

Emerging Insight

China rates – get ready for Swap Connect

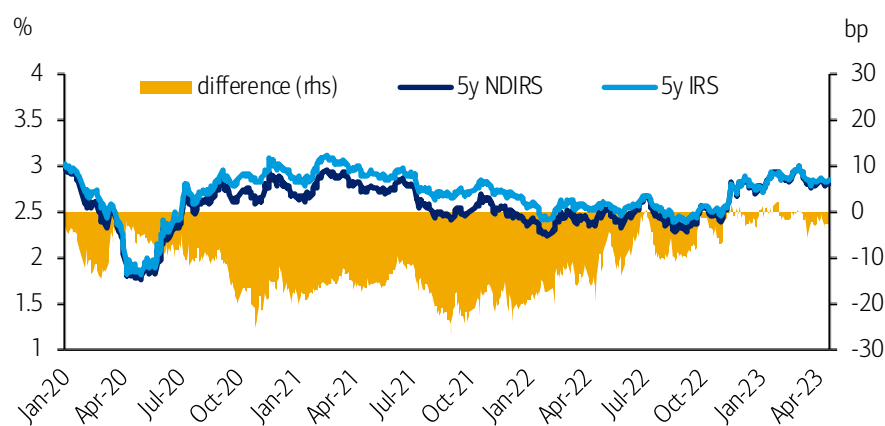
Key takeaways

- Market awaits the launch of Swap Connect. At the initial stage, offshore investors would be given the access to onshore IRS
- Onshore swap rates market has greater depth than offshore. It is dominated by 7d-repo IRS and complemented by 3m-Shibor IRS
- The participation of offshore investors should help improve price discovery and further increase onshore market liquidity

By Janice Xue

Exhibit 1: Spread between 5y NDIRS and IRS

The spread has narrowed meaningfully after the announcement of the Swap Connect initiative



Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

China in focus

The Swap Connect initiative was first announced in July 2022 and marks a further step in enhancing mutual access by allowing offshore and mainland investors to trade financial derivatives offered in each other's market. Once the northbound trading is officially launched, offshore investors would gain access to the onshore interest rate swaps (IRS) market, which has greater market depth. For the onshore market, Swap Connect and the participation of overseas investors would help diversify the investor base, improve price discovery, and further increase market liquidity.

Trading ideas and investment strategies discussed herein may give rise to significant risk and are not suitable for all investors. Investors should have experience in relevant markets and the financial resources to absorb any losses arising from applying these ideas or strategies.

>> Employed by a non-US affiliate of BofAS and is not registered/qualified as a research analyst under the FINRA rules.

Refer to "Other Important Disclosures" for information on certain BofA Securities entities that take responsibility for the information herein in particular jurisdictions.

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.

12547806

Timestamp: 23 April 2023 05:00PM EDT

24 April 2023

GEM Fixed Income Strategy &
Economics
Global

Janice Xue
Rates Strategist
Merrill Lynch (Hong Kong)
janice.xue@bofa.com

David Hauner, CFA >>
EEMEA Cross Asset Strategist
MLI (UK)
david.hauner@bofa.com

Claudio Irigoyen
LatAm FI/FX Strategy/Economist
BofAS
claudio.irigoyen@bofa.com

See Team Page for List of Analysts

HKMA – Hong Kong Monetary
Authority

One step further towards enhancing mutual market access

On 4 July 2022, financial regulators in mainland China and Hong Kong released a joint announcement on the new initiative of Swap Connect. Following the success of Stock Connect and Bond Connect, the announcement marks a further step in enhancing mutual access by allowing offshore and mainland investors to trade financial derivatives offered in each other's market. Similar to the two-phased setup of Bond Connect, the northbound trading of Swap Connect will be launched first, offering overseas investors the access to (IRS) traded in the onshore interbank market at the initial stage. The original target launch date was early January, but there has been some delay and the market now expects an official kick-off in the coming months.

Synergy between Swap Connect and Bond Connect

As of February 2023, offshore investors held about CNY3.2tn onshore bonds, mostly in central government bonds and policy financial bonds. Eddie Yue, the chief of HKMA, commented that *'Swap Connect will create synergy with Bond Connect to facilitate global investors' management of interest rate risks for their bond investment on the Mainland'*.

Offshore investors have been using non-deliverable interest rate swaps (NDIRS) to hedge against interest rate risks of their underlying China bond positions and express their views on China economy. Since the announcement of Swap Connect, the gap between 5y NDIRS and IRS has narrowed meaningfully (Exhibit 1). Once Swap Connect is officially launched, any rate differences between onshore and offshore swap rates market would likely attract arbitrage flows, which in turn should help compress the gap.

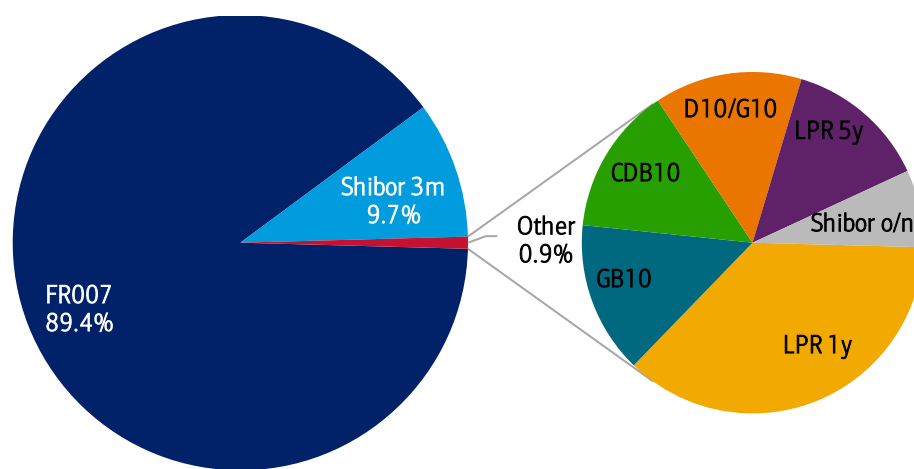
Overview of onshore IRS market

Interest rate swap products debuted in the onshore interbank market back in 2006 and have been growing steadily in terms of market size and product offerings. In 1Q 2023, total notional principal traded reached almost CNY8tn, an 82% increase from a year ago.

Despite the wide varieties of reference rates available, in practice, the onshore swap rates market is heavily dominated by 7d-repo fixing (FR007) IRS and complemented by 3m Shanghai Interbank Offered Rate (Shibor) IRS (Exhibit 2). Loan prime rate (LPR) swap rates were also introduced to the market in recent years, which have the potential to serve as an instrument to gauge market expectation on policy rate changes. However, lack of market participation and thin liquidity remain big issues for LPR IRS.

Exhibit 2: Market structure of onshore IRS market

The market is heavily dominated by 7d-repo fixing (FR007) IRS and complemented by 3m-Shibor IRS



Source: CFETS, BofA Global Research

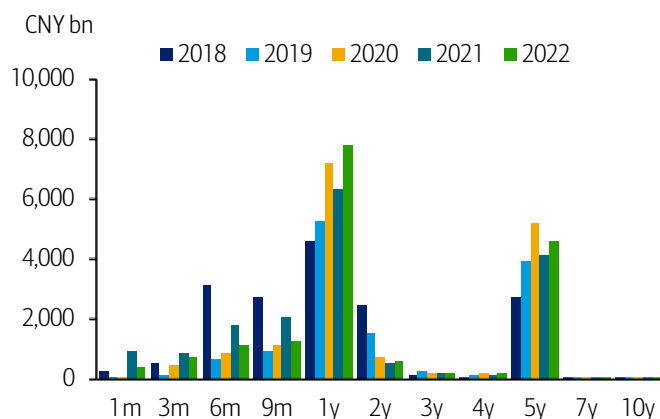
Note: Shibor - Shanghai Interbank Offered Rate; GB10 - 10y China government bond (CGB) yield; CDB10 - 10y China Development Bank bond (CDB) yield; and D10/G10 - spread between 10y CDB and 10y CGB.

BofA GLOBAL RESEARCH

- **FR007** stands for 7-day repo fixing rate, which is calculated based on repo transactions among all financial institutions in the interbank market between 9:00am and 11:30am. The following tenors are offered for 7d-repo IRS: 1m, 3m, 6m, 9m, 1y, 2y, 3y, 4y, 5y, 7y, and 10y. 1y and 5y are the most-liquid tenors, contributing 42% and 25% of total notional principal transacted in 2022, respectively (Exhibit 3).
- **Shibor** series are unsecured wholesale interest rates. They are calculated by taking the arithmetic average of quotations submitted by 18 banks, after excluding the four highest and four lowest values. Available in eight tenors from overnight up to one year, Shibors are announced at 11:00am each business day. The following tenors are offered for 3m-Shibor IRS: 6m, 9m, 1y, 2y, 3y, 4y, 5y, and 10y. 1y is the most frequently traded tenor, followed by shorter tenors like 6m and 9m (Exhibit 4).
- **1y and 5y LPR** were introduced in August 2019 to replace the benchmark lending rate as the reference rates for bank loans. They are determined based on the quotes submitted by 18 quoting banks. LPRs are announced on the 20th of each month at 9:15am. The following tenors are offered for 1y/5y LPR IRS: 6m, 9m, 1y, 2y, 3y, 4y, and 5y.
- **Other reference rates:** GB10 (10y CGB yield), CDB10 (10y CDB yield), and D10/G10 (spread between 10y CDB and 10y CGB).

Exhibit 3: Notional principal of 7d-repo IRS

1y and 5y are the most widely traded tenors

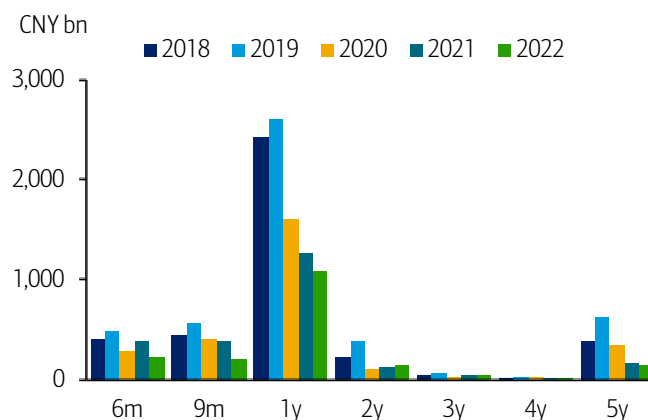


Source: CFETs, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 4: Notional principal of 3m-Shibor IRS

1y is the most frequently traded tenor, followed by shorter tenors like 6m and 9m



Source: CFETs, BofA Global Research

BofA GLOBAL RESEARCH

Potential mutual benefits of northbound trading

Once officially launched, offshore investors would gain access to the onshore IRS market, which has greater market depth compared with NDIRS. As shown in Exhibit 5, the average bid-ask spread is 0.25bp for 7d repo IRS, which is much narrower than the bid-ask spread of NDIRS. That said, one thing to note is the average ticket size tends to be larger in the offshore space. From the onshore market perspective, just like other mutual access schemes, Swap Connect and the participation of overseas investors would help diversify the investor base, improve price discovery, and further increase market liquidity.

Exhibit 5: Summary statistics of China onshore & offshore interest rate swaps

7-day repo swaps have gained market share and are the most liquid

Product	Avg daily trading volume	Avg transaction size	Bid-Ask spread
Interest Rate Swap (7 d repo)			
1-year	CNY50bn	CNY140mn	0.25bp
5-year	CNY25bn	CNY40mn	0.25bp
Non-deliverable Interest Rate Swap (7 d repo)			
1-year	CNY3-5bn	CNY 500mn	1.5bp
5-year	CNY1-2bn	CNY 100mn	1.5bp
Interest Rate Swap (3m Shibor)			
1-year	CNY6bn	CNY120mn	2-3bp
5-year	CNY0.6bn	CNY40mn	2-3bp
Non-deliverable Interest Rate Swap (3m Shibor)			
	n/a	n/a	5-10bp

Source: CFETS, BofA Global Research

BofA GLOBAL RESEARCH

Special Disclosures

Some of the securities discussed herein should only be considered for inclusion in accounts qualified for high risk investment.



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 Lynch Global Wealth Management financial advisor for information relating to such instruments.

Rule 144A securities may be offered or sold only to persons in the U.S. who are Qualified Institutional Buyers within the meaning of Rule 144A under the Securities Act of 1933, as amended. SECURITIES OR OTHER FINANCIAL INSTRUMENTS DISCUSSED HEREIN MAY BE RATED BELOW INVESTMENT GRADE AND SHOULD THEREFORE ONLY BE CONSIDERED FOR INCLUSION IN ACCOUNTS QUALIFIED FOR SPECULATIVE INVESTMENT.

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.

The securities or other financial instruments discussed in this report may be traded over-the-counter. Retail sales and/or distribution of this report may be made only in states where these instruments are exempt from registration or have been qualified for sale.

Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

This report, and the securities or other financial instruments discussed herein, may not be eligible for distribution or sale in all countries or to certain categories of investors, including retail investors.

Individuals identified as economists do not function as research analysts under U.S. law and reports prepared by them are not research reports under applicable U.S. rules and regulations.

Macroeconomic analysis is considered investment research for purposes of distribution in the U.K. under the rules of the Financial Conduct Authority.

Refer to [BofA Global Research policies relating to conflicts of interest](#).

"BofA Securities" includes BofA Securities, Inc. ("BofAS") and its affiliates. Investors should contact their BofA Securities representative or Merrill Lynch Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. "BofA Securities" is a global brand for BofA Global Research.

Information relating to Non-US affiliates of BofA Securities and Distribution of Affiliate Research Reports:

BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF). BofA Securities Europe SA ("BofASE") with registered address at 51, rue La Boétie, 75008 Paris is registered under no. 842 602 690 RCS Paris. In accordance with the provisions of French Code Monétaire et Financier (Monetary and Financial Code), BofASE is an établissement de crédit et d'investissement (credit and investment institution) that is authorised and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers. BofASE's share capital can be found at www.bofam.com/BofASEdisclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI; BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSF); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Investment Industry Regulatory Organization of Canada; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; BofAS Japan: BofA Securities Japan Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; BofAS India: BofA Securities India Limited, regulated by the Securities and Exchange Board of India (SEBI); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Brazil): Merrill Lynch S.A. Corretora de Títulos e Valores Mobiliários, regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofASE (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by BofAS Japan, a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofAS India; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the [Electronic Communications Disclaimers](#) for further information.

This information has been prepared and issued by BofAS and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. BofAS and/or MLPF&S is the distributor of this information in the US and accepts full responsibility for

information distributed to BofAS and/or MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through BofAS and/or MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information. For clients that are not accredited investors, expert investors or institutional investors Merrill Lynch (Singapore) Pte Ltd accepts full responsibility for the contents of this information distributed to such clients in Singapore.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Securities. This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Securities clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Securities, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. Digital assets are extremely speculative, volatile and are largely unregulated. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

Futures and options are not appropriate for all investors. Such financial instruments may expire worthless. Before investing in futures or options, clients must receive the appropriate risk disclosure documents. Investment strategies explained in this report may not be appropriate at all times. Costs of such strategies do not include commission or margin expenses.

BofA Securities is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

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

Certain investment strategies and financial instruments discussed herein may only be appropriate for consideration in accounts qualified for high risk investment.

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

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

BofA Securities, through business units other than BofA Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Securities is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information.

In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS). If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

Copyright and General Information:

Copyright 2023 Bank of America Corporation. All rights reserved. iQDatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Securities clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Securities. BofA Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Securities and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Securities.

Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel's knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Securities in connection with the legal proceedings or matters relevant to such proceedings.

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofAS or any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

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

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

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

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

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial

instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with BofAS or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies. Neither BofA Securities nor any officer or employee of BofA Securities accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.

Research Analysts

Asia FI/FX Strategy & Economics

Helen Qiao

China & Asia Economist
Merrill Lynch (Hong Kong)
+852 3508 3961
helen.qiao@bofa.com

Claudio Piron

Emerging Asia FI/FX Strategist
Merrill Lynch (Singapore)
+65 6678 0401
claudio.piron@bofa.com

Adarsh Sinha

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

Jojo Gonzales ^^

Research Analyst
Philippine Equity Partners
jojo.gonzales@pep.com.ph

Abhay Gupta

Emerging Asia FI/FX Strategist
Merrill Lynch (Singapore)
abhay.gupta2@bofa.com

Pipat Luengnaruemitchai

Emerging Asia Economist
Kiatnakin Phatra Securities
pipat.luen@kkpfg.com

Mohamed Faiz Nagutha

Asia & ASEAN Economist
Merrill Lynch (Singapore)
mohamed_faiz.nagutha@bofa.com

Miao Ouyang

China & Asia Economist
Merrill Lynch (Hong Kong)
miao.ouyang@bofa.com

Xiaoqing Pi

China Economist
Merrill Lynch (Hong Kong)
xiaoqing.pi@bofa.com

Benson Wu

China & Korea Economist
Merrill Lynch (Hong Kong)
benson.wu@bofa.com

Ting Him Ho, CFA

Asia Economist
Merrill Lynch (Hong Kong)
tinghim.ho@bofa.com

Janice Xue

Rates Strategist
Merrill Lynch (Hong Kong)
janice.xue@bofa.com

Kai Wei Ang

Asia & ASEAN Economist
Merrill Lynch (Singapore)
kaiwei.ang@bofa.com

EEMEA Cross Asset Strategy, Econ

David Hauner, CFA >>

EEMEA Cross Asset Strategist
MLI (UK)
+44 20 7996 1241
david.hauner@bofa.com

Mai Doan

CEE/Israel Economist/Strategy
MLI (UK)
mai.doan@bofa.com

Zumrut Imamoglu

Turkey & Israel Economist
MLI (UK)
zumrut.imamoglu@bofa.com

Vladimir Osakovskiy >>

EEMEA Macro/Equity Strategist
Merrill Lynch (DIFC)
vladimir.osakovskiy@bofa.com

Jean-Michel Saliba

MENA Economist/Strategist
MLI (UK)
jean-michel.saliba@bofa.com

Merveille Paja

EEMEA Sovereign FI Strategist
MLI (UK)
merveille.paja@bofa.com

Mikhail Liluashvili

EEMEA Local Markets Strategist
MLI (UK)
mikhail.liluashvili@bofa.com

Tatonga Rusike

Sub-Saharan Africa Economist
MLI (UK)
tatonga.rusike@bofa.com

LatAm FI/FX Strategy & Economics

Claudio Irigoyen

LatAm FI/FX Strategy/Economist
BoFAS
+1 646 855 1734
claudio.irigoyen@bofa.com

David Beker >>

Bz Econ/FI & LatAm EQ Strategy
Merrill Lynch (Brazil)
+55 11 2188 4371
david.beker@bofa.com

Jane Brauer

Sovereign Debt FI Strategist
BoFAS
+1 646 855 9388
jane.brauer@bofa.com

Carlos Capistran

Canada and Mexico Economist
BoFAS
+1 646 743 2921
carlos.capistran@bofa.com

Pedro Diaz

Caribbean Economist
BoFAS
pdiaz2@bofa.com

Antonio Gabriel

LatAm Local Markets Strategist
BoFAS
antonio.gabriel@bofa.com

Christian Gonzalez Rojas

LatAm Local Markets Strategist
BoFAS
christian.gonzalezrojas@bofa.com

Lucas Martin, CFA

Sovereign Debt FI Strategist
BoFAS
lucas.martin@bofa.com

Alexander Müller

Andean(ex-Ven) Carib Economist
BoFAS
alexander.muller@bofa.com

Natacha Perez

Brazil Economist
Merrill Lynch (Brazil)
natachaperez@bofa.com

Sebastian Rondeau

LatAm FI/FX Strategist
BoFAS
sebastian.rondeau@bofa.com

suitable for all investors. Investors should have experience in relevant markets and the financial resources to absorb any losses arising from applying these ideas or strategies.

>> Employed by a non-US affiliate of BofAS and is not registered/qualified as a research analyst under the FINRA rules.

Refer to "Other Important Disclosures" for information on certain BofA Securities entities that take responsibility for the information herein in particular jurisdictions.

BofA Securities participated in the preparation of this report, in part, based on information provided by Philippine Equity Partners, Inc. (Philippine Equity Partners). ^^Philippine Equity Partners employees are not registered/qualified as research analysts under FINRA rules.

Trading ideas and investment strategies discussed herein may give rise to significant risk and are not

