Asian Credit Strategy

issuance - locals continued to dominate

Emerging Markets

Bank of America 🤎 **Merrill Lynch**

05 June 2019 Corrected

Global Emerging Markets | Corporate Credit

Joyce Liang

Research Analyst Merrill Lynch (Hong Kong) +852 3508 3817 joyce.liang@baml.com

Katherine Tai

Research Analyst Merrill Lynch (Hong Kong) +852 3508 4439 katherine.tai@baml.com

Ingrid Hsu

Research Analyst Merrill Lynch (Hong Kong) +852 3508 2573 ingrid.hsu@baml.com

GEMS Corporate Credit Rsch

+1 646 855 4096

Local investors continued to dominate Asian USD issuance

In the past decade, Asia-based investors' dominance of USD bond primary deals has been growing progressively to 79% in the first five months of 2019 – a significant rise from 53% in 2010 and 64% in 2015, while the new order books from both the US and Europe accounts have been shrinking in recent years, partly because more global funds have established their presence in Asia. Note that US demand has been weakening at a faster pace than those from Europe, partly due to the declining share of 144A issuance.

Gradual comeback of banks' participation in 2019

The surge in banks' participation rate from 16-18% in 2010-14 to 27-33% in 2015-16 was mainly due to an influx of demand from Chinese banks. Subsequently, the numbers declined to 27% by 2017 and 23% by 2018, respectively, given the stabilization/ appreciation of the RMB against the dollar. The Sino-US trade conflict, since early 2018, has pushed CNYUSD to the weaker range, with recent exchange rate approaching the psychological 7.0 level. Looking ahead, banks may get more support from a gradual return of China bids as we are seeing a modest pick-up in banks' participation rate to 26% 2019 YTD vs 23% in 2018. By sector, banks have been mostly active in Asian financials' new issuance, while they were least involved in Asian sovereigns over the last few years.

Foreign investors most active in Indon, India & Sovereign

Despite the overall trend of declining foreign participation in Asian USD new issuances, foreign investors remain more involved in deals from Indonesia & India, followed by Philippines and Korea; but largely shunned Chinese deals. By security type, foreign investors have been most active in Asian sovereigns, buying 62% of the new issuances, while they were least involved in Asian financials, subscribing to less than 20% of the new deals in the space.

China: foreign investors prefer Tier-1 SOEs, IG Tech names

For China USD new deals standalone, foreign interests appeared more prominent in the Tier-1 state-owned enterprises/SOEs (eg. CNOOC, Sinopec, China Three Gorges, State Grid, etc.) and IG Tech names (eg. Baidu, Huawei, Lenovo, JD, etc).

Asia credit volatility relatively subdued on a global scale

On a global scale, Asia IG volatility remains the lowest, while Asia HY ranks the second lowest after Euro HY as a majority of Chinese investors adopt the buy-and-hold to maturity strategy. Within Asia, volatilities in both China IG and China HY have been comparatively more subdued, owing to the strong dominance of Chinese investors in Asian dollar new issuances. Meanwhile, both Indonesia and India have witnessed greater volatility in both IG and HY. During an economic downturn, India and Indonesia tend to suffer more than other Asian countries, led by potential capital outflow. By sector, trade war escalation has resulted in a sharp spike in China tech volatility since 2018.

China USD credit still offers attractive risk-adjusted return

In summary, we think China offshore USD credit still offers decent risk-adjusted returns versus its EM peers given the lower volatility. In our view, investors seeking diversification could add risk through India, Indonesia and selected Asian sovereigns.

Bof A Merrill Lynch 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 9 to 11.

12047800

Timestamp: 05 June 2019 05:29AM EDT

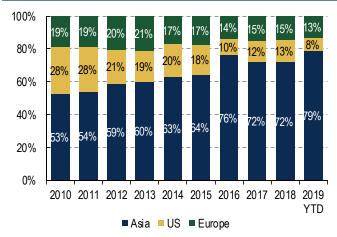
An update of investor base for Asian USD

Strong Asian participation caps volatility

Asian investors continue to dominate Asian USD issuance

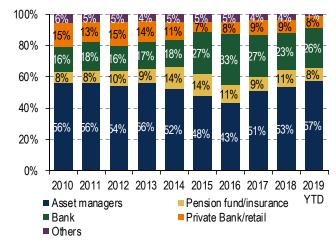
In the past decade, Asian investors' dominance of Asian USD bond primary transactions has been growing progressively to 79% YTD-2019, a significant rise from 53% in 2010 and 64% in 2015 (Chart 1). Among the foreign investors, new order books from both the US and Europe have been consistently shrinking in recent years, though US demand has been weakening at a faster pace than that from Europe, partly attributable to the declining share of 144A issuance. In recent years, more Asian issuers have opted for the Regulation S-only format due to the less stringent regulatory and disclosure rules as well as lower fee consideration. Alternatively, another possible reason could be more global funds have been building or strengthening their presence in the Asian region, so those purchases would be considered as local investor buying.

Chart 1: Asia new issues investor base breakdown by region



Source: Bloomberg, BofA Merrill Lynch Global Research

Chart 2: Asian new issues investor base breakdown by investor type



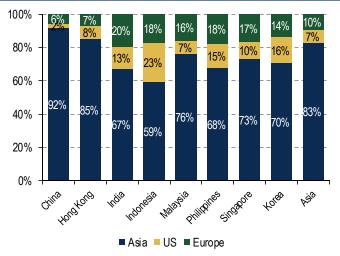
Source: Bloomberg, BofA Merrill Lynch Global Research

Gradual comeback of banks' participation in 2019

Chart 2 shows the Asian new issue distribution by investor type over the past decade. Institutional asset managers (57% YTD-2019) have always been the largest investor group, followed by banks (26%) and pension fund/Insurance (8%) as well as private banking/PB (8%).

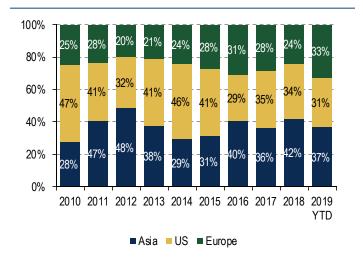
Note that the surge in banks' participation rate from 16-18% in 2010-14 to 27-33% in 2015-16 was mainly driven by an influx of demand from Chinese banks. Subsequently, the number declined to 27% by 2017 and 23% by 2018, respectively, given the stabilization/appreciation of the RMB against the dollar. The Sino-US trade conflict, since early 2018, has pushed CNYUSD to the weaker range with recent exchange rate approaching the psychological 7.0 level. Looking ahead, banks may receive more support from a gradual return of China bids as we are seeing a modest pick-up in banks' participation rate to 26% 2019 YTD vs 23% in 2018. By sector, banks had been mostly active in Asian financials' new issuance, while they were least involved in Asian sovereigns over the last few years.

Chart 3: Asia new issues investor base breakdown by region into individual country (2016-2019 YTD)



Source: Bloomberg, BofA Merrill Lynch Global Research

Chart 4: Asian sovereign new issues investor base breakdown by region

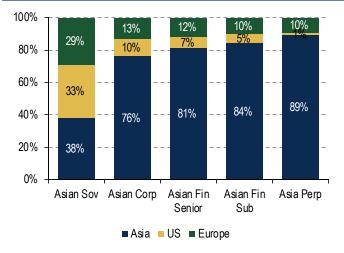


Source: Bloomberg, BofA Merrill Lynch Global Research

Foreign investors most active in Indonesia, India and Sovereign

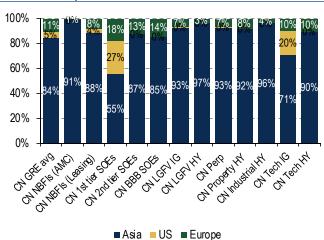
To determine how the investor base varies for individual Asian countries, we used the new issues' buyer distribution data over the period 2016 to 2019 YTD (Chart 3). As expected, China had the highest participation from Asian investors, followed by Hong Kong, while the US and European-based funds have been generally more diversified with a higher allocation to Indonesia and India, followed by the Philippines and Korea. By security type, foreign investors have been most active in Asian sovereigns, buying 62% of the new issues (Chart 4), while they were least involved in Asian financials, subscribing to less than 20% of the new deals in the space (Chart 5).

Chart 5: Asia new issues investor base breakdown by security type by region (2016-2019 YTD)



Source: Bloomberg, BofA Merrill Lynch Global Research

Chart 6: China new issues investor base breakdown by sector by region (2016-2019 YTD)



Source: Bloomberg, BofA Merrill Lynch Global Research

China: foreign investors favor Tier-1 SOEs, IG Tech names

For China USD new deals standalone, foreign interests appeared more prominent in the Tier-1 state-owned enterprises/SOEs (eg. CNOOC, Sinopec, China Three Gorges, State Grids, etc.) and IG Tech names (eg. Baidu, Huawei, Lenovo, JD, etc) (Chart 6).

Volatility

India & Indonesia credits more volatile than China

On a global scale, Asia IG volatility has been hovering at a low level vs other regions and the divergent trend has grown more evident since 2018 (Chart 7). During 2012-13, Asia HY used to exhibit much greater volatility but has become relatively more stable in recent years (Chart 8). It is interesting to note that the regional HY volatility has been moving quite consistently in the same direction since 2017. In the face of an increasingly synchronized global growth slowdown and trade war escalation, global HY has seen volatility ratcheting up fast since early 2018.

Within Asia, volatilities in both China IG and China HY have been more subdued, thanks to the continual increasing participation from Chinese investors in the Asian dollar bond market in recent years. Note that a majority of Chinese investors adopt the buy-and-hold to maturity strategy, instead of a high-frequency trading style which is more often seen with global institutional accounts.

Given the stronger involvement from foreign investors (shown in primary deal statistics in earlier section and EPFR country allocation (Charts 11-12), both Indonesia and India have witnessed greater volatility for both IG and HY (Charts 9-10). During an economic downturn, India and Indonesia tend to suffer more than other Asian countries, led by abrupt capital net outflow.



2015

USIG

EMEA IG

2016

2018

Euro IG

9

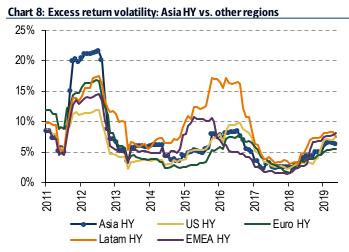
Source: BofA Merrill Lynch Global Research, ICE Data Indices LLC

2013

Asia IG

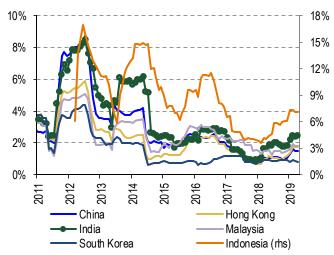
Latam IG

2014



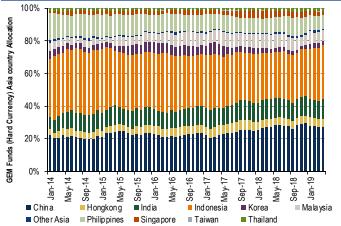
Source: BofA Merrill Lynch Global Research, ICE Data Indices LLC

Chart 9: Excess return volatility for Asian IG credits by country (Note: Indonesia RHS; others LHS)



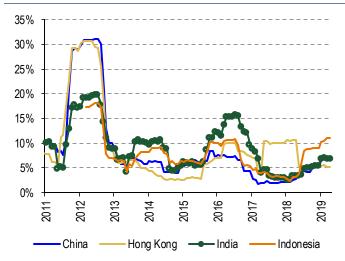
Source: BofA Merrill Lynch Global Research, ICE Data Indices LLC

Chart 11: GEM fund (hard currency) Asia country allocation



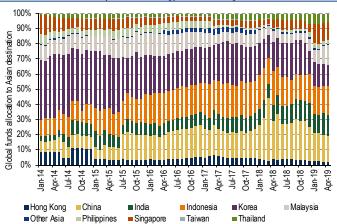
Source: EPFR

Chart 10: Excess return volatility for Asian HY credits by country



Source: BofA Merrill Lynch Global Research, ICE Data Indices LLC

Chart 12: Global fund (hard currency) Asia country allocation

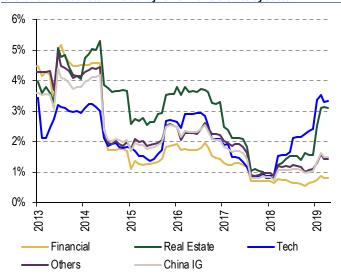


Source: EPFR

Sharp spike in China Tech vol on trade war escalation

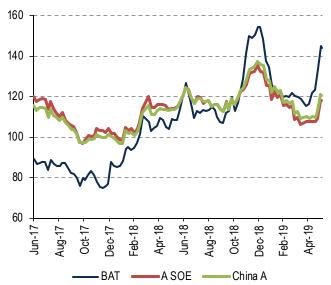
The two charts below single out China IG and HY volatility breakdown by major sectors. Since President Trump fired the first bullet by imposing a 25% tariff on steel and 10% on aluminum and restricting foreign investment in key technology industry in March last year, China Tech names have been hit hard with spreads narrowing more on the long-end than short-end. On an aggregate level, BAT (Baidu, Alibaba and Tencent) saw spreads widen by nearly 80bp in 2018 before stabilizing in the first four months of this year on receding trade tensions but has resumed widening again in May on trade talks impasse.

Chart 13: Excess return volatility for China IG credits by sector



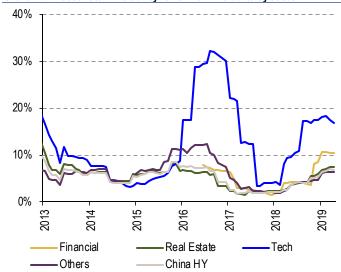
Source: BofA Merrill Lynch Global Research, ICE Data Indices LLC

Chart 15: BAT spread vs China A and A SOE



Source: BofA Merrill Lynch Global Research, ICE Data Indices LLC

Chart 14: Excess return volatility for China HY credits by sector



Source: BofA Merrill Lynch Global Research, ICE Data Indices LLC

Chart 16: BAT (Baidu, Alibaba and Tencent) spread by duration



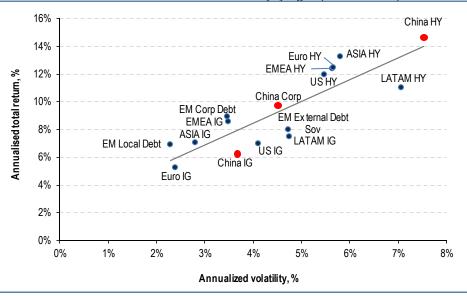
Source: BofA Merrill Lynch Global Research, ICE Data Indices LLC

Risk-adjusted return

China HY still attractive from a risk-reward perspective

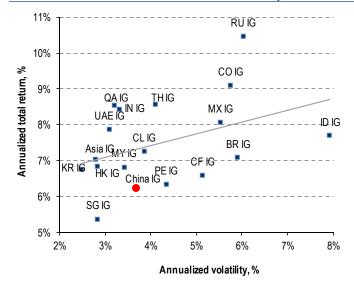
The charts below show the past 10 years' relationship between the annualized total return and annualized volatility by region and by country for IG and HY, respectively. With IG, China has customarily been trading at a richer valuation versus its EM peers as a majority of the Chinese IG issuers are SOEs. However, the dynamics are quite different when it comes to the HY space. Versus its EM peers, China HY has been offering attractive risk-adjusted returns.

Chart 17: Annualized total returns vs annualized volatility by region (2009-YTD 2019)



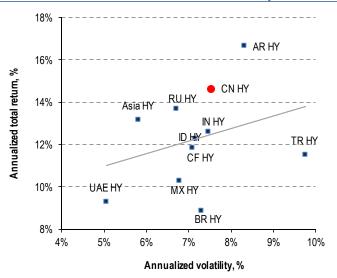
Source: BofA Merrill Lynch Global Research, ICE Data Indices LLC Note: Annual data from weekly data over 2009 to 24 May 2019.

Chart 18: Annualized total returns vs annualized volatility - IG



Source: BofA Merrill Lynch Global Research, ICE Data Indices LLC

Chart 19: Annualized total returns vs annualized volatility - HY



Source: BofA Merrill Lynch Global Research, ICE Data Indices LLC

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 Merrill Lynch Credit Opinion Key

BofA Merrill Lynch Global Research provides recommendations on an issuer's bonds (including corporate and sovereign external debt securities), capital securities, equity preferreds and CDS as described below. Convertible securities are not rated. An issuer level recommendation may also be provided for an issuer as explained below. BofA Merrill Lynch Global Research credit recommendations are assigned using a three-month time horizon.

Issuer Recommendations: If an issuer credit recommendation is provided, it is applicable to bonds and capital securities of the issuer except bonds and capital securities specifically referenced in the report with a different credit recommendation. Where there is no issuer credit recommendation, only individual bonds and capital securities with specific recommendations are covered. CDS and equity preferreds are rated separately and issuer recommendations do not apply to them.

BofA Merrill Lynch Global Research credit recommendations are assigned using a three-month time horizon:

Overweight: Spreads and /or excess returns are likely to outperform the relevant and comparable market over the next three months. **Marketweight:** Spreads and/or excess returns are likely to perform in-line with the relevant and comparable market over the next three months. **Underweight:** Spreads and/or excess returns are likely to underperform the relevant and comparable market over the next three months.

BofA Merrill Lynch Global Research uses the following rating system with respect to Credit Default Swaps (CDS):

Buy Protection: Buy CDS, therefore going short credit risk. **Neutral:** No purchase or sale of CDS is recommended. **Sell Protection:** Sell CDS, therefore going long credit risk.

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 Merrill Lynch 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 Merill Lynch 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

From time to time research analysts conduct site visits of covered issuers. BofA Merrill Lynch policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits.

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for the purpose of any recommendation in relation to: (i) 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; or (ii) 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 Bank of America Merrill Lynch 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 that may not be offered or sold in one or more states or jurisdictions. Readers of this report are advised that any discussion, recommendation or other mention of such securities is not a solicitation or offer to transact in such securities. Investors should contact their BofA Merrill Lynch representative or Merrill Lynch Global Wealth Management financial advisor for information relating to fixed income securities.

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 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 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 securities 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 discussed herein, may not be eligible for distribution or sale in all countries or to certain categories of investors.

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

BofA Merrill Lynch Global Research policies relating to conflicts of interest are described at https://rsch.baml.com/coi

"BofA Merrill Lynch" includes BofA Securities, Inc. ("BofAS"), Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") and its affiliates. Investors should contact their BofA Merrill Lynch 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 Merrill Lynch" and "Merrill Lynch" are each global brands for BofA Merrill Lynch Global Research.

BofAS and/or MLPF&S or 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 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); BAMLI DAC (Milan): Bank of America Merrill Lynch International DAC, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Italy, the Financial (CBI); Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSFC); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Investment Industry Regulatory Organization of Canada; Merrill Lynch (Mexico): Merrill Lynch (Mexico): Merrill Lynch (Japan): Merrill Lynch Japan Securities 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 Exchange Board of India; Merrill Lynch (Indonesis): PT Merrill Lynch Sekuritas Indonesia, regulated by Otoritas Jasa Keuangan (OJK); Merrill Lynch (Israel): Merrill Lynch (Israel): Merrill Lynch (Israel): Merrill Lynch (Spain): Merrill Lynch Capital Markets Espana, S.A.S.V., regulated by Comisión Nacional del Mercado De Valores; Merrill Lynch (Brazil): Sank of America Merrill Lynch Banco Multiplo S.A., regulated by Comissão de Valores Mobiliários; Merrill Lynch (

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 Merrill Lynch (Japan), a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSFC; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by DSP Merrill Lynch (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. Bank of America N.A., Australian Branch (ARBN 064 874 531), AFS License 412901 (BANA Australia) and Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distribute this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of BANA Australia, 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 formation in Germany and is regulated by BaFin, the ECB and the CBL. BofA Merrill Lynch entities, including BAMLI DAC a

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.

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 Merrill Lynch. This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Merrill Lynch 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 Merrill Lynch, 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. 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 Merrill Lynch 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.

UK Readers: The protections provided by the U.K. regulatory regime, including the Financial Services Scheme, do not apply in general to business coordinated by BofA Merrill Lynch entities located outside of the United Kingdom.

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 Merrill Lynch, through business units other than BofA Merrill Lynch 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 Merrill Lynch 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, User Agreement and other general information related to this report:

Copyright 2019 Bank of America Corporation. All rights reserved. iQprofiles, iQmethod are service marks of Bank of America Corporation. iQdatabase is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Merrill Lynch 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 Merrill Lynch. BofA Merrill Lynch Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Merrill Lynch 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 Merrill Lynch.

Materials prepared by BofA Merrill Lynch 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 Merrill Lynch, including investment banking personnel. BofA Merrill Lynch has established information barriers between BofA Merrill Lynch Global Research and certain business groups. As a result, BofA Merrill Lynch 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 Merrill Lynch Global Research personnel's knowledge of legal proceedings in which any BofA Merrill Lynch 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 Merrill Lynch in connection with the legal proceedings or matters relevant to such proceedings.

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

securities. None of BofAS any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Merrill Lynch 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 Merrill Lynch 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 Merrill Lynch 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 Merrill Lynch. 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 Merrill Lynch 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 Merrill Lynch is under no obligation to update this information and BofA Merrill Lynch's ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Merrill Lynch 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 Merrill Lynch nor any officer or employee of BofA Merrill Lynch accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.