Liquid Insight

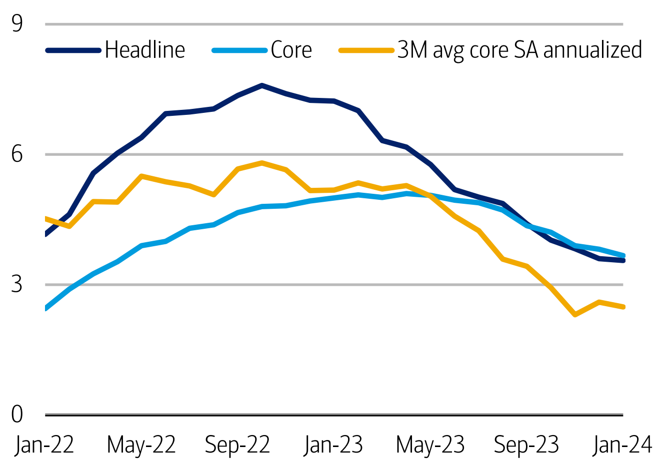
The difficult last inflation mile

Key takeaways

- Will the US economy slow? Will G10 inflation continue to drop in 2024? Baseline yes for both but risks and uncertain timing.
- Reasons economy performed well to fade, but red flags from sticky inflation and all-time low unemployment.
- USD weaker if US slows, inflation drops, Fed cuts; stronger if US resilient, inflation stuck. Elections adds to uncertainty.

By Athanasios Vamvakidis

Exhibit 1: Average inflation rates in G10 economies
Recent data suggests inflation has become stickier in G10 economies



Source: Bloomberg, Haver and BofA Global Research

BofA GLOBAL RESEARCH

Will the US economy slow? Will G10 inflation continue to drop this year? The answers will determine when central banks start to cut rates, how fast and how far. In our view, four reasons explain why the real economy has performed better than expectations, particularly in the US, but they should fade this year: loose fiscal policy, excess savings, longer than usual monetary policy lags, central bank growth credibility. However, we see red flags: recent data suggests inflation is stickier (Exhibit 1) and unemployment remains at all-time lows.

If the US economy slows, inflation drops further and the Fed starts to cut rates, we would expect the USD to weaken this year (baseline). The risk is the economy remains resilient, or inflation gets even stickier, keeping the Fed on hold, in which case the USD will remain strong. The US elections makes the market outlook even more uncertain.

26 February 2024

Rates and Currencies Research
Global

Global Rates & Currencies Research
MLI (UK)

Athanasios Vamvakidis
FX Strategist
MLI (UK)
+44 20 7995 0279
athanasios.vamvakidis@bofa.com

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

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

See Team Page for List of Analysts

Liquid Insight
Recent Publications

BofA GLOBAL RESEARCH

Refer to important disclosures on page 7 to 8.
12663368

Timestamp: 25 February 2024 11:45PM EST

Two key questions

Two key questions for fixed income markets right now include: 1) will the US economy slow? and 2) will G10 inflation continue to drop this year? The two are related but may not necessarily coincide and may even move in different directions in the short term.

Although the focus of the first question is on the US economy, given its much stronger performance than the rest of G10, it is also relevant for the other economies. The US remains in a non-landing scenario, with growth still surprising to the upside. However, most of the other G10 economies have also done better than what the consensus had expected during this tightening cycle, despite growing slower than the US.

The second question has to do with a scenario of sticky inflation on the way down, with the so-call last mile towards the 2% inflation target proving to be the most difficult. This is relevant for the US given its strong growth performance, but also for most of the rest of G10, as they have also performed better than expectations.

Both questions are very important to determine when central banks will start cutting rates, how fast they will cut and how far they will go. The year started with the market too optimistic on all these three, expecting early and aggressive cuts. Following strong data, particularly in the US, and central bank comments suggesting caution, markets have adjusted. However, markets still expect close to four cuts for both the Fed and the ECB this year, and close to three cuts for the BoE. Our economists remain below market pricing, with three cuts for the Fed and the ECB and two for the BoE.

If the real economy remains strong and/or inflation gets stuck at current levels, central banks may not be able this year to cut anywhere near what markets are still pricing, if at all in some cases. Last month, before the market repricing, we discussed a risk scenario of no rate cuts at all this year (see Thinking the unthinkable: what if no central bank cuts rates this year? 16 January 2024). Our economists are also concerned about US inflation re-accelerating if demand remains strong (see The Global Thinker: Let's talk about inflation risks 30 January 2024).

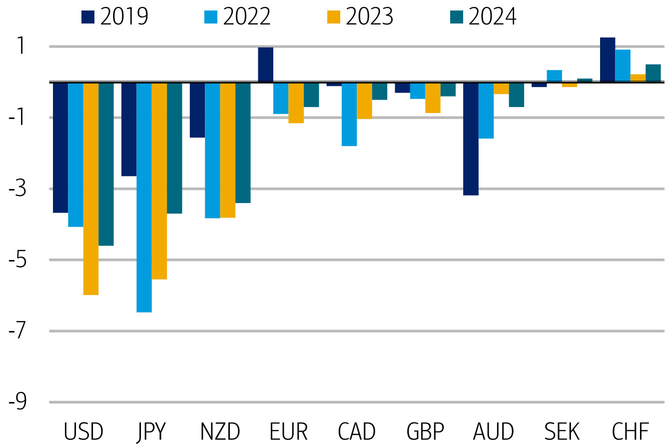
The baseline of landing

We believe there are four main reasons that the real economy has performed better than expectations – still non-landing – particularly in the US, but we also argue that these forces should be fading this year:

- Loose fiscal policy. This is particularly the case in the US, where deficits have reached levels only seen during a crisis before. However, fiscal policies were also loose in most of the rest of G10, as they spent the inflation-driven revenue overperformance instead of allowing automatic stabilizers to operate. In some cases, countries kept energy-related subsidies for too long after energy prices dropped, while these subsidies were often badly targeted to begin with. Looking ahead, we expect lower government deficits in most of the G10 economies this year – even in the US – suggesting a negative fiscal policy impulse (Exhibit 2).

- Excess savings. This was because of the massive fiscal stimulus during the pandemic, once again particularly in the US. Dissaving is lasting longer than the market has been expecting, also because fiscal policy remained loose. Our estimates suggest about 60% of this excess saving has been spent so far (Exhibit 3). Although what remains is still substantial, not all of it may be spent.

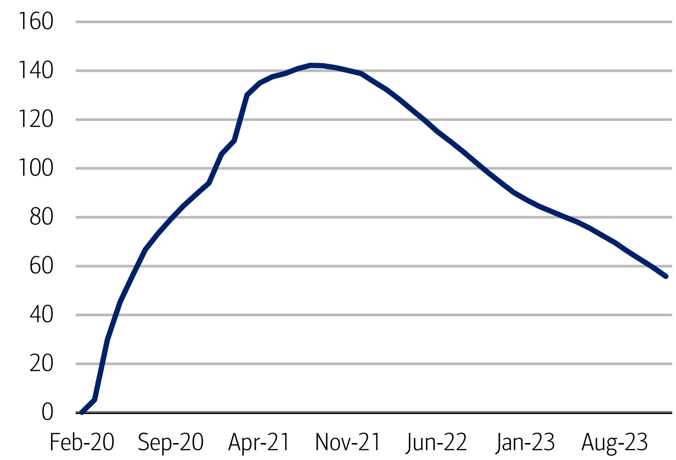
Exhibit 2: Structural primary balance/Potential GDP
Fiscal policy to tighten in 2024



Source: IMF, BofA Global Research.

BofA GLOBAL RESEARCH

Exhibit 3: Excess US personal saving rate/disposable income (cumulative vs. 2019 average)
60% of excess US savings accumulated during the pandemic has been spent



Source: Bloomberg, BofA Global Research.

BofA GLOBAL RESEARCH

- Longer than usual monetary policy lags. Empirical evidence suggests monetary policy tightening affects the economy with 12-18 months lag. This time, the lags may be longer for two reasons. 1) The starting point was a very loose monetary policy stance. 2) Monetary policy tightening followed a long period of very low interest rates, suggesting that most companies and households may still be locked in low rates. However, as maturities approach, we would expect the policy tightening that has already taken place to affect the economy more (see report: *Global Credit Strategy Year Ahead: A cut above the rest, 20 November 2023*).

- Central bank growth credibility. Central banks have gained inflation credibility since they adopted inflation targeting in recent decades. However, they have also gained credibility in supporting the economy since the Global Financial Crisis and even more after the pandemic. As a result, the market has been expecting aggressive rate cuts during landing, which in turn may have kept the so-called animal spirits strong. However, central banks have not faced a dilemma of choosing between their inflation and their employment mandates yet. This may change in a landing scenario with sticky inflation, as central banks are likely to stick to their inflation target and allow the economy to weaken.

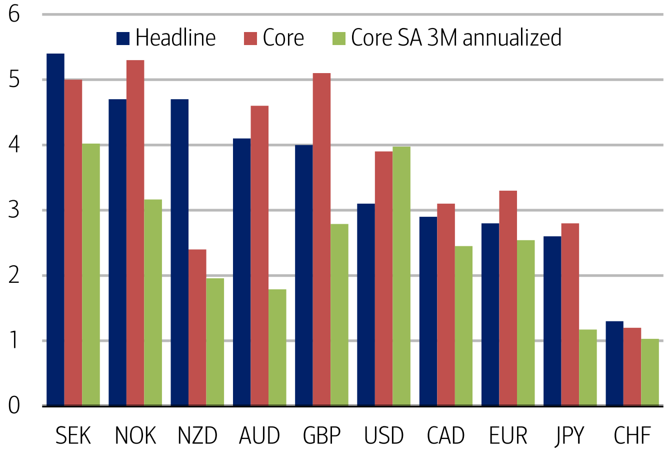
Red flags

Although inflation dropped fast last year, this was primarily because of one-off supply forces. These forces include the drop in energy prices and the resolution of pandemic-related bottlenecks. These "easy wins" explain the drop of inflation without a landing of the real economy, but they are now behind us. We believe that a further drop of inflation will need weaker demand and a landing of the real economy.

The latest data suggest that inflation is getting stickier. It is still too early to know for sure, but the latest data based on the average headline, core and 3-month average seasonally adjusted annualized core inflation in G10 economies point to risks of inflation getting stuck around 3% (Exhibit 1). With the exception of Switzerland, inflation remains well above the target in the rest of G10 (Exhibit 4).

At the same time, unemployment remains stuck at all-time lows across the board. The unemployment rate has not increased almost at all during this aggressive monetary policy tightening and remains mostly below the natural rate (Exhibit 5). Such low unemployment across the board in G10, regardless of anything else – strong growth in the US and weak growth in the Eurozone and the UK – is a puzzle. Any landing scenario should see at least some increase in unemployment at some point. Before this happens, the risk is for stickier inflation, or even reacceleration in some cases. Even if inflation somehow continues falling, we expect low unemployment to keep central banks cautious, resulting in a very gradual easing cycle.

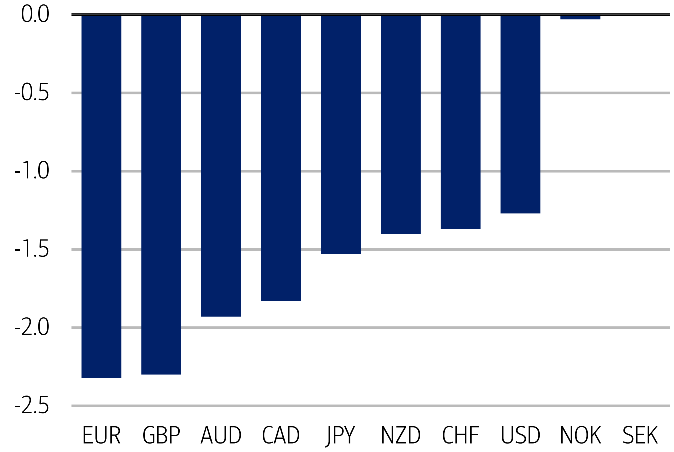
Exhibit 4: Latest inflation rate in G10 economies
Inflation still high in most G10 economies



Source: Bloomberg, Haver and BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 5: Unemployment rare – Natural rate of unemployment (NAIRU)
Stretched labor markets in all G10 economies

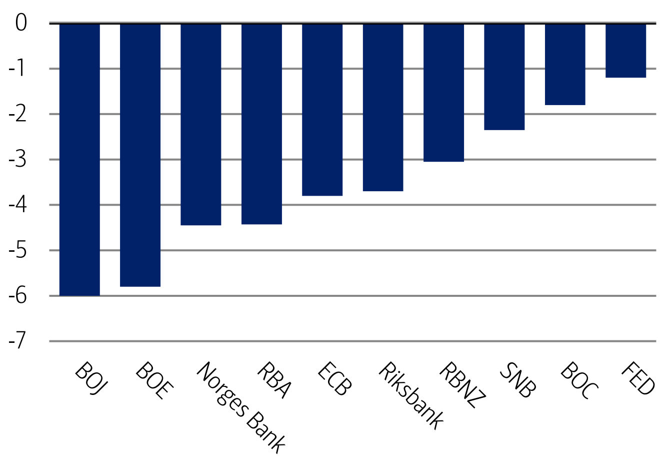


Source: Bloomberg and BofA Global Research

BofA GLOBAL RESEARCH

Given very low unemployment and inflation still above the target and recent evidence of getting stickier, it is hard to argue that central banks should be easing policies soon. The Bloomberg Taylor rule suggests monetary policies remains loose in all G10 economies (Exhibit 6) – this is the case even for Switzerland, despite inflation being well below 2%, because of very low unemployment. Taking z-scores, to adjust for actual monetary policies in each G10 central bank compared with the Taylor rule as a benchmark historically, monetary policy is tight in the case of the Swiss National Bank (SNB) and slightly for the BoC, about right for the Fed, and still loose everywhere else (Exhibit 7). This evidence suggests that we need to see lower inflation and higher unemployment for central banks to start cutting rates; the starting point also suggests a gradual and shallow easing cycle in a soft-landing scenario, in most cases.

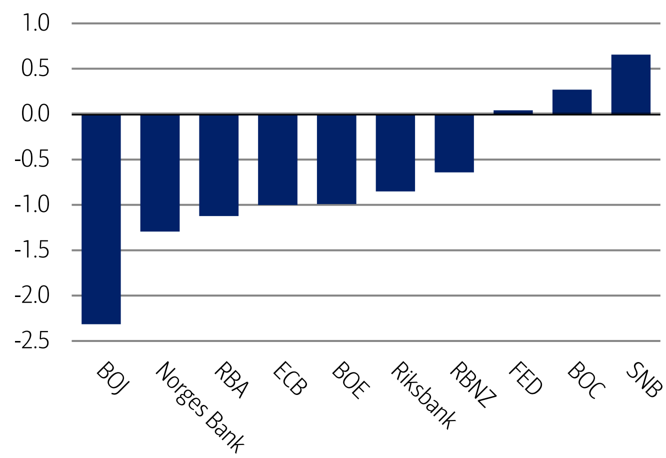
Exhibit 6: Taylor rule spread
Spreads from a Taylor rule suggest central banks have not over-tightened



Source: Bloomberg and BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 7: Taylor rule spread z-score
Z-score spreads from a Taylor rule suggest central banks have not over-tightened



Source: Bloomberg and BofA Global Research

BofA GLOBAL RESEARCH

The market response

Even if the US economy slows this year, helping to bring inflation down and allowing the Fed to cut rates, timing is uncertain. A slower economy and falling inflation may not coincide in the short term, leading to central bank policy dilemmas. These dynamics may also differ among different G10 economies.

As long as the US economy slows, US inflation comes down to below 3% and the Fed starts to cut rates, we would expect the USD to weaken this year. Whether EURUSD goes all the way to 1.15 by year-end, which remains our above-consensus end-year forecast, will depend on the details. We expect USD weakness in such a scenario despite other central banks easing policies at the same time, as the Fed cuts matter more in our view and have global implications.

The risk is that the US economy remains resilient for longer or inflation is even stickier than we expect. In such a case, we would expect the USD to remain strong for longer or strengthen even more.

A landing scenario will likely start in services in our view, which remains strong in most cases and amount to more than 2/3rds in advanced economies. Only weaker services will start weakening the stretched labor market, eventually affecting wages and then inflation dynamics, with inflation expectations falling earlier, allowing central banks to start cutting rates. The strong USD should start to weaken in this case. We are not there yet.

The known-unknown of the US elections

The outcome of the US elections in November could change almost everything we have discussed above. The market is also likely to start pricing related risks well before. We have discussed the FX implications from the US elections in detail in USD Year Ahead: A winding road to depreciation 25 January 2024. To summarize our views, tariffs and tax cuts will be inflationary and positive for the USD, but any concerns about a new dovish Fed leadership after Powell's term ends in 2026 will be negative for the USD. At the same time, if the outcome of the US elections forces the Europeans to move closer together and agree on a larger EU budget, this will be positive for the EUR. These considerations suggest uncertain and mixed FX implications from the US elections, at least at this still early stage.

Notable Rates and FX Research

- **Global Macro Year Ahead 2024 -** Hope for the best, prepare for the worst, 19 Nov 2023
- **Global Rates Year Ahead 2024 –** Cloudy with a chance of landing, 19 Nov 2023
- **G10 FX Year Ahead -** The year of the landing, 20 Nov 2023
- Dollar dependence, **Liquid Cross Border Flows**, 19 Feb 2024

Rates, FX & EM trades for 2024

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: Silver linings playbook 23 February 2024

Global Rates Weekly: Cut it out 23 February 2024

Disclosures

Important Disclosures

BofA Global Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.
BofA Securities fixed income analysts regularly interact with sales and trading desk personnel in connection with their research, including to ascertain pricing and liquidity in the fixed income markets.

Other Important Disclosures

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for any recommendation in relation to an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report and in relation to a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including BofA Securities trading desks.
The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

This report may refer to fixed income securities or other financial instruments that may not be offered or sold in one or more states or jurisdictions, or to certain categories of investors, including retail investors. Readers of this report are advised that any discussion, recommendation or other mention of such instruments is not a solicitation or offer to transact in such instruments. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor for information relating to such instruments.
Rule 144A securities may be offered or sold only to persons in the U.S. who are Qualified Institutional Buyers within the meaning of Rule 144A under the Securities Act of 1933, as amended.
SECURITIES OR OTHER FINANCIAL INSTRUMENTS DISCUSSED HEREIN MAY BE RATED BELOW INVESTMENT GRADE AND SHOULD THEREFORE ONLY BE CONSIDERED FOR INCLUSION IN ACCOUNTS QUALIFIED FOR SPECULATIVE INVESTMENT.
Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.
The securities or other financial instruments discussed in this report may be traded over-the-counter. Retail sales and/or distribution of this report may be made only in states where these instruments are exempt from registration or have been qualified for sale.
Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.
This report, and the securities or other financial instruments discussed herein, may not be eligible for distribution or sale in all countries or to certain categories of investors, including retail investors.
Refer to BofA Global Research policies relating to conflicts of interest.
"BofA Securities" includes BofA Securities, Inc. ("BofAS") and its affiliates. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. "BofA Securities" is a global brand for BofA Global Research.
Information relating to Non-US affiliates of BofA Securities and Distribution of Affiliate Research Reports:
BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF). BofA Securities Europe SA ("BofASE") with registered address at 51, rue La Boétie, 75008 Paris is registered under no 842 602 690 RCS Paris. In accordance with the provisions of French Code Monétaire et Financier (Monetary and Financial Code), BofASE is an établissement de crédit et d'investissement (credit and investment institution) that is authorised and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers. BofASE's share capital can be found at www.bofaml.com/BofASEdisclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI; BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSFC); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Canadian Investment Regulatory Organization; 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 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 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:

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 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