

Consumer Spend Collective

'Tis the season(al)

Card spending was solid during the holidays

Total card spending per household (HH), as measured by BAC aggregated credit and debit card data, was up 0.2% year-over-year (y/y) in December. Spending was healthy throughout the holidays, particularly given ongoing disinflation, which supported inflation-adjusted spending. Total card spending in the five weeks after Thanksgiving was up 1.3% compared to the same period in 2022. Still, seasonal adjustments to the Census Bureau's December retail sales data could swamp underlying spending patterns and we discuss this more in the note linked within.

Las Vegas: Spending (+), Room Rates (=)

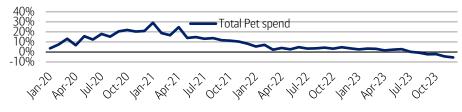
Las Vegas Strip card spend increased to +1% Y/Y in December vs. flat in November, and December marks the first month of positive Y/Y growth in LV Strip spend since February. For Q4, LV Strip spend is up +2%, Y/Y, a big acceleration from -9% Y/Y in Q3. LV Locals spend also improved in December, up 1pp to +2% Y/Y, and for Q4 overall, LV Locals spend is up +1% Y/Y vs. flat Y/Y in Q3. The room rate survey shows rates up +5% Y/Y on a rolling 3-month basis, driven by February rates up +35% due to the Super Bowl and offset by March, where rates are down -16% Y/Y as we lap Con Agg. Shaun Kelley expects WYNN to be the largest beneficiary of the Super Bowl followed by MGM then Caesars.

Furnishings and pet decelerate, ticketing accelerates

Online (card not present) furniture spending decreased 12% Y/Y, a 480bps deceleration from Nov. Deceleration was due partly to high promo activity in Nov, which likely pulled forward Dec sales. Online furniture spend continued to outperform total furnishings spend, the latter was down 13.2% YoY in Dec. Spend on pets decelerated 1ppt vs. November to -5.5% YoY, finishing the year that started with consistent low single digit growth. Spend on ticketing agencies increased 8.1% YoY in Dec (3.8ppt accel vs. Nov), and well above trends in total entertainment and travel categories.

Exhibit 1: Monthly pet spend, YoY% change according to BAC aggregated credit and debit card data

YoY pet retail spend in the US declined 5.5% YoY in December



Source: BAC Internal data

BofA GLOBAL RESEARCH

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 6 to 7.

12645562

17 January 2024

Equity Global

Data Analytics



Thomas (T.J.) Thornton Head of Research Marketing BofAS +1 646 855 2449 thomas.thornton2@bofa.com

Economics Aditya Bhave US Economist BofAS

Fundamental Equity Research Shaun C. Kelley Research Analyst BofAS

Curtis Nagle, CFA Research Analyst BofAS

Justin Post Research Analyst BofAS

Jason Haas, CFA Research Analyst BofAS

Lorraine Hutchinson, CFA Research Analyst BofAS

Mihir Bhatia Research Analyst BofAS

Rafe Jadrosich Research Analyst BofAS

Shaun Calnan, CFA Research Analyst BofAS

Robert F. Ohmes, CFA Research Analyst BofAS Alexander Perry

Research Analyst BofAS

Joanna Gajuk Research Analyst BofAS

Jeffrey Spector Research Analyst BofAS

Sara Senatore Research Analyst BofAS

See Team Page for List of Analysts

Compilation of Industry Reports

We've included research notes from analyst teams that make use of the December BAC card spending data and were published over the last three trading days. The key takeaways are noted below from each report. The US Economics note is also linked below.

Aditya Bhave – BofA on USA: 'Tis the season(al) 11 January 2024

- Total BAC card spending per HH was up 0.2% y/y in Dec. We expect 1.1% & 0.7% gains in ex-auto & core control retail sales.
- However, we see a wide range of outcomes for retail sales. Seasonal adjustments could swamp the signal from the data.
- If the Dec print is outsized in either direction, there should be payback in Jan/Feb. Stepping back, spending looks healthy.

Shaun Kelley – <u>Gaming and Lodging: December Card Spending and LV Room</u> <u>Survey: Lodging (+/=); Las Vegas (+) 16 January 2024</u>

- BAC Aggregated credit and debit lodging card spend improved +2pp to -4% in December.
- Airline card spend improved 2pp to +2% Y/Y in December, and overall Q4 airline spend is -1% Y/Y, a 1pp deceleration from Q3.
- Las Vegas Strip card spend increased to +1% Y/Y in December vs. flat in November.

Curtis Nagle – <u>Internet/e-Commerce: SMID cap eCommerce monthly; ticketing</u> and online jewelry stand out in December 11 January 2024

- December category trends were generally weaker than Nov., inline with a deceleration in total eCommerce for the month.
- For Dec, Online jewelry & ticketing spend best at 9.9/8.1% YoY. Online furniture decelerated to -12% after a Nov pull forward.
- Weak trends in pet spend (-5.5% YoY) persisted in Dec on weak pet adoption data, ongoing trade down, and lower inflation.

Justin Post – <u>Internet/e-Commerce</u>: <u>eCommerce</u> spend slows to flat y/y in Dec.; <u>finishes 4Q up 1%</u>, stable with 3Q 11 January 2024

- Online spend slowed to flattish in December vs +3% y/y in Nov. For 4Q, sales were +1%, stable with 3Q.
- Stable industry growth compares to AMZN ests for 1pt decel in 4Q NA rev. growth. Continue to see upside potential for Amazon.
- For Uber, we see 4Q data as constructive and expect the company to outperform industry trends.

Jason Haas – Retailing - Hardlines: Monthly hardline retail spending snapshot: sequential decel may be calendar-driven 11 January 2024

- For December, we saw YoY declines worsen sequentially across all hardline retail categories except mattresses.
- For December 2023, spending at home improvement retailers declined (7.5)% YoY, vs. (4.6)% YoY in November 2023.

 In December 2023, spending at auto parts retailers was down (3.0)% YoY vs. +0.6% YoY in November.

Lorraine Hutchinson – <u>Specialty Retail and Department Stores: Spending in December down y/y across nearly all categories 11 January 2024</u>

- Clothing spending declined 4.6% y/y in December, compared to -2.7% y/y in November.
- In the five weeks after Thanksgiving, retail ex-auto spending was 0.2% higher y/y, and total card spending was up 1.3% y/y.
- Discount was the only category we track that saw sales growth acceleration from the prior month.

Mihir Bhatia – <u>Consumer Finance: December spending trends show deceleration</u> in y/y growth, but solid 4Q 11 January 2024

- December credit card spending declined 1.0% y/y, down from +0.2% y/y in November. Credit card spend was up 2.3% m/m.
- Restaurant credit card spending accelerated on a y/y basis in December, though travel spending was down slightly y/y.
- In 4Q23, credit card spending by high-earners (\$125K+) increased 0.1% y/y, an acceleration from (0.1)% y/y in 3Q23.

Rafe Jadrosich – <u>Homebuilders and Building Products</u>: <u>Monthly building products</u> <u>spending snapshot</u>: a weak finish to a down year 11 January 2024

- For the month of December, overall consumer spending was down YoY in 7 of 9 building products categories we track.
- Building product spend continues to decline both YoY. 4Q23 trends generally in-line with 3Q23 vs. last year and 2019.
- Weakest categories YoY: Floor coverings, general contractors, and lumber stores. Strongest: Landscaping and roofing.

Shaun Calnan – <u>Homebuilders and Building Products: December data deep dive:</u> pool spending and channel trends 11 January 2024

- For December, spending at pool supplies merchants declined -3% YoY (+35% vs. December 2019). 4Q23 spending down -4% YoY.
- Manufacturer sales trailed distributor/retail sales with destocking in 2023, but inventory days still above pre-COVID levels.
- Google trends for "inground pools" and "fiberglass pools" were down (19%) and (10%) YoY in December (trailing 4-week avg).

Robert Ohmes – <u>Retailing - Hardlines: Sporting Goods Spending Update through</u> <u>December 16 January 2024</u>

- Sporting goods spending (correlated with Dick's Sporting Goods (DKS) & Academy Sports (ASO) comps) decelerated to (6.1)% in December from (4.4)% in November.
- Online spending declined (8.8)% while Brick & Mortar spending declined (4.5)% in December.



 DKS and ASO foot traffic sequentially improved in December according to Placer while web traffic decelerated.

Alexander Perry – <u>Leisure: Local Leisure Spending Update through December 12</u> January 2024

- Golf course spending accelerated significantly in Dec. on favorable weather & calendar.
- Spending at specialty bike shops (correlated with Fox Factory Holding (FOXF) SSG revenue) decelerated in December.
- Spending at Marinas decelerated in December, while regional theme park spending declined.

Joanna Gajuk – <u>Death Care: Funeral spending in Q4 down slightly y/y but still</u> well above pre-COVID 11 January 2024

- According to BAC card data, spending on funeral services in December declined 1% m/m and was -5% y/y.
- The 4Q23 spending was down 1% y/y and -1% Q/Q, worse than the historical Q/Q growth of +1-2% in Q4 vs Q3.
- However, the +7% CAGR vs 2019 implies a robust demand, likely for pre-need funeral contracts.

Jeffrey Spector – <u>Self Storage REITs: Storage spending remains steady M/M (-1.4% Y/Y)</u>; limited visibility into 2024 16 January 2024

- Dec Storage spend was up +0.6% M/M, based on BAC card data, in line with the typically flat trend of spending from Nov to Dec.
- Storage card spending decelerated on a Y/Y basis (-1.4%) in December vs. -0.8% in November.
- Visibility for the Storage REITs into 2024 is still limited.

Sara Senatore – <u>Restaurants Industry: Monthly restaurant spending: Pizza and FCR improve, QSR and CDR slow 16 January 2024</u>

- Aggregate restaurant spend growth accelerates m/m. QSR growth decelerates, Pizza stems its decline.
- Fast Casual up slightly, CDR decelerates. B&M and Online spend accelerate m/m.
- Spend growth accelerates across income. By MSA Portland is strongest, Miami weakest y/y.

Other reports may come over the next few days and weeks that use the December card data, but in the interest of keeping this as timely as possible, we only include notes out in the two trading days after BofA on USA.



Disclaimer

Selected Bank of America ("BAC") transaction data are used to inform the views expressed in these reports and should be considered in the context of other indicators and publicly available information. In certain instances, the data may provide directional and/or predictive value. The data used are not comprehensive; they are based on aggregated and anonymized selections of BAC data and may reflect a degree of selection bias and limitations on the data available.

Methodology explained

Readers should be aware that although the BAC datasets utilized in our analysis represent a significant number of data points, they nevertheless present a degree of selection bias, including but not limited to income levels and geographies. In addition, the data is limited to debit and credit cards and does not include other payment methods such as cash or checks.

Data regarding merchants who receive payments are identified and classified by the Merchant Categorization Code (MCC) defined by financial services companies. The data are mapped using proprietary methods from the MCCs to the North American Industry Classification System (NAICS), which is also used by the Census Bureau, in order to classify spending data by subsector. Spending data may also be classified by other proprietary methods not using MCCs.

BAC data used in this report include spending from active US households (HHs) only. Spending from corporate cards are excluded.

Our methodology for calculating the growth rates for daily data: we calculate the %Y/Y growth rate and the 4-year % change by matching calendar days (Jan 1 2023 is matched to Jan 1 2022, and Jan 1, 2019, respectively). The % change is calculated based on the 7-day moving average of spending levels.

Unless otherwise noted, the monthly subsector data are adjusted to control for seasonality and other factors.



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.

Other Important Disclosures

From time to time research analysts conduct site visits of covered issuers. BofA Global Research 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 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.

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.

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. 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.bofaml.com/BofASEdisclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI; BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch (Hong Kong): Merr (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 Canadian Investment Regulatory Organization; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; BofAS Japan: BofA Securities Japan Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; BofAS India: BofA Securities India Limited, regulated by the Securities and Exchange Board of India (SEBI); Merrill Lynch (Israel): Merrill Lynch (I Financial Services Authority (DFSA); Merrill Lynch (Brazil): Merrill Lynch (SA. 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 HKSFC; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); 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 in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France),

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.

This report may contain a short-term trading idea or recommendation, which highlights a specific near-term catalyst or event impacting the issuer or the market that is anticipated to have a short-term price impact on the equity securities of the issuer. Short-term trading ideas and recommendations are different from and do not affect a stock's fundamental equity rating, which reflects both a longer term total return expectation and attractiveness for investment relative to other stocks within its Coverage Cluster. Short-term trading ideas and recommendations may be more or less positive than a stock's fundamental equity rating.

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.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned herein. Investors in such securities and instruments, including ADRs, 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 2024 Bank of America Corporation. All rights reserved. iQdatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Securities clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Securities. BofA Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Securities and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Securities. Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel's knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public inform

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

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

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

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

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

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

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



Research Analysts

Thomas (T.J.) Thornton Head of Research Marketing BofAS thomas.thornton2@bofa.com

Economics

Aditya Bhave

US Economist BofAS aditya.bhave@bofa.com

Fundamental Equity Research

Justin Post

Research Analyst BofAS justin.post@bofa.com

Jason Haas, CFA

Research Analyst BofAS jason.haas@bofa.com

Lorraine Hutchinson, CFA

Research Analyst lorraine.hutchinson@bofa.com

Mihir Bhatia

Research Analyst BofAS mihir.bhatia@bofa.com

Rafe Jadrosich

Research Analyst BofAS rafe.jadrosich@bofa.com

Shaun Calnan, CFA

Research Analyst BofAS shaun.calnan@bofa.com

Robert F. Ohmes, CFA

Research Analyst

robert.ohmes@bofa.com

Alexander Perry Research Analyst

BofAS aperry3@bofa.com

Joanna Gajuk

Research Analyst BofAS joanna.gajuk@bofa.com

Jeffrey Spector

Research Analyst jeff.spector@bofa.com

Sara Senatore

Research Analyst BofAS sara.senatore@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 relevant markets and the financial resources to absorb any losses arising from applying these ideas or strategies.

