

UK Watch

Bank of England review: none and done, probably

Change call, expect no more BoE hikes

After the Bank of England (BoE) held rates at 5.25% today we change our call. We expect the BoE to keep rates on hold at 5.25% through 2024. Previously we expected the BoE to hold at 5.5% through 2024. We expect four 25bp rate cuts in 2025 compared to five previously. Fewer hikes now substituted for fewer cuts later.

Finely balanced decision

The BoE kept rates on hold today, compared to our and the consensus call for a 25bp hike. They upsized Quantitative Tightening to £100bn a year as expected, which we discuss in more detail below. The huge inflation surprise yesterday made today's decision an extremely close call ([UK Watch: Inflation forecast update: downside surprise leaves rate decision in balance 20 September 2023](#)). The 5-4 vote to hike 25bp and the BoE saying "the judgement to keep Bank Rate unchanged at this meeting rather than increase it was finely balanced" suggest the decision could have gone either way.

As the BoE aims off the hawkish data

Three factors tipped the balance to a hold. First the BoE argued they should not react as strongly as previously to hawkish official wage growth data because other data sources suggest a weaker picture. Second, the BoE seems prepared to look through a bounceback in services inflation in the next data print if it is driven by the volatile components that led to the downside surprise in August (Exhibit 1). The BoE argues that services inflation, which excludes the volatile items (air fares and accommodation services), had been weaker than expected. This suggests the data would have to surprise by an unusually large amount to warrant a BoE rate hike in November. Third, weaker growth data suggested previous rate hikes were feeding through more than expected.

And shifts emphasis to slack, growth and higher for longer

The minutes of today's decision suggest to us the BoE is shifting emphasis. First, away from lagging indicators of inflation pressure, like wages and inflation, and towards lead indicators like slack and growth (Exhibit 2). And second, away from further hikes to rein in inflation and towards holding rates at this level for longer (Exhibit 3). They also added a new threshold for cuts that could rule them out until the second half of next year at the earliest (if, say, material progress meant headline and core inflation below 3% and 4% sustainably, respectively, Exhibit 4).

Risk skewed to more hikes still

In short, the signal we take today about the BoE's reaction function is a strong preference, at least from the core of BoE rate setters (Bailey, Broadbent, Pill and Ramsden), to hold Bank Rate at its current level. Therefore, base case we expect no further rate hikes now. But in our view, it would be hard to rule out the risk of a further hike in November, or even in December or February next year. November will see a new set of forecasts that could be more hawkish. **(Continued on next page.)**

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.

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 5 to 7.

12604458

Timestamp: 21 September 2023 09:59AM EDT

21 September 2023

Macro
United Kingdom

Robert Wood
UK Economist
MLI (UK)
+44 20 7996 7415
robert.d.wood@bofa.com

Mark Capleton
Rates Strategist
MLI (UK)
+44 20 7995 6118
mark.capleton@bofa.com

Agne Stengeryte
Rates Strategist
MLI (UK)
+44 75 41694477
agne.stengeryte@bofa.com

Michalis Rousakis
FX Strategist
MLI (UK)
+44 20 7995 0336
michalis.rousakis@bofa.com

With lower Bank Rate, lower sterling, and probably upward revisions to the inflation neutral unemployment rate (NAIRU), the BoE will we think have to work hard to forecast inflation reaching the 2% target in the medium term in the November forecasts.

Furthermore, while the BoE can reasonably in our view argue mixed indicators now suggest a pause, in our view the BoE's bias to hold today goes against the data risks. Throughout this inflation upswing the BoE, we and consensus have been surprised by how persistent consumer price and wage inflation has been and the degree to which behaviour seems to have changed.

Step back. Private pay growth currently sits above 8% and core inflation even after a downside surprise is above 6%. Set against that are surveys suggesting weaker pay growth, a PMI in modest contractionary territory and in our view a fall in employment as odd compared to surveys as pay growth. Underlying the BoE's decision seems, in our view, to be a strong BoE view that the impact of past hike is delayed, not reduced, and that inflation expectations are strongly anchored. We think risks skew to policy effects being reduced as well as delayed and inflation expectations having deanchored somewhat. Additionally, the recent oil price rise should as a base case not dramatically affect the inflation outlook but after so many upside inflation shocks we would not have a lot of confidence in that judgement.

As we note above the BoE set a new threshold today for cuts that in our view pushes back against pricing of cuts in the first half of next year. We would add that potential risks to wage growth, for instance, mean we think it will be hard for the BoE to shift its bias away from hiking at least until it sees wage settlements signals early next year. Bottom line, we expect no further hikes but we continue to think rate cuts are a distant prospect. We assume no cuts before 2025.

Exhibit 1: Downplays accommodation inflation news, discounts future volatility

Minutes of BoE's September policy meeting

"Some of those movements are linked to services such as airfares and accommodation that tend to be volatile over the summer holiday period. Excluding these travel-related components, services inflation has been more stable at continued high rates, albeit slightly weaker than expected.

Services price inflation, however, is projected to remain elevated in the near term, with some potential month-to-month volatility."

Exhibit 2: BoE shifts emphasis towards growth and slack, away from pay and inflation

Minutes of BoE's September policy meeting

"This meant that the decision on whether to increase or to maintain Bank Rate at this meeting had become more finely balanced between the risks of not tightening policy enough when underlying inflationary pressures could still prove persistent, and not placing sufficient weight on the impact of the previous tightening that was still to come through on activity and inflation."

Exhibit 3: BoE shifts ‘further tightening’ sentence to end of guidance paragraph suggesting preference shifting to responding to hawkish news with higher for longer

Minutes of BoE’s September policy meeting

“The MPC would continue to monitor closely indications of persistent inflationary pressures and resilience in the economy as a whole, including the tightness of labour market conditions and the behaviour of wage growth and services price inflation. Monetary policy would need to be sufficiently restrictive for sufficiently long to return inflation to the 2% target sustainably in the medium term, in line with the Committee’s remit. Further tightening in monetary policy would be required if there were evidence of more persistent inflationary pressures.”

Exhibit 4: New threshold for cuts may not be reached until second half 2024

Minutes of BoE’s September policy meeting

“Conditions were likely to warrant a restrictive policy stance being maintained until material progress had been made in returning inflation to the 2% target sustainably.”

Rates – door opened for tweaks to QT “buckets”

The market seemingly interpreted BoE’s hold as inflationary. With the exception of the very front-end, Gilt yields rose following the BoE announcement. Spot 1y Sonia was around 2bp down while 1y Sonia gaps 1y and 2y forward are more than 10bp up relative to the previous day’s close at the time of writing. Gaps further out were all trading around 10bp up relative to their prior closes. The inflation market firmed across the curve on the unchanged rates announcement, perhaps interpreting the “table mountain” approach to rates as a willingness to take more time to rein in inflation.

As expected, the Committee voted to reduce the stock of Gilts held for monetary policy purposes by £100bn over the period from October 2023 to September 2024, to a total of £658 billion. For Q4 2023, the Bank will continue to sell Gilts in even market value amounts across short, medium and long maturity “buckets”. There will be four Gilt sale auctions in each of the maturity sectors, with a planned size of £670mn per auction.

The BoE did not skew Gilt sales shorter. We were not expecting it, but thought they should, and saw it as an under-priced possibility (see [One more hike and done](#), 15 September 2023). However, we would highlight an expanded wording regarding possible future changes, which we think is significant.

Consider this paragraph from the September Asset purchase Facility (APF) Market Notice (the paragraph has been a fixture of every APF Market Notice since sales began):

Market Notice 1 September 2023

“The Bank will continue to monitor the impact of its gilt sales programme on market conditions, and reserves the right to amend its schedule, including the gilts to be sold and the size of its auctions, or any other aspect of its approach at its sole discretion.”

Now consider the additional language about the even (market value) sales split:

Market Notice 21 September 2023 (addition bolded by us, not BoE)

“The Bank will continue to monitor the impact of its gilt sales programme on market conditions, and reserves the right to amend its schedule, including the gilts to be sold and the size of its auctions, or any other aspect of its approach at its sole discretion. **As part of that, the Bank will continue to monitor whether the current approach of selling gilts evenly across short, medium and long maturity sectors in sales proceeds terms remains appropriate.**”

That suggests to us that the BoE are explicitly considering the even split and could amend at any quarterly announcement. The Bank expects to announce the sales schedule for Q1 2024 at 4.30pm on 15 December 2023.

GBP: BoE unlikely to be of help near term (but may be later)

GBP weakened into today’s meeting and was little changed afterwards, following a month during which GBP weakened the most in the G10 (after a very strong performance until mid-August). We are also not sure a “one and done” today would have helped GBP much and/or for more than a few minutes. Taking a step back, we think the somewhat disproportionate GBP reaction vs rates in the past days could reflect positioning—into this week, Hedge Funds remained (very) long GBP, according to our proprietary flows—which is a risk we continue to flag (see also GBP: near-term rallies harder 18 Sep 23).

Where to from here? We remain of the view the BoE won’t be of much help to GBP near term, but it may be later on: a “high for longer” approach suggests risks around the BoE rate cuts priced for next year. In this sense, we feel the recent GBP weakness vs EUR is close to overdone—our economists’ base case for next year includes three cuts from the ECB but none from the BoE. In the near term, we see downside GBP risks primarily vs USD, AUD, NOK, CAD, mostly on growth reasons and, in the case of commodity FX, also on China pessimism likely nearing its peak.

Disclosures

Important Disclosures

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

Other Important Disclosures

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

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

This report may refer to fixed income securities or other financial instruments that may not be offered or sold in one or more states or jurisdictions, or to certain categories of investors, including retail investors. Readers of this report are advised that any discussion, recommendation or other mention of such instruments is not a solicitation or offer to transact in such instruments. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor for information relating to such instruments.

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

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

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

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

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

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

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

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

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

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

BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle 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 (HKSCF); 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; BofA 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 HKSCF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofAS India; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the [Electronic Communications Disclaimers](#) for further information.

This information has been prepared and issued by BofAS and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your



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

General Investment Related Disclosures:

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

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

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

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

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

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

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

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

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

Copyright and General Information:

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.