Situation Room

Getting shorter in 2024

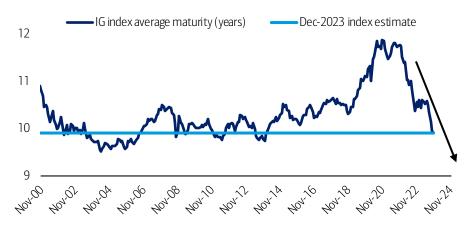
Getting shorter in 2024

So far this week through Tuesday 30yr supply consisted of just one \$400mn OGLETH bond, accounting for 3% of the total \$12.9bn in IG corporate issuance. Such lack of back-end supply is rapidly shortening the average index maturity. We estimate the December IG index maturity will decline to 9.9 years – the shortest since Jan 2014. The average maturity has dropped 0.6 years so far in 2023 and 2.0 years from the peak reached in Dec 2020 (Exhibit 1).

Supply maturity trends

While back-end supply has been particularly scarce this week, it's a continuation of a trend. The share of issuance longer than 10yr dropped to a low 9.7% over the past three months, down from 14% YtD and 15% for the year 2022 (Exhibit 2). The lack of long supply is driven by elevated yields (Exhibit 3). Our interest rates strategists are calling for the Treasury yield curve to bull steepen by YE-2024, leaving long-term yields still relatively high at 4.25% and 4.75% for 10 and 30yr Treasuries, respectively (see Global Rates Year Ahead: 2024 report). Such a forecast implies back-end supply stays muted, leading to the average IG index maturity reaching new lows in 2024.

Exhibit 1: The average IG index maturity should drop to 9.9 years for the Dec-2023 index The expected Dec-2023 average index maturity should be the lowest since Jan 2014.



Source: BofA Global Research, ICE Data Indices, LLC

BofA GLOBAL RESEARCH

28 November 2023

Credit Strategy United States Cross Product

Yuri Seliger Credit Strategist BofAS +1 646 855 7209 yuri.seliger@bofa.com

Jean-Tiago Hamm Credit Strategist BofAS jean-tiago.hamm@bofa.com

Srini Talagadadeevi Credit Strategist BofAS sreenivasa.rao@bofa.com

In this report

Daily credit snapshot

Daily dealer inventories update

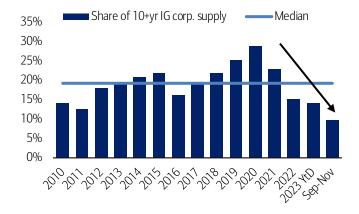
Daily foreign demand tracker

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 6 to 8.

Exhibit 2: Share of 10+yr supply has reached new lows

The share of 10+yrIG supply has dropped to 9.7% over the past three months, down from 14% YtD and 15% for the year 2022.

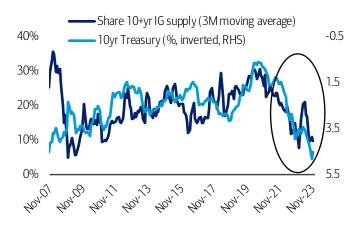


Source: BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 3: Higher yields -> shorter supply

The lower share of 10+yr (20 and 30yr) supply has declined in line with the increase in interest rates in 2022 and 2023.



New

Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

Daily credit snapshot

US IG issuance totaled \$5.4bn across 4 deals today, \$12.9bn WTD and \$102.8bn MTD. The average new issue concession was 5.3bps today, while the average break performance was 2.0bps tighter today. This week's new issues are trading 3.0bps tighter on average from pricing.

S&P 500 closed +0.10%, 10-year Treasury yields -7bps, CDX IG -0.7bps, CDX HY +\$0.14pts, and cash bond spreads quoted Unched to -2bps today, LQD closed 1.39bps tighter today.

Exhibit 4: Recent new issue pricing and new issue concessions

List of new issues in the IG corporate bond market today along with performance metrics.

Date	Ticker	Name	Tenor	Size (\$mm)	Moody's/S&P Rating	Coupon (%)	Px Spread (bps)	Issue Conc. (bps)	* Break performance	Current spread (bps)
2023-11-27	BNCN	Brookfield Finance Inc	10	700	A3/A-	6.35	195	n.a.	-2	194
2023-11-27	C	Citibank NA	3	500	Aa3/A+	FRN	SOFR+106	n.a.	n.a.	n.a.
2023-11-27	C	Citibank NA	3	2,000	Aa3/A+	5.488	88	18	n.a.	86
2023-11-27	EFNCN	Element Fleet Management Corp	5	750	NA/BBB+	6.319	190	n.a.	-5	185
2023-11-27	EXR	Extra Space Storage LP	7	600	Baa2/BBB+	5.9	150	n.a.	n.a.	n.a.
2023-11-27	HD	Home Depot Inc/The	1	500	A2/A	5.125	28	n.a.	-4	26
2023-11-27	HD	Home Depot Inc/The	3	750	A2/A	4.95	43	n.a.	-4	41
2023-11-27	HD	Home Depot Inc/The	5	750	A2/A	4.9	58	-2	-4	55
2023-11-27	OCINCC	Blue Owl Credit Income Corp	5	550	Baa3/BBB-	7.75	363	n.a.	n.a.	361
2023-11-27	PKG	Packaging Corp of America	10	400	Baa2/BBB	5.7	130	n.a.	n.a.	n.a.
2023-11-28	BNP	BNP Paribas SA	11NC10	2,000	Aa3/A+	5.894	155	n.a.	-2	153
2023-11-28	OGLETH	Oglethorpe Power Corp	30	400	Baa1/BBB+	6.2	175	n.a.	n.a.	n.a.
2023-11-28	TMO	Thermo Fisher Scientific Inc	3	1,000	A3/A-	5	52	12	n.a.	n.a.
2023-11-28	TMO	Thermo Fisher Scientific Inc	5	1,000	A3/A-	5	72	1	n.a.	n.a.
2023-11-28	TMO	Thermo Fisher Scientific Inc	10	500	A3/A-	5.2	87	3	n.a.	n.a.
2023-11-28	ZBH	Zimmer Biomet Holdings Inc	5	500	Baa2/BBB	5.35	103	n.a.	n.a.	n.a.

Note: We calculate new issue concessions by estimating the difference between new issue bond spread and interpolated G spread from comparable liquid secondary bonds of the same issuer prior to the new issue deal announcement, adjusted for the spread impact of dollar prices deviating from par. Break performance is computed as the difference between new issue pricing and secondary dosing spread on the first day of trading.

Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

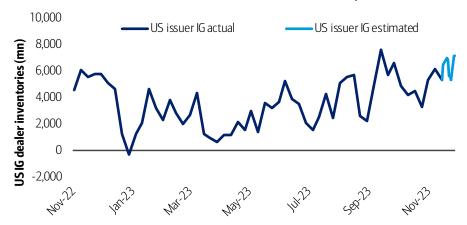


Daily dealer inventories update

Below we estimate dealer inventories for the IG corporate bonds based on TRACE data. The actual inventories of US issuer bonds based on NY Fed survey, as well as the estimated change since the latest Fed report are plotted in Exhibit 5. We estimate the corresponding DV01 equivalent in Exhibit 6. More details by sector and maturity are available in Exhibit 7 and Exhibit 8. Finally, note that the data for the current date is through about 4:40 p.m. Eastern Standard Time.

Exhibit 5: Estimated dealer inventories of IG corporate bonds.

We estimate IG dealer inventories of US issuer bonds increased to \$7.2bn currently from \$5.3bn on Nov-15.



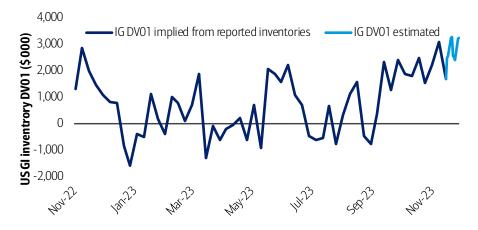
Note: data for US issuer bonds only, maturities 13M or longer. Actual dealer inventory data is from Primary Dealer Statistics survey by the NY Fed. The subsequent change in inventory is estimated based on TRACE.

Source: BofA Global Research, FINRA, TRACE, Federal Reserve

BofA GLOBAL RESEARCH

Exhibit 6: Estimated dealer inventory DV01 for IG corporate bonds.

We estimate IG dealer inventory DV01 of US issuer bonds increased to \$3.2mn currently from \$1.7bn on Nov-15.



Note: data for US issuer bonds only, maturities 13M or longer. Actual dealer inventory data is from Primary Dealer Statistics survey by the NY Fed. The subsequent change in inventory is estimated based on TRACE.

Source: BofA Global Research, FINRA, TRACE, Federal Reserve

BofA GLOBAL RESEARCH



Exhibit 7: Estimated changes in IG dealer inventories by maturity and broad sector.

We estimate IG dealer inventories increased \$22mn today and increased \$86mn over the prior week.

Net dealer buy (\$mn)		Net d	ealer DV01	l change	(\$thous	and)	Trading volumes on 28-Nov-23 (\$mn)							
Sector	28-Nov	27-Nov	1 W	2 W	4 W	28-Nov	27-Nov	1 W	2 W	4 W	Buy	Sell	Dealer	Total
High grade (13M+)	22	2,135	86	2,053	8,988	77	990	-114	1,854	4,731	13,497	13,476	9,528	36,501
<3yr	-335	5	-823	-1,862	890	-60	-7	-161	-351	105	1,985	2,320	1,781	6,085
3-5yr	81	944	488	764	2,426	42	334	172	283	857	2,671	2,590	2,221	7,482
5-11yr	267	1,069	718	2,432	3,922	128	561	274	1,207	2,216	4,995	4,728	3,240	12,963
11+yr	9	117	-297	719	1,750	-33	102	-399	714	1,553	3,847	3,838	2,286	9,970
Fin	-106	1,028	-7	1,182	1,388	15	472	7	1,351	1,389	5,316	5,422	3,605	14,342
Non-Fin	128	1,108	93	871	7,600	62	518	-121	503	3,342	8,182	8,054	5,923	22,158
Fixed	37	2,132	61	2,217	8,885	86	987	-109	1,827	4,532	13,396	13,360	9,459	36,215
Floating	-15	4	26	-164	103	-9	3	-4	27	199	101	116	69	286
US issuers	34	1,760	307	1,609	7,296	55	762	-34	1,125	3,622	10,296	10,261	7,605	28,162
DM Yankees	-31	338	-274	273	1,350	17	208	-102	641	965	2,808	2,840	1,754	7,402
EM Yankees	18	38	53	172	342	5	20	23	87	143	393	375	169	937

Note: data for maturities 13M or longer. Changes in inventories are estimated based on TRACE.

Source: BofA Global Research, FINRA, TRACE.

BofA GLOBAL RESEARCH

Exhibit 8: Estimated changes in IG dealer inventories by sector.

We estimate today IG dealer inventories declined-\$25mn for Banks/Brokers and declined -\$127mn for Energy.

	Net dealer buy (\$mn)					Net dealer DV01 change (\$thousand)					Trading volumes on 28-Nov-23 (\$mn)				
Sector	28-Nov	27-Nov	1 W	2 W	4 W	28-Nov	27-Nov	1 W	2 W	4 W	Buy	Sell	Dealer	Total	
Aerospace/Defense	23	-89	-115	-253	-118	29	-35	-39	-100	-15	192	169	174	535	
Automobiles	-107	1	-190	-229	976	-33	10	-51	-97	313	564	671	402	1,637	
Banks/Brokers	-25	820	187	1,619	1,302	-3	345	5	1,231	1,257	3,679	3,704	2,347	9,731	
Basic Materials	74	243	323	184	432	52	111	176	61	201	515	442	395	1,352	
Commercial Services	-22	-36	-56	-176	-104	-10	-28	-35	-89	-116	161	183	126	470	
Energy	-127	170	-142	-83	1,416	-72	130	-52	38	834	780	907	734	2,422	
Finance	-45	138	-101	-332	-358	-12	55	-41	-62	-199	786	831	659	2,276	
Food, Bev, & Bottling	37	-1	-65	186	210	32	-18	-64	97	41	482	445	270	1,197	
Health Care	-45	53	-362	-224	180	-74	-109	-420	-255	-225	1,182	1,226	864	3,272	
Industrial Products	47	-3	-40	50	417	4	31	-27	105	290	426	380	285	1,091	
Insurance	41	-28	-18	49	295	52	5	57	245	293	462	420	281	1,163	
Media & Entertainment	100	254	384	89	882	71	135	202	-3	459	593	493	464	1,549	
REITs	-77	97	-76	-154	150	-22	67	-13	-63	38	389	467	317	1,173	
Retail	103	56	44	485	991	75	9	16	204	484	592	489	414	1,495	
Technology	161	-66	48	451	811	148	-44	71	263	470	866	705	525	2,096	
Telecom	-37	170	186	639	914	-36	134	106	394	558	521	558	294	1,374	
Tobacco	4	106	112	248	242	8	59	65	161	97	96	92	115	303	
Transportation	-60	62	-11	-139	-57	-42	20	41	-24	-50	208	268	172	648	
Utilities	-1	164	0	-347	208	-75	92	-117	-266	-142	881	882	563	2,326	
Other	-24	25	-24	-9	200	-15	21	7	14	143	121	144	127	392	

Note: data for maturities 13M or longer. Changes in inventories are estimated based on TRACE.

Source: BofA Global Research, FINRA, TRACE.

BofA GLOBAL RESEARCH

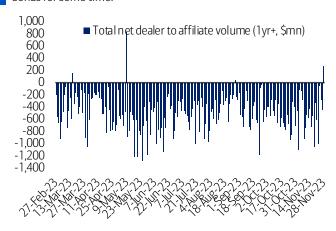
Daily foreign demand tracker

We believe net dealer-to-affiliate volumes from Trace are correlated with foreign buying of US HG corporate bonds - i.e., negative numbers mean foreign investor buying (US dealers taking down inventory in favor of foreign affiliates). For supporting material see our "primer" on tracking foreign inflows. Exhibit 9 shows the overall daily dealer-to-affiliate volumes while Exhibit 10, Exhibit 11 and Exhibit 12 show subsets of this data. In particular Exhibit 10 shows net dealer-to-affiliate volumes for longer maturity (12+ years) bonds, Exhibit 11 displays volumes reported to Trace before 8am NY time (biased toward Asian buying) and Exhibit 12 shows the subset of net trades reported between 8am and noon (biased toward European buying).



Exhibit 9: Net dealer buying from affiliate (1yr+)

Exhibit shows inconsistent overall foreign buying of US IG corporate bonds for some time.



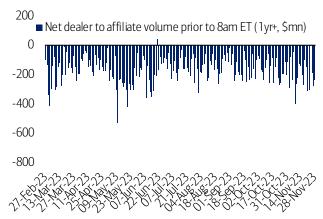
Note: Net dealer-to-affiliate volumes are correlated with foreign buying/selling. Negative numbers indicate foreign buying.

Source: Bloomberg, TRACE

BofA GLOBAL RESEARCH

Exhibit 11: Net dealer-to-affiliate trading volumes before 8am ET

Foreign buying before 8am NY time is dominated by Asia and has been consistent this year



Note: Morning share of daily trading volume is correlated with secondary market activity of foreign investors due to different time zones.

Source: BofA Global Research, TRACE

BofA GLOBAL RESEARCH

Common abbreviations:

IG: Investment Grade

HG: High Grade

LQD: iShares iBoxx \$ Investment Grade Corporate Bond ETF

DV01: Dollar value of a basis point

CDX IG: The Markit CDX North America Investment Grade Index

CDX HY: Markit CDX North America High Yield Index

ECB: European Central Bank

QE: Quantitative Easing

CSPP: corporate sector purchase programme

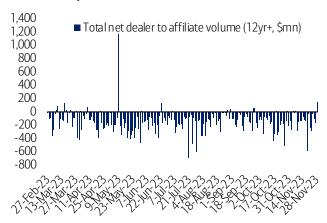
Unched: Unchanged

CPI: Consumer Price Index

FOMC: The Federal Open Market Committee

Exhibit 10: Net dealer buying from affiliate (12yr+)

Foreign buying of longer maturity US IG corporate bonds has been consistent this year



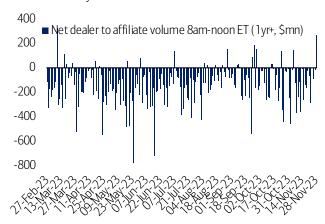
Note: Net dealer-to-affiliate volumes are correlated with foreign buying/selling. Negative numbers indicate foreign buying.

Source: Bloomberg, TRACE

BofA GLOBAL RESEARCH

Exhibit 12: Net dealer-to-affiliate trading volumes 8am - noon ET

Foreign buying 8am-noon NY time is dominated by Europe and has been inconsistent this year



Note: Morning share of daily trading volume is correlated with secondary market activity of foreign investors due to different time zones.

Source: BofA Global Research, TRACE

BofA GLOBAL RESEARCH



Disclosures

Important Disclosures

Due to the nature of strategic analysis, the issuers or securities recommended or discussed in this report are not continuously followed. Accordingly, investors must regard this report as providing stand-alone analysis and should not expect continuing analysis or additional reports relating to such issuers and/or securities.

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.

Information relating to Affiliates of BofAS, MLPF&S and Distribution of Affiliate Research Reports:

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.

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 (Gringapore) Pte Ltd, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Gringapore) Pte Ltd, regulated by the Hong Kong Securities and Futures Commission (HKSFC); Merrill Lynch (Gringapore): Merrill Lynch (Gringapore)



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 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 ACPR and and regulated in India and is distributed in India and is distributed in India and is distributed in India and ind

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.

This report may contain a trading idea or recommendation which highlights a specific identified near-term catalyst or event impacting a security, issuer, industry sector or the market generally that presents a transaction opportunity, but does not have any impact on the analyst's particular "Overweight" or "Underweight" rating (which is based on a three month trade horizon). Trading ideas and recommendations may differ directionally from the analyst's rating on a security or issuer because they reflect the impact of a near-term catalyst or event.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned in this report. Investors in such securities and instruments effectively assume currency risk.

BofAS or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BofAS or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Securities, through business units other than BofA Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Securities is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information. In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS). If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

Copyright and General Information:

Copyright 2023 Bank of America Corporation. All rights reserved. iQdatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Securities clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Securities. BofA Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Securities and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Securities. Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel's knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public inform

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any



securities. None of BofAS any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Securities and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Securities is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Securities. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Securities is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Securities is under no obligation to update this information and BofA Securities ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Securities will not update any fact, circumstance or opinion contained herein.

Certain outstanding reports or investment opinions relating to securities, financial instruments and/or issuers may no longer be current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with BofAS or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BofA Securities nor any officer or employee of BofA Securities accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.

