

# Japan Watch

# **BoJ review: One step closer to** normalization

At its first monetary policy meeting (MPM) of the year, the BoJ left all key policy targets unchanged, as widely expected. In a housekeeping exercise, the BoJ board voted unanimously voted to extend by one year the deadline for its funding-for-lending program. Elsewhere, there were little changes to the policy statement. The central bank also left all components of its forward guidance intact (Exhibit 6).

## Outlook report: Optimism on 2% price stability

While the policy statement did not contain language hinting at an immediate policy move, the BoJ's latest Outlook Report reflected the policy board's growing optimism that the achievement of its 2% price stability target was drawing closer. We highlight the following three key points:

1) Having re-iterated its long-standing baseline scenario that "underlying CPI inflation is likely to increase gradually toward achieving the [2%] price stability target" toward the end of the projection period [ending Mar '26], the BoJ added new language stating that "the likelihood of realizing this outlook has continued to gradually rise, although there remain high uncertainties over future developments."

Governor Ueda had made similar comments verbally in recent press conference remarks. However, this was the first time that such comments appeared in the Outlook Report, suggesting that optimism around the prospects of sustained and stable 2% inflation is becoming consensus on the 9-member policy board.

- 2) For its latest GDP projections, the BoJ downgraded slightly its FY23 forecast while nudging up FY24 to 1.2% and keeping FY25 unchanged at 1.0%. Previously, it had characterized the risks around economic activity as skewed to the downside in FY25. However, it now sees those risks as "generally balanced" through its forecast horizon (FY23-FY25).
- 3) Finally in its assessment of current inflation, the BoJ explicitly acknowledged the recent improvement in services prices, stating that their rise had supported the continued pick-up in Japan-style core (CPI ex fresh food) inflation in the 2-2.5% range despite the waning of imported inflation pressures.

Note that for its CPI projections, the BoJ downgraded its FY24 Japan-style core (CPI ex fresh food) projection by 0.4ppt to 2.4% (Exhibit 1). But as we had expected, the BoJ explained in its Outlook Report that the downward revision was largely due to lower energy prices. The more stable BoJ-style core (CPI ex fresh food & energy) projections were unchanged at 3.8% in FY23, 1.9% in FY24, and 1.9% in FY25.

## **Governor Ueda press conference: hawkish**

Questions at Governor Ueda's post-MPM press conference focused on the BoJ's assessment of the "distance" to the achievement of sustained and stable 2% inflation, and the policy path thereafter. (continued overleaf)

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 8.

Japan and Asia Economist BofAS Japan +81 3 6225 6257 izumi.devalier@bofa.com

23 January 2024

**Economics** 

Izumi Devalier

Japan

Takayasu Kudo Japan and Asia Economist BofAS Japan +81 3 6225 8592 takavasu.kudo@bofa.com

Shusuke Yamada, CFA FX/Rates Strategist BofAS Japan +81 3 6225 8515 shusuke.yamada@bofa.com

Tomonobu Yamashita Rates Strategist BofAS Japan +81 3 6225 7950 tomonobu.yamashita@bofa.com

12649377

Exhibit 1: BoJ Policy Board median CPI projections vs. consensus

The BoJ left its ex-energy core inflation projections intact in January

	(	CPI ex fr	esh food	CPI ex FF & energy				
CY	BoJ (Oct)	BoJ (Jan)	BBG (12 Jan)	BofA (9 Jan)	BoJ (Oct)	BoJ (Jan)	BBG (12 Jan)	BofA (9 Jan)
23			3.1	3.1			4.0	3.9
24			2.3	2.5			2.2	2.5
25			1.7	1.9			1.6	2.0
FY								
23	2.8	2.8	2.9	2.8	3.8	3.8	3.9	3.9
24	2.8	2.4	2.2	2.4	1.9	1.9	2.0	2.2
25	1.7	1.8	1.7	1.8	1.9	1.9	1.7	1.9

Source: Bank of Japan

BofA GLOBAL RESEARCH

#### Exhibit 2: BoJ CPI ex Fresh Food forecasts (Jan vs. Oct)

Policy Board Members' Forecasts and Risk Assessments

	FY	<b>'23</b>	FY	24	FY	25
	Oct MPM	Jan MPM	Oct MPM	Jan MPM	Oct MPM	Jan MPM
3.2						
3.1			$\triangle \triangle$			
3	$\triangle O$					
2.9	$\circ$	$\bigcirc\bigcirc\bigcirc$	$\triangle lacktriangleright$			
2.8	$\triangle \triangle \bigcirc \nabla$	0000	$\triangle O$			
2.7	$\triangle \triangle$	$\circ$	$\circ$			
2.6				$\triangle$		
2.5			lacktriangle	00		
2.4				$\triangle O$		
2.3				0		
2.2				$\circ$		
2.1						$\triangle$
2				0	$\triangle O$	
1.9						00
1.8					0	$\circ$
1.7					00	00
1.6					$\bigcirc$ $\blacktriangledown$ $\blacktriangledown$	$\circ$
1.5						
1.4					0	

**Source:** Bank of Japan, BofA Global Research; Note: The locations of O,  $\triangle$ , and  $\blacktriangledown$  in the charts indicate the figures for each Policy Board member's forecasts to which they attach the highest probability. The risk balance assessed by each Policy Board member is shown by the following shapes: O indicates that a member assesses "upside and downside risks as being generally balanced,"  $\triangle$  indicates that a member assesses "risks are skewed to the upside," and  $\blacktriangledown$  indicates that a member assesses "risks are skewed to the upside," and  $\blacktriangledown$  indicates that a member assesses "risks are skewed to the upside," and  $\blacktriangledown$  indicates that a member assesses "risks are skewed to the upside," and  $\blacktriangledown$  indicates that a member assesses "risks are skewed to the upside," and  $\blacktriangledown$  indicates that a member assesses "risks are skewed to the upside," and  $\blacktriangledown$  indicates that a member assesses "risks are skewed to the upside," and  $\blacktriangledown$  indicates that a member assesses "risks are skewed to the upside," and  $\blacktriangledown$  indicates that a member assesses "risks are skewed to the upside," and  $\blacktriangledown$  indicates that a member assesses "risks are skewed to the upside," and  $\blacktriangledown$  indicates that a member assesses "risks are skewed to the upside," and  $\blacktriangledown$  indicates that a member assesses "risks are skewed to the upside," and  $\blacktriangledown$  indicates that a member assesses "risks" are skewed to the upside, "and  $\blacktriangledown$  indicates that a member assesses "risks" are skewed to the upside, "and  $\blacktriangledown$  indicates that a member assesses" indicates that a member assesses "risks" indicates that a member asses

BofA GLOBAL RESEARCH

#### On the "distance" to the 2% target

Consistent with the increased optimism in the Outlook Report, Governor Ueda confirmed that the data—including early signals from the spring wage negotiations—were moving in the right direction, and that the BoJ is getting closer to declaring its 2% price stability "in sight".

He also stated clearly that when the BoJ reaches this point when it can project the achievement of underlying 2% inflation on a forward-looking basis, "it would need to consider whether to continue the various large-scale monetary easing measures that it currently has in place, including negative interest rate policy." He later mentioned that this would also include discussions over the BoJ's ETF purchase program.

We think it is notable that the Governor delved deeper into further details around the policy exit today and think it is reflective of growing consensus on the policy board for policy change in the coming months.

#### On the prospect of additional hikes post NIRP exit

Governor Ueda was also asked about the timing of subsequent hikes, following the lift off from NIRP. On this point, the governor acknowledged that the BoJ would be making the judgment to exit NIRP while also thinking about the subsequent path for policy rates.

We take this to mean that, under its baseline scenario, the BoJ does not foresee policy the exit from NIRP being followed by "zero interest rates (ZIRP) forever," as expected by some market participants before today's policy meeting.

#### On the pace of normalization & avoiding "discontinuity" in policy

However, Governor Ueda balanced these remarks by suggesting that the BoJ currently sees the risks of an unwanted overshoot in inflation to be low, and that the pace of policy normalization will likely be gradual. He stressed several times that the BoJ would take care to ensure that the policy normalization does not cause "serious or major discontinuities."



On ETF purchases, he all but ruled out the idea that the BoJ was considering selling its ETF holdings in the foreseeable future. He also implied that the BoJ will continue intervening in the bond markets (via its JGB purchases) even after it transitions away from its current Yield Curve Control framework, in order to avoid "discontinuities" around the time of an exit from its large-scale easing program.

Most importantly, Governor Ueda stressed that, based on the BoJ's current assessment for the outlook for Japan's economy and prices, monetary policy will likely remain accommodative even after the BoJ declares 2% inflation "in sight" and exits NIRP.

We think the governor's remarks are consistent with our view that the exit from NIRP will be followed by additional hikes, albeit at a gradual pace and to levels well below estimates of Japan's nominal neutral rate (see <a href="Bol Watch: Eyes on April 11 January">Bol Watch: Eyes on April 11 January</a> 2024).

# Policy outlook: high likelihood of NIRP/YCC exit in April

Looking ahead, we expect the BoJ to declare its 2% price stability target "in sight" and exit NIRP+YCC in April-July '24 (see <u>BoJ Watch: Eyes on April 11 January 2024</u>). In our view, the more optimistic tone in the January Outlook Report and Governor Ueda's press conference remarks strengthen the probability that the BoJ will make the move at the 25-26 April MPM, in line with our baseline scenario.

Note that unlike his post-Dec MPM press conference where he downplayed the chances of policy change at the January MPM, Governor Ueda did not rule out the possibility that the BoJ may have enough data to declare its 2% price stability "in sight" and therefore change policy at its next MPM, on 18-19 March.

While we certainly would not rule out such a scenario, we still think that probability that the BoJ actually delivers policy changes at the March MPM is relatively low. Though Japan's largest umbrella union (Rengo) is scheduled to publish the results of the first response round of the FY24 Shunto on 15 March, waiting until April will allow the BoJ to confirm the results of the 1Q BoJ Tankan (due 1 April), as well as reports from the April BoJ branch managers' meeting (Exhibit 5).

The BoJ's next Outlook Report, in April, will also see the policy board extending its growth and inflation forecasts to FY26. Having already penciled in 1.9% ex-energy core inflation in FY24 and FY25, we think it is likely that the FY26 projection will also see inflation sustained at around 2%, supporting the case for a move off emergency policy settings.

Beyond that, we expect the BoJ to follow up its exit from negative rates policy in April '24 with two additional 25bp hikes, in 4Q '24 and 2Q '25, taking the policy rate to 0.5% by mid-2025 (see BoJ Watch: Eyes on April 11 January 2024).

- Izumi Devalier & Takayasu Kudo, Japan Economists

# Rates: JGB yields to rise only in a gradual manner

As noted above, the BoJ maintained the status quo. The yen rates market reaction was limited after BoJ's announcement, but JGB futures were sold during Governor Ueda's press conference. We can say that the yen rates market interpreted BoJ Governor Ueda's press conference as hawkish.

In our view, excess JGB supply will push up the yields on the JGBs throughout 2024 (for details, see <u>Liquid Insight: Japan risks for 2024 18 January 2024</u>). However, we expect the JGB yields to rise only gradually. As discussed above, Governor Ueda stressed in his press conference that the BoJ would seek to avoid "discontinuities" around the exit, suggesting that it would proceed with additional rate hikes and balance sheet normalization in a cautious and gradual manner. In addition, according to our FX and Rates sentiment survey, the consensus for NIRP to end is 2Q24 (for details, see <u>FX and</u>



Rates Sentiment Survey: Hung jury 12 January 2024). Thus, we see a JGB sharp selloff in the near term as unlikely.

- Tomonobu Yamashita, Rates Strategist

# FX: Key dates = March 19, April 26, April 28

As our economists note, there was no major hawkish surprise (policy change, or signal to hike rate in March) but no dovish surprise either. The BoJ acknowledged further developments toward the price stability target, which keeps our scenario of the NIRP removal at the BoJ's April MPM in place. Hence, USD/JPY's slight sell-off was understandable after the pair's rise in recent sessions.

There are three key dates for JPY in the next three months:

- March 19 (Mar MPM): If the BoJ is to remove NIRP in April, the BoJ may give a signal for policy change at the March MPM.
- April 26 (Apr MPM): If Japanese economy continues to recover and the inflationary trend persists, the BoJ may be ready to remove NIRP in the April MPM (our economists' base case)
- April 28 (By-elections): At least one, but likely a few more by-elections due to the
  recent political scandal, may be held on April 28, and would be important for Prime
  Minister Fumio Kishida whose approval ratings have fallen to a danger zone.

Consensus as well as we think the BoJ will remove NIRP in April MPM (see <u>FX and Rates Sentiment Survey</u>: <u>Hung jury 12 January 2024</u>). It comes just two days before the byelections, which may be a non-economic consideration for the BoJ as it may be more difficult to change policy around the election date all else equal.

The market may debate the possibility of the BoJ avoiding the Apr MPM, which may impact pricing for the Mar MPM and Jun MPM vs Apr MPM. But overall, these event risks may support USD/JPY vol.

- Shusuke Yamada, FX/Rates Strategist

# **Appendix**

Exhibit 3: Schedule of BoJ monetary policy meetings and key releases in 2023-2024 2023-2024

Date o	f MPM	Outlook Report	Summary of opinions	MPM Minutes
30 Oct (Mon)	31 Oct (Tue)	31 Oct (Tue)	9 Nov (Thu)	22 Dec (Fri)
18 Dec (Mon)	19 Dec (Tue)	-	27 Dec (Wed)	26 Jan '24 (Fri)
22 Jan (Mon)	23 Jan (Tue)	23 Jan (Tue)	31 Jan (Wed)	25 Mar (Mon)
18 Mar (Mon)	19 Mar (Tue)	=	28 Mar (Wed)	2 May (Thu)
25 Apr (Thu)	26 Apr (Fri)	26 Apr (Fri)	9 May (Thu)	19 Jun (Wed)
13 Jun (Thu)	14 Jun (Fri)	-	24 Jun (Mon)	5 Aug (Mon)
30 Jul (Tue)	31 Jul (Wed)	31 Jul (Wed)	8 Aug (Thu)	26 Sep (Thu)
19 Sep (Thu)	20 Sep (Fri)	-	1 Oct (Tue)	6 Nov (Wed)
30 Oct (Wed)	31 Oct (Thu)	31 Oct (Thu)	11 Nov (Mon)	24 Dec (Tue)
18 Dec (Wed)	19 Dec (Thu)	-	27 Dec (Fri)	TBD

Source: BofA Global Research, Bank of Japan

BofA GLOBAL RESEARCH



## Exhibit 4: G3 central bank decision calendar

						20	24					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Dal	23		19	26		14	31		20	31		19
BoJ	(Tue)		(Tue)	(Fri)		(Fri)	(Wed)		(Fri)	(Thu)		(Thu)
		01	21		02	13		01	19		08	19
Fed		(Thu)	(Thu)		(Thu)	(Thu)		(Thu)	(Thu)		(Fri)	(Thu)
		[T+1]	[T+1]									
ECB	25		07	11		06	18		12	17		12
ECB	(Thu)		(Thu)									

Source: BofA Global Research, Bloomberg Note: Blue shaded dates represent decisions associated with Summary of Economic

Projections (SEP) for the FOMC, Staff projections for the ECB, and Outlook Report for the BoJ.

BofA GLOBAL RESEARCH

**Exhibit 5: Calendar of key BoJ-related events**Mar-Apr data key for the BoJ's assessment of sustained and stable 2% inflation

Date	Key events						
<b>2024</b> Jan-Feb	Response period for BoJ special survey on corporate behavior since the mid-1990s (part of Broad Perspective Review)						
Jan 11	Regional Economic Report & Quarterly meeting of BoJ Branch Managers						
Jan 22-23	BoJ MPM (outlook report)						
Late January	Keidan to release "Report of the Special Committee on Management and Labor Policy", reflecting big business' recommended negotiating stance						
Jan 26	Start of Regular Diet Session						
Jan 31	BoJ Jan MPM Summary of Opinions						
End Jan / Early Feb	Release of Survey on wage increases by Institute for Labour Administration						
Feb 15	4Q CY23 GDP (1st estimate)						
Mar 4?	Rengo to announce tabulation of unions' wage demands for FY24 Shunto (as of 1 Mar)						
Mar 11	4Q CY23 GDP (revised)						
Mar 15	Rengo announces results of FY24 Shunto preliminary respond						
Mar 18-19	BoJ MPM						
Mar 28	BoJ Mar MPM Summary of Opinions						
Mar - Jul	Spring wage negotiation results to be announced by industry organizations						
Apr 1	BoJ Tankan (1Q)						
Early Apr	Regional Economic Report & Quarterly meeting of BoJ Branch Managers						
Apr 25-26	BoJ MPM (outlook report)						
Apr 28	By-elections (Lower House Shimane 1st District)						
Around May	2nd Workshop re: BoJ Broad-Perspective Review						
9 May	BoJ Apr MPM Summary of Opinions						
Mid-May	1Q CY24 GDP (1st estimate)						
Late May / early Jun	2024 BoJ-IMES Conference						
June	JPY40K/person flat-rate income tax reductions commence						
Early Jun	April Monthly Labour Survey (preliminary)						
Early Jun	1Q CY24 GDP (revised)						
Jun 13-14	BoJ MPM						
Mid-Jun?	End of Regular Diet Session						
Mid-Jun?	Cabinet approval of Basic Policy on Economic and Fiscal Management and Reform 2024 (Strong Bone Policy)						
Jun 24	BoJ Jun MPM Summary of Opinions						
Jul 7	Tokyo Gubernatorial Election						
Late Jul	May Monthly Labour Survey (final)						
Jul 30-31	BoJ MPM (outlook report)						
Aug 8	BoJ Jul MPM Summary of Opinions						
Sep	LDP presidential election						
<b>2025</b> Summer	Upper House election						
Fall	Lower House term ends						

Source: BofA Global Research, Reuters, Bank of Japan

BofA GLOBAL RESEARCH



### Exhibit 6: Summary of BoJ monetary policy statement (January 2024)

Key changes from December '23 MPM in red

23 January MPM

Overall assessment of Japan's economy

Has recovered moderately

Have been affected by the developments in overseas and more or less flat, supported by a

waning of the effects of supply side constraints

Business investment Has been on a moderate increasing trend

Private consumption Has continued to increase moderately, despite being affected by price rises

Housing investment Has been relatively weak
Public investment Has been more or less flat

Industrial production

Have been affected by the developments in overseas and more or less flat, supported by a

waning of the effects of supply side constraints

Labor market Has improved moderately
Financial conditions Have been accommodative

The negative contribution of energy prices to the year-on-year rate of increase in the CPI (all items less fresh food) has been relatively large, partly due to the government's economic measures is slower than a while ago, mainly due to the effects of pushing down energy prices from the government's economic measures. That said, the rate of increase in the CPI has been in the range of 2.0-2.5% at around 3% recently, mainly on the back of the fact that, despite waning, owing to the effects of a pass-through to consumer prices of cost increases led by the past rise in import prices have remained, and services prices have

increased moderately.

Inflation expectations have risen moderately

#### Outlook for the Japanese economy

Consumer prices

Japan's economy is likely to continue recovering moderately, supported by factors such as the materialization of pent-up demand, although it is expected to be under downward pressure stemming from a slowdown in the pace of recovery in overseas economies. Thereafter, as a virtuous cycle from income to spending gradually intensifies, Japan's economy is projected to continue growing at a pace above its potential growth rate.

The year-on-year rate of increase in the CPI (all items less fresh food) is likely to be above 2% through fiscal 2024, due to factors such as the remaining effects, albeit waning, of the pass-through to consumer prices of cost increases led by the past rise in import prices and a waning of the effects of the government's economic measures pushing down CPI inflation of the previous year. As for fiscal 2025, the rate of increase is projected to decelerate owing to dissipation of these factors. Meanwhile, underlying CPI inflation is likely to increase gradually toward achieving the price stability target, as the output gap turns positive and as medium- to long-term inflation expectations and wage growth rise. The likelihood of realizing this outlook has continued to gradually rise, although there

Consumer prices

# Risks to the outlook

Conduct of monetary

policy

Concerning risks to the outlook, there remain extremely high uncertainties for Japan's economy, including developments in overseas economic activity and prices; developments in commodity prices, and domestic firms' wage- and price-setting behavior. In this situation, it is necessary to pay due attention to developments in financial and foreign exchange markets and their impact on Japan's economic activity and prices.

With extremely high uncertainties surrounding economies and financial markets at home and abroad, the Bank will patiently continue with monetary easing while nimbly responding to developments in economic activity and prices as well as financial conditions. By doing so, it will aim to achieve the price stability target of 2 percent in a sustainable and stable manner, accompanied by wage increases. The Bank will continue with QQE with Yield Curve Control, aiming to achieve the price stability target of 2 percent, as long as it is necessary for maintaining that target in a stable manner.

It will continue expanding the monetary base until the year-on-year rate of increase in the Overshoot commitment observed CPI (all items less fresh food) exceeds 2 percent and stays above the target in a

remain high uncertainties over future developments

stable manner

Future conduct of monetary policy and

forward guidance for

For the time being, the Bank will not hesitate to take additional easing measures if necessary,

Source: Bank of Japan, BofA Global Research

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.

# **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.

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.

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. 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 Prudential 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 (Hong Kong): Merr (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 (I 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; 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 Securities entities en

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.

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.

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 2024 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.

