

## Liquid Insight

## Record lows for US volatility

## Key takeaways

- US volatility is making fresh record lows on the left side of the grid and gamma driven mainly by FAIT.
- With the recent collapse of gamma and the election risk move into 1m expiries, we switch to neutral gamma stance.
- Directionally, we continue to favor positioning for an asymmetry of outcomes in the rates space that is tilted to the upside.

## By Bruno Braizinha and Sphia Salim

Chart of the day : After spiking to its highest level since '09, 1m10y US vol collapsed to recordlow



Source: BofA Global Research

## Record lows for US volatility

US volatility is making fresh record lows on the left side of the grid and in gamma driven mainly by the Fed's flexible average inflation targeting (FAIT). On the right side, however, FAIT may provide some support for intermediate expiries, along with the asymmetry of outcomes in the rates space.

Election risk has supported shorter expiries on the right side of the grid, and we have favored fading this premium through a short gamma bias. However, with the recent collapse of gamma and the election risk falling into 1m expiries, we turn neutral on gamma. We take profits on our short top right USD vs top left EUR vol.

Directionally, we continue to favor positioning for an asymmetry of outcomes in the rates space that is tilted to the upside by (1) buying 1y30y payer spreads financed by selling 1y5y payers or (2) holding a 1y fwd 5s30s single look ATM curve cap, partially financed by selling a 1y fwd 5s30s single look ATM+45bp curve cap.

In vega, given the structural support for intermediate expiries noted above, we believe long positions around the 5y30y with positive vol carry start to make sense in portfolios.

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 FX 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 7 to 9. Analyst Certification on page 5.

12193052

Timestamp: 30 September 2020 12:30AM EDT

30 September 2020

Rates and Currencies Research  
Global

Global Rates & Currencies Research  
MLI (UK)

**Bruno Braizinha, CFA**  
Rates Strategist  
BofAS  
+1 646 855 8949  
bruno.braizinha@bofa.com

**Sphia Salim**  
Rates Strategist  
MLI (UK)  
+44 20 7996 2227  
sphia.salim@bofa.com

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

**Janice Xue**  
Rates Strategist  
Merrill Lynch (Hong Kong)  
+852 3508 8587  
janice.xue@bofa.com

See Team Page for List of Analysts

## Recent Liquid Insight Publications

- 29 Sep 2020 [Has USD funding market settled down?](#)
- 25 Sep 2020 [Let the voting begin](#)
- 24 Sep 2020 [G10 FX approaching the end of an endless year](#)
- 23 Sep 2020 [Even with the possibility of negative policy rates, 2y3y real UK rates look stretched](#)
- 22 Sep 2020 [SNB to stay the course on FX](#)
- 18 Sep 2020 [Only Easing Rents \(OER\)](#)
- 17 Sep 2020 [G10 FX through CNY's prism](#)
- 16 Sep 2020 [BoJ preview: out of the crisis phase](#)
- 15 Sep 2020 [Bank of England preview: no change as outlook worsens](#)
- 11 Sep 2020 [FOMC preview: from stabilization to accommodation](#)

## Record lows for US volatility on left side and gamma...

US volatility is making fresh record lows on the left side of the grid and in gamma. We argued earlier in the year for a process of Europeanization of the US volatility grid (see [Rates volatility and the zero lower bound](#)), and indeed we observed a tightening of spreads between the US volatility grid and the European grid in the intervening months (Table 1 and Table 2).

**Table 1: Spread between US and European swaption grids (bp)**

2 January 2020

	1y	2y	3y	5y	7y	10y	30y
1m	16.9	29.5	31.9	25.8	22.5	19.1	8.0
3m	22.0	32.4	33.2	28.8	23.2	19.4	8.7
6m	29.2	35.5	34.3	29.0	23.7	19.0	8.8
1y	36.2	37.1	34.8	28.1	23.1	18.5	7.4
2y	36.7	35.0	30.5	24.6	20.2	16.0	5.9
3y	31.1	27.9	24.9	20.7	17.2	13.6	4.8
4y	25.3	22.9	20.8	18.0	15.0	11.6	4.1
5y	21.2	19.2	17.9	15.2	12.4	9.3	3.3
10y	7.9	6.0	5.9	4.8	3.9	2.2	1.7
15y	3.5	3.1	2.4	1.7	1.5	-0.1	3.3
30y	-0.3	-0.5	-0.5	-0.3	0.4	2.0	12.2

Source: BofA Global Research; Bloomberg

**Table 2: Spread between US and European swaption grids (bp)**

Current spread

	1Y	2Y	3Y	5Y	7Y	10Y	30Y
1M	-1.3	0.2	0.8	-0.1	7.7	8.4	9.5
3M	-1.9	-0.8	0.8	2.6	8.0	13.9	15.8
6M	-1.9	-0.7	1.5	4.7	10.9	14.3	13.4
1Y	0.0	1.1	3.7	7.4	11.7	14.2	10.9
2Y	4.0	4.9	6.9	8.7	10.9	11.8	8.1
3Y	6.3	6.3	7.0	10.1	11.1	10.3	6.8
4Y	7.5	8.9	9.3	10.0	10.5	9.1	6.3
5Y	7.4	9.2	10.1	10.0	9.6	7.8	5.1
10Y	7.8	7.2	7.6	6.4	6.6	5.3	3.8
15Y	4.9	5.1	4.4	3.6	3.8	3.9	3.4
30Y	0.6	1.4	0.8	-0.1	0.4	2.1	11.9

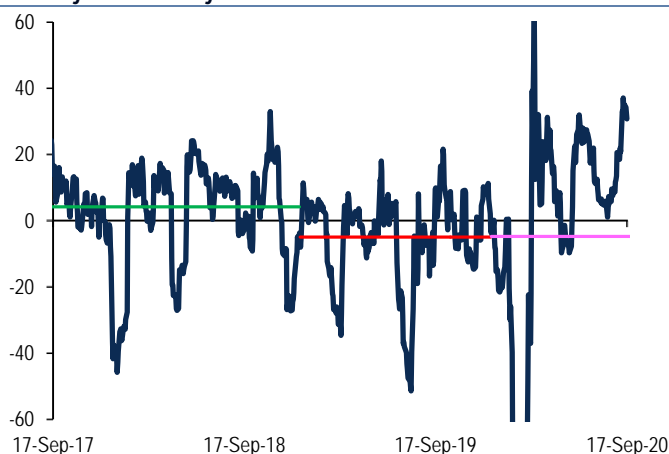
Source: BofA Global Research; Bloomberg

Left-side US vol collapsed in the process, and we saw a significant flattening of the term structure of volatility up to 10y tails (one of the trades we favored for the Europeanization theme was short 2y10y expiries vs 10y10y - see [here](#), and indeed that part of the vol curve flattened +8bp since).

The bearish momentum on the left side and gamma accelerated recently, however, with US vols on the ULC now under European vol levels (Table 2) and new record lows also for 1m10y (Chart of the day). The likely driver of the most recent collapse has been the change in Fed communication toward FAIT, which reinforces the lower-for-longer Fed stance and to some extent also its commitment to the zero lower bound (ZLB).

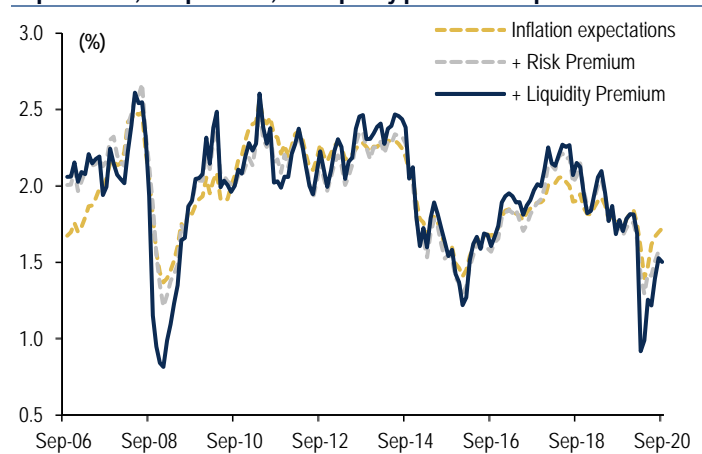
In recent notes we have highlighted the election vol premium (about 20 event days at the time of publication in 10y tails - see [here](#)). Indeed we saw a meaningful widening of 1m10y implied to forward looking delivered vol as this premium got priced in (with a peak in 10 September; Chart 1). We saw this as a fade, however, with the short gamma bias supported to a significant degree by the lack of scope for belly rates to realize this premium in a context where the Fed maintains its commitment to the ZLB.

**Chart 1: 1m10y implied volatility vs 1m forward looking delivered volatility of the 1m10y rate**



Source: BofA Global Research; Bloomberg

**Chart 2: Decomposition of 10y BE dynamic between inflation expectations, risk premium, and liquidity premium components**



Source: BofA Global Research; Bloomberg



However, after the recent collapse of short gamma (13bp in 1m10y since 9 September) and as the election risk event comes into 1m expiries, we find it more prudent to lighten up on short gamma exposure. There is scope for delivered to stay supported by the ebb and flow of polling data and election headlines.

### ... Structural support for intermediate expiries on right side

Significantly, the same shift in policy may support intermediate expiries on the right side of the grid, particularly as it is compounded by an [asymmetry of outcomes in the rates space](#) (tilted to higher yields medium term). Indeed, although FAIT is unlikely to shift inflation expectations higher near term given the disinflationary aspects of the pandemic shock, it does support some pickup of the level of inflation risk premium that is priced into the rates market (although there is little evidence for a meaningful buildup so far in our framework for 10y BE; Chart 2), and implicitly volatility for intermediate expiries on the right side of the grid (particularly 30y tails, but also 10y; Table 3 and Chart 3 shows 1y10y vs 1y2y vol spread back to the widest levels in years).

**Table 3: Changes in the US volatility grid YTD**

	1y	2y	3y	5y	7y	10y	30y
1m	-12.4	-27.6	-31.5	-31.8	-24.9	-16.8	5.6
3m	-18.4	-31.1	-33.9	-28.1	-18.3	-6.6	16.0
6m	-27.4	-35.8	-37.0	-27.4	-16.8	-5.6	13.6
1y	-35.3	-36.6	-33.5	-23.7	-14.0	-4.3	11.6
2y	-34.5	-31.9	-29.6	-17.2	-9.5	-1.8	11.3
3y	-27.2	-23.8	-19.7	-11.2	-6.3	-0.1	10.4
4y	-19.6	-15.3	-13.1	-7.2	-3.9	0.1	9.7
5y	-12.8	-9.7	-8.4	-3.9	-1.8	0.8	8.6
10y	-0.3	1.3	1.7	2.0	2.9	3.1	4.7
15y	1.6	1.9	1.6	2.1	2.7	3.3	2.1
30y	0.7	0.9	0.4	-0.1	-0.6	-1.4	-1.6

Source: BofA Global Research; Bloomberg

**Chart 3: Spread of 1y10y to 1y2y volatility**



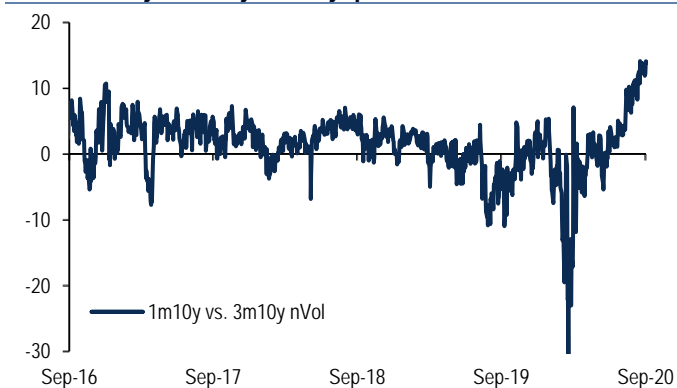
Source: BofA Global Research; Bloomberg

### Trade recommendations

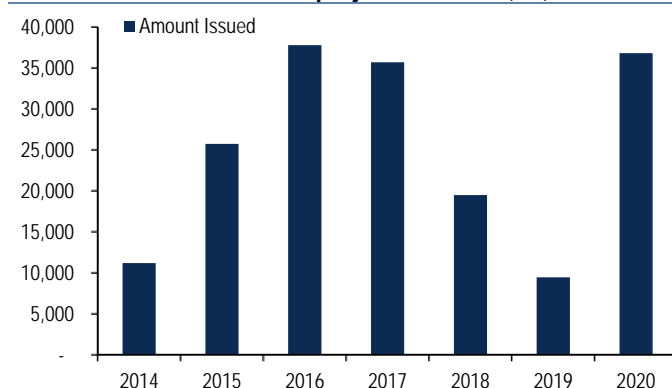
In the US gamma space we shift to a neutral stance from a short gamma bias through the summer. For the first time since early 2014 (before the ECB cut rates to negative), US implied vol trades lower than EUR implied vol in the top left (Table 2). Unlike in the US, short-dated EUR rates have been somewhat more volatile lately, as the EUR appreciation revived the potential for additional deposit rate cuts by the ECB. While the Fed appears to have closed the door to negative rates and therefore to any additional cuts from here, the ECB is striving to keep that option alive, to fend off further currency appreciation.

Additionally, front-end Euribor rates have rallied by more than generally expected over the last couple of months, as banks took up substantial amounts of liquidity via the ECB TLTRO III operations. While Euribor fixings may remain low over coming months, the futures beyond mid-2021 have the potential to be quite volatile, as the favourable TLTRO III rate is currently set to end in June 2021 (see discussion on Euribor forecasts [here](#)). In line with these arguments, we take profits on our [long top left EUR rates vol vs top right in USD](#), with the position about 200k in the money.

While we would rather stay away from a long US gamma bias, it is noteworthy that the spread between 3m10y vs 1m10y volatility is now at the steepest level in years (roughly 15bp currently, when in general the spread starts to find some resistance around the 10-12bp range; Chart 4). For investors that want to take a stance in gamma this calendar spread may be a viable alternative to an outright long gamma position.

**Chart 4: 1m10y vs 3m10y volatility spread**

Source: BofA Global Research; Bloomberg

**Chart 5: Total Formosa issuance per year since 2014 (\$m)**

Source: BofA Global Research; Bloomberg

Directionally, we continue to favor positioning for an asymmetry of outcomes in the rates space that is tilted to the upside by:

- Buying 1y30y payer spreads financed by selling 1y5y payers (recommended [here](#), costless entry, currently +3bp). The main risk on the trade is a bear-flattening scenario for the 5s30s curve beyond the entry level on the position, with potentially unlimited downside. As we recommend selling the higher strike on the 30y leg, the position is also exposed to more meaningful selloffs in 30y rates even under a bear-steepening bias.
- Buying 1y fwd 5s30s single look ATM curve cap, partially financed by selling a 1y fwd 5s30s single look ATM+45bp curve cap (recommended [here](#), 65bp entry, currently 68bp). The risk on the position is limited to the upfront premium.

Another directional alternative that may be interesting to explore is to buy higher rates scenarios on the right side of the US grid (1y or 2y expiries payers into 10y tails for example) vs the equivalent tenor in UK or European rates, for a scenario of decoupling in the rebound.

In longer-dated vega, virtually all that could be called in 2020 has been called (we see about \$2bn left to be called into yearend). Issuance levels YTD certainly reflect these high call volumes (Chart 5) with most issuers doing replacement trades, but to some extent the pressure this issuance generally creates on the grid has been offset by Bermudan hedging flows and appetite for forward vol positions.

We see limited potential for long-dated vega positions to act as a risk-off hedge in a range bound yield environment under a historically flat curve. However, given the structural support for intermediate expiries noted above, we believe those structural long vega positions around the 5y30y tenor with positive vol carry start to make sense in portfolios (see [here](#)). Significantly, we see potential call volumes in 2021 of the order of \$15bn maximum, materially lower than what was realized in 2020.



## Notable Rates and FX Research

- [Global Rates, FX & EM 2020 Year Ahead](#), 19 Nov 2019
- [COVID lessons from Israel for EUR bulls](#), **Global Liquid Markets Weekly**, 28 Sep 2020
- [The market correction](#), **Global FX Weekly**, 24 Sep 2020
- [Into the unknown](#), **Global Rates Weekly**, 25 Sep 2020
- [Back to the USD](#), **Liquid Cross Border Flows**, 28 Sep 2020

## Rates, FX & EM trades for 2020

See Global Rates, FX & EM 2020 Year Ahead

For a complete list of our open trade recommendations, as well as our trade recommendations closed over the past 12 months, see:

[Global FX Weekly: The market correction, 24 Sep 2020](#)

[Global Rates Weekly: Into the unknown, 25 Sep 2020](#)

## Options Risk Statement

### Potential Risk at Expiry & Options Limited Duration Risk

Unlike owning or shorting a stock, employing any listed options strategy is by definition governed by a finite duration. The most severe risks associated with general options trading are total loss of capital invested and delivery/assignment risk... all of which can occur in a short period.

### Investor suitability

The use of standardized options and other related derivatives instruments are considered unsuitable for many investors. Investors considering such strategies are encouraged to become familiar with the "Characteristics and Risks of Standardized Options" (an OCC authored white paper on options risks). U.S. investors should consult with a FINRA Registered Options Principal.

For detailed information regarding the risks involved with investing in listed options: <http://www.theocc.com/about/publications/character-risks.jsp>

## Analyst Certification

I, Bruno Braizinha, CFA, hereby certify that the views expressed in this research report accurately reflect my personal views about the subject securities and issuers. I also certify that no part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.





# 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 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 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 Merrill Lynch 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.

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

**"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 ("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); 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 Ireland (CBI); BAMLI DAC (Frankfurt): Bank of America Merrill Lynch International DAC, Frankfurt Branch regulated by BaFin, 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; 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 Futures Bureau; DSP Merrill Lynch (India): DSP Merrill Lynch Limited, regulated by the Securities and Exchange Board of India; Merrill Lynch (Indonesia): PT Merrill Lynch Sekuritas Indonesia, regulated by Otoritas Jasa Keuangan (OJK); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (Russia): OOO Merrill Lynch Securities, Moscow, regulated by the Central Bank of the Russian Federation; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Spain): Merrill Lynch Capital Markets Espana, S.A.S.V., regulated by Comisión Nacional del Mercado de Valores; 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 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 HKSCF; 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. 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 done so in accordance with the requirements of the DFSA conduct of business rules. BAMLI DAC (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BAMLI DAC 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 use this link <http://www.bankofamerica.com/emaildisclaimer> 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.

#### 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. 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.

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 Securities 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 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 2020 Bank of America Corporation. All rights reserved. iQprofile<sup>SM</sup>, iQmethod<sup>SM</sup> are service marks of Bank of America Corporation. iQdatabase<sup>®</sup> 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

## US

### David Woo

FX, Rates & EM Strategist  
BofAS  
+1 646 855 5442  
[david.woo@bofa.com](mailto:david.woo@bofa.com)

### Ralph Axel

Rates Strategist  
BofAS  
+1 646 855 6226  
[ralph.axel@bofa.com](mailto:ralph.axel@bofa.com)

### Paul Ciana, CMT

Technical Strategist  
BofAS  
+1 646 855 6007  
[paul.ciana@bofa.com](mailto:paul.ciana@bofa.com)

### John Shin

FX Strategist  
BofAS  
+1 646 855 9342  
[joong.s.shin@bofa.com](mailto:joong.s.shin@bofa.com)

### Vadim Iaralov

FX Strategist  
BofAS  
+1 646 855 8732  
[vadim.iaralov@bofa.com](mailto:vadim.iaralov@bofa.com)

### Mark Cabana, CFA

Rates Strategist  
BofAS  
+1 646 855 9591  
[mark.cabana@bofa.com](mailto:mark.cabana@bofa.com)

### Ben Randol

G10 FX & Rates Strategist  
BofAS  
+1 646 855 8662  
[benjamin.randol@bofa.com](mailto:benjamin.randol@bofa.com)

### Bruno Braizinha, CFA

Rates Strategist  
BofAS  
+1 646 855 8949  
[bruno.braizinha@bofa.com](mailto:bruno.braizinha@bofa.com)

## Europe

### Ralf Preusser, CFA

Rates Strategist  
MLI (UK)  
+44 20 7995 7331  
[ralf.preusser@bofa.com](mailto:ralf.preusser@bofa.com)

### Ruben Segura-Cayuela

Europe Economist  
Merrill Lynch (Spain)  
+44 20 7995 2102  
[ruben.segura-cayuela@bofa.com](mailto:ruben.segura-cayuela@bofa.com)

### Mark Capleton

Rates Strategist  
MLI (UK)  
+44 20 7995 6118  
[mark.capleton@bofa.com](mailto:mark.capleton@bofa.com)

### Athanasios Vamvakidis

FX Strategist  
MLI (UK)  
+44 20 7995 0790  
[athanasios.vamvakidis@bofa.com](mailto:athanasios.vamvakidis@bofa.com)

### Sphia Salim

Rates Strategist  
MLI (UK)  
+44 20 7996 2227  
[sphia.salim@bofa.com](mailto:sphia.salim@bofa.com)

### Kamal Sharma

FX Strategist  
MLI (UK)  
+44 20 7996 4855  
[ksharma32@bofa.com](mailto:ksharma32@bofa.com)

### Ronald Man

Rates Strategist  
MLI (UK)  
[ronald.man@bofa.com](mailto:ronald.man@bofa.com)

## Pac Rim

### Tony Morriss

Rates Strategist/Economist  
Merrill Lynch (Australia)  
+61 2 9226 5023  
[tony.morriss@bofa.com](mailto:tony.morriss@bofa.com)

### Adarsh Sinha

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

### Janice Xue

Rates Strategist  
Merrill Lynch (Hong Kong)  
[janice.xue@bofa.com](mailto:janice.xue@bofa.com)

### Shuichi Ohsaki

Rates Strategist  
Merrill Lynch (Japan)  
+81 3 6225 7747  
[shuichi.ohsaki@bofa.com](mailto:shuichi.ohsaki@bofa.com)

### Shusuke Yamada, CFA >>

FX/Equity Strategist  
Merrill Lynch (Japan)  
+81 3 6225 8515  
[shusuke.yamada@bofa.com](mailto:shusuke.yamada@bofa.com)

### Phear Sam

Rates Strategist  
Merrill Lynch (Australia)  
+61 2 9226 5773  
[phear.sam@bofa.com](mailto:phear.sam@bofa.com)

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 FX 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.

