of it 12 May 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](http://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](mailto:ralph.axel@bofa.com)

**Paul Ciana, CMT**  
Technical Strategist  
BofAS  
+1 646 855 6007  
[paul.ciana@bofa.com](mailto:paul.ciana@bofa.com)

**John Shin**  
FX Strategist  
BofAS  
+1 646 855 9342  
[joong.s.shin@bofa.com](mailto:joong.s.shin@bofa.com)

**Vadim Iaralov**  
FX Strategist  
BofAS  
+1 646 855 8732  
[vadim.iaralov@bofa.com](mailto:vadim.iaralov@bofa.com)

**Mark Cabana, CFA**  
Rates Strategist  
BofAS  
+1 646 855 9591  
[mark.cabana@bofa.com](mailto:mark.cabana@bofa.com)

**Bruno Braizinha, CFA**  
Rates Strategist  
BofAS  
+1 646 855 8949  
[bruno.braizinha@bofa.com](mailto:bruno.braizinha@bofa.com)

**Meghan Swiber, CFA**  
Rates Strategist  
BofAS  
+1 646 855 9877  
[meghan.swiber@bofa.com](mailto:meghan.swiber@bofa.com)

## Europe

**Ralf Preusser, CFA**  
Rates Strategist  
MLI (UK)  
+44 20 7995 7331  
[ralf.preusser@bofa.com](mailto:ralf.preusser@bofa.com)

**Ruben Segura-Cayuela**  
Europe Economist  
BoFA Europe (Madrid)  
+34 91 514 3053  
[ruben.segura-cayuela@bofa.com](mailto:ruben.segura-cayuela@bofa.com)

**Mark Capleton**  
Rates Strategist  
MLI (UK)  
+44 20 7995 6118  
[mark.capleton@bofa.com](mailto:mark.capleton@bofa.com)

**Athanasios Vamvakidis**  
FX Strategist  
MLI (UK)  
+44 020 7995 0279  
[athanasios.vamvakidis@bofa.com](mailto:athanasios.vamvakidis@bofa.com)

**Sphia Salim**  
Rates Strategist  
MLI (UK)  
+44 20 7996 2227  
[sphia.salim@bofa.com](mailto:sphia.salim@bofa.com)

**Kamal Sharma**  
FX Strategist  
MLI (UK)  
+44 20 7996 4855  
[ksharma32@bofa.com](mailto:ksharma32@bofa.com)

**Ronald Man**  
Rates Strategist  
MLI (UK)  
+44 20 7995 1143  
[ronald.man@bofa.com](mailto:ronald.man@bofa.com)

**Michalis Rousakis**  
FX Strategist  
MLI (UK)  
+44 20 7995 0336  
[michalis.rousakis@bofa.com](mailto:michalis.rousakis@bofa.com)

## Pac Rim

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

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

**Shusuke Yamada, CFA**  
FX/Rates Strategist  
BofAS Japan  
+81 3 6225 8515  
[shusuke.yamada@bofa.com](mailto: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.