

18 November 2024

Our Perspective on EVs and the US Election

The University of Michigan's 72nd Annual Economic Outlook Conference

John Murphy, CFA
Research Analyst
BofAS
johnj.murphy@bofa.com
+1 646 855 2025

John P. Babcock
Research Analyst
BofAS
john.p.babcock@bofa.com
+1 646 743 0046

Federico Merendi
Research Analyst
BofAS
federico.merendi@bofa.com
+1 646 556 2798

William Healey
Research Analyst
BofAS
william.healey2@bofa.com
+1 646 855 5747



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 11-12.

Agenda



- 1) EVs - Damned if you do and damned if you don't**
- 2) Elections have consequences for the Auto value chain**



1) EVs - damned if you do and damned if you don't

Why are the degrees of commitment and success so different?

1. **China:** Policy is focused on the industrial logic of driving globally competitive Chinese automakers, and to a lesser extent the impact on the environment
2. **Europe:** Knee jerk response to the catastrophe of diesel-gate, which was driven by the informed regulatory regime as it was Volkswagen
3. **United States:** Focused on the environment with a carrot and stick approach => IRA incentives and CAFE standards ramping up, but consumers still not biting much

Tesla Model S



ZEEKR 001



1) EVs - damned if you do and damned if you don't

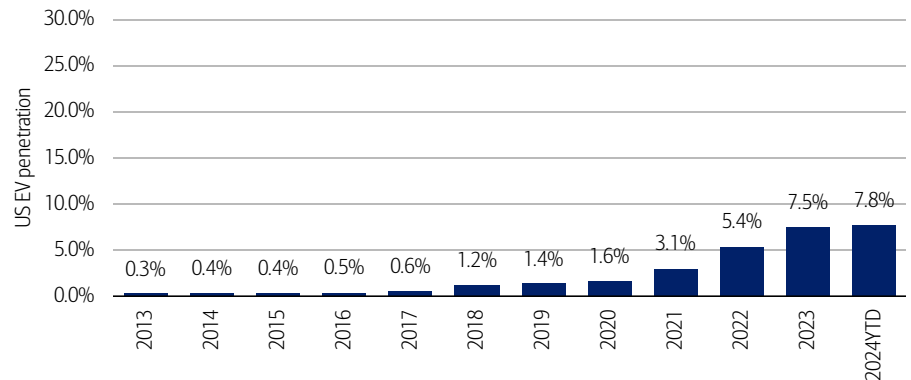
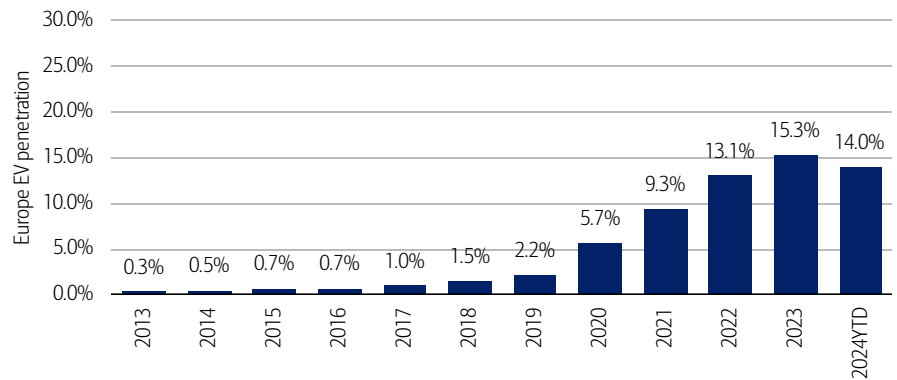
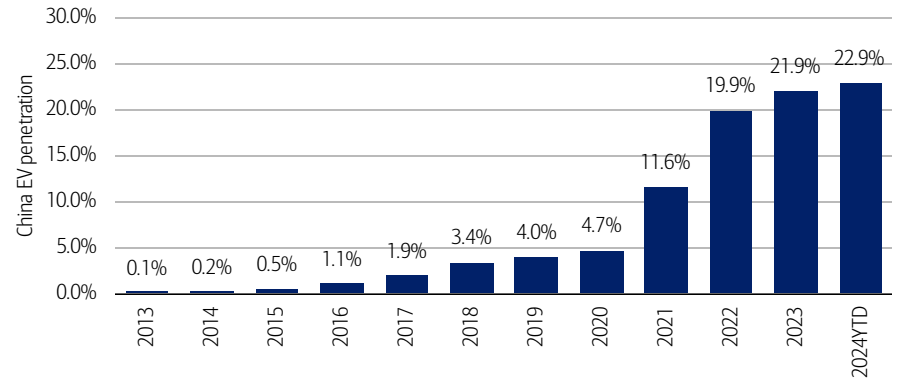


Global EV dynamics

China has the highest EV penetration of any global region driven by heavy incentives as the country plays to develop industrial manufacturing base and national champions. In 2024 national subsidies are phasing out as local incentives ramp up.

Europe EV penetration is much higher than the US as governments impose more stringent environmental regulations & repents for diesel-gate sins. Many EU countries have reduced EV incentives.

US EV adoption has been slower as the government has been less aggressive enforcing the process. Inflation Reduction Act incentives plus increasing CAFE standards.



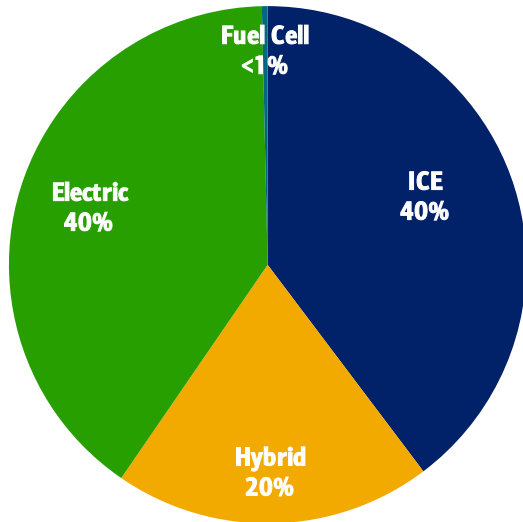
Source: EV Volumes, Wards, BofA Global Research
Note: 2024 YTD is data through October

1) EVs - damned if you do and damned if you don't

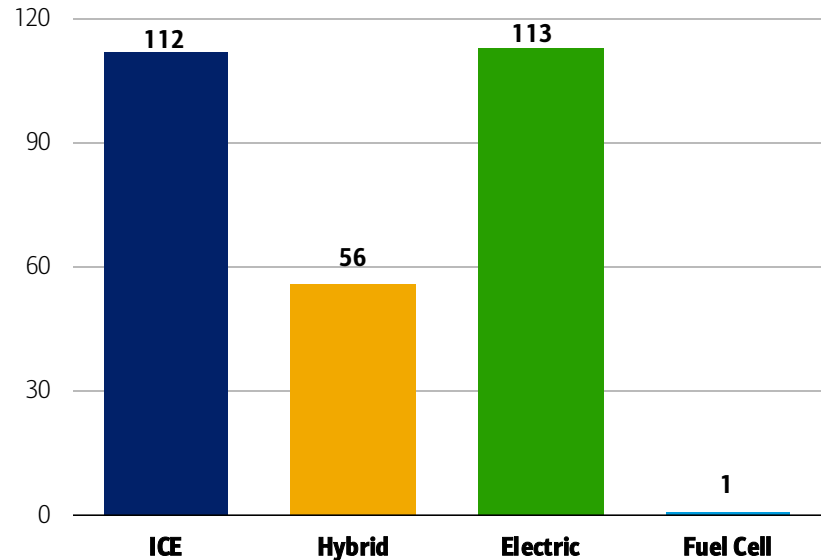
Future Car Wars – EV model launches get pushed out



Nameplate offerings by powertrain type ^[1]



Number of nameplate offerings by powertrain type



Tallying up the powertrain offerings across all the new model nameplates over MY2025-28, we estimate roughly 60% will be some alternative powertrain variant (hybrid, electric, fuel cell), down from 64% last year. Nevertheless, it is clear from our analysis that the advent of alternative powertrain vehicles is here, but at a slower pace than many have been anticipating.

Source: BofA Global Research

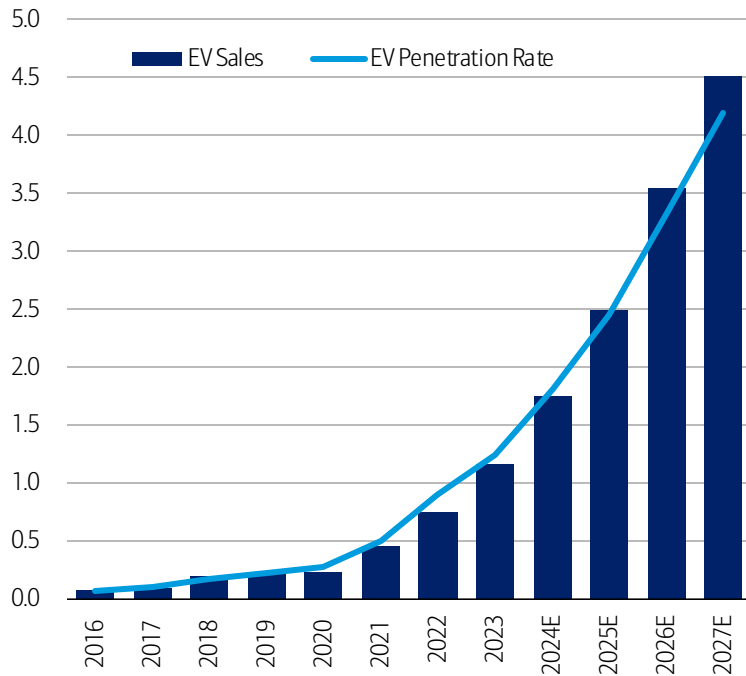
[1] % of nameplate and powertrain count; not a % of volume

1) EVs - damned if you do and damned if you don't

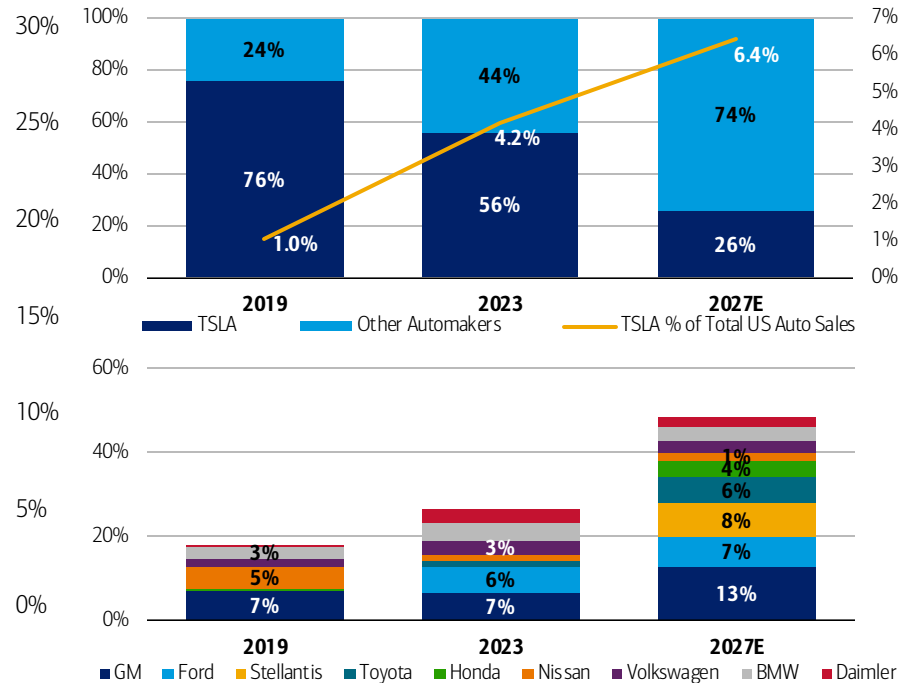
Future Car Wars – EV penetration to ramp materially



Bottoms up EV penetration estimates



EV market share implications



We use our Car Wars analysis and assumptions to derive a Bottoms up forecast around EV volumes and EV penetration, which points to potentially ~1.8mm EVs sold in CY2024 (MY2025), ~2.5mm in CY2025 (MY2026), ~3.6mm in CY2026 (MY2027), and ~4.5mm in CY2027 (MY2028), or EV penetration of ~11% in 2024, ~15% in 2025, ~20% in 2026, and ~25% in 2027. Our projections indicate that Tesla is set to cede share of the EV market, while GM, Stellantis and Honda are set to gain the most.

1) EVs - damned if you do and damned if you don't

Who Makes the Car – Electric vehicle component systems



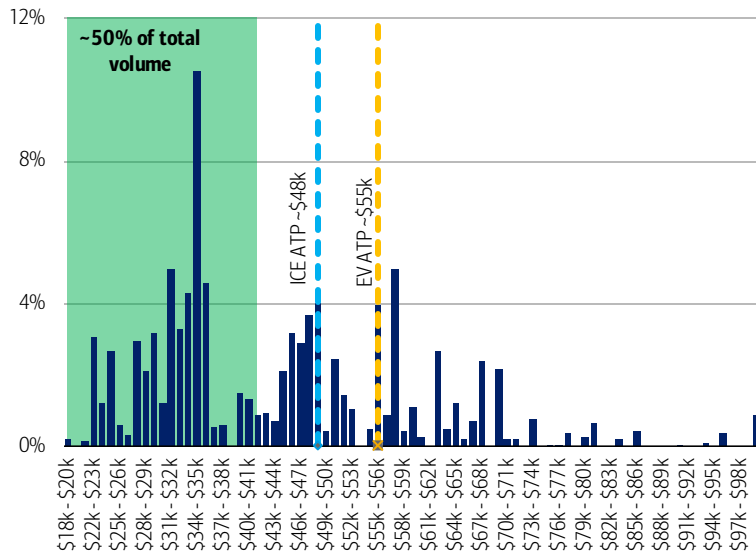
	<u>Global Traditional ICE Vehicle (A)</u>	<u>US ICE Vehicle - Increased in line with RPU (B)</u>	<u>Average \$ Revenue per Unit</u>	<u>US Battery Electric Vehicle (C)</u>
Average \$ Revenue per Unit	\$31,922	\$44,557	Average \$ Revenue per Unit	\$55,338
Component Content Cost			Component Content Cost	
Steering	\$420	\$590	Steering	\$590
Passenger Restraints	\$380	\$530	Passenger Restraints	\$530
Exhaust	\$335	\$470	Exhaust	\$0
Wheels & Tires	\$345	\$485	Wheels & Tires	\$485
Body Glass	\$155	\$215	Body Glass	\$215
Interior	\$1,480	\$2,070	Interior	\$2,070
Body & Structural	\$3,325	\$4,655	Body & Structural	\$5,585
Suspension	\$650	\$910	Suspension	\$910
Axles, Driveshafts & Components	\$1,060	\$1,485	Axles, Driveshafts & Components	\$1,115
Climate Control & Engine Cooling	\$850	\$1,190	Climate Control & Engine Cooling	\$1,670
Audio & Telematics	\$415	\$580	Audio & Telematics	\$815
Fuel System	\$415	\$580	Fuel System	\$0
Braking	\$515	\$720	Braking	\$1,120
Transmission	\$1,695	\$2,375	Transmission	\$0
Engine	\$3,350	\$4,690	Engine	\$0
Electronics & Electrical	\$2,385	\$3,340	Electronics & Electrical - Traditional	\$3,340
			+ EV Electrical Architecture	\$1,325
			Total Electronics & Electrical	\$4,665
			+ Electric Motor/Drive/Transmission	\$1,200
			+ Power Electronics/Other	\$1,520
			+ Battery Cell/Pack	\$12,235
Total \$ Component Content Cost	\$17,775	\$24,885	Total \$ Component Content Cost	\$34,725



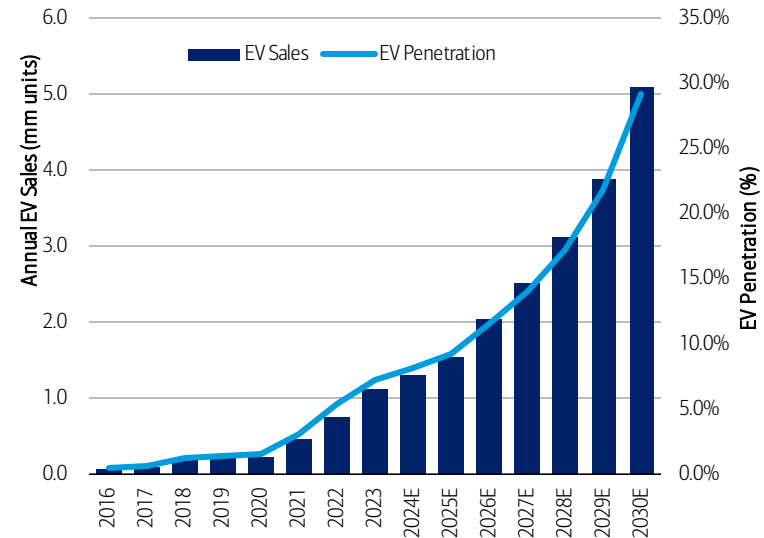
1) EVs - damned if you do and damned if you don't

Who Makes the Car - US electric vehicle penetration

US vehicle sales (% of total units) by ATP - \$000s



US EV penetration & volume forecasts 2024-2030E



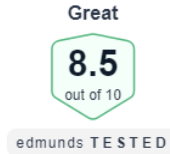
Accounting for our assumptions that in the short-term OEMs have few economic incentives to ramp EV production despite a potential demand driven by lower prices, we estimate that EV penetration will inch higher from 2024 (~8%) to 2027 (~14%) without major breakthroughs. However, after 2027 we see EV penetration to accelerate and end our projection in 2030 at 29% of the market.



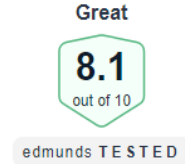
1) EVs - damned if you do and damned if you don't

Consumers – Generally satisfied with the product, top 10 selling vehicles

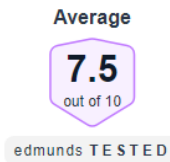
#1: Ford F-150



#6: Honda CR-V



#2: Chevy Silverado



#7: Toyota Camry



#3: RAM 1500



#8: GMC Sierra



#4: Toyota RAV4



#9: Nissan Rogue



#5: Tesla Model Y



#10: Jeep Grand Cherokee





2) Elections have consequences for the Auto value chain

Election is likely positive for the industry, but it's complicated

1. **Environmental Regulation:** CAFE (NHTSA), EPA, CARB, IRA
 - i. Relaxed Rules
 - ii. Lower Incentives
 - iii. Lower EV Penetration
2. **General Deregulation:** AV Rules, Speed Limits, Infrastructure Investment
 - i. Relaxed Rules
 - ii. Potential Higher Speed of Travel
3. **Trade Policy:** Tariffs, USMCA, Bans
 - i. General Protectionist Bent for Autos
 - ii. USMCA renegotiation in 2026 is complicated
4. **Tax Policy:** Lower Corp Rate, Lower Personal Rate, Higher Inheritance Limits, Lower Cap Gains Rate, Deduction of Auto Loan Interest
 - i. General Stimulus for Autos

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

Pricing is indicative and for information purposes only except as otherwise stated in this 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 intraday price as of the date and time of the report and in relation to a debt security (including equity preferred and CDO), prices are indicative as of the date and time of the report and are from various sources including BoFA Securities' trading desks.

Officers of BoFA or one 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. ("BoFA") 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:

Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") 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; ML (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); 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 ("BoFAEU") with registered address at 51, rue de 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), BoFAEU is an établissement de crédit et d'investissement (credit and investment institution) that is authorized and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorités des Marchés Financiers. BoFAEU's share capital can be found at www.bofa.com/BoFAEUdiscamer. BoFA Europe (Malta): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BoFA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI; BoFA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSF); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the 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; 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; BoFA 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 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 FCA and the PRA) by ML (UK), which is authorized by the PRA and regulated by the FCA and PRA. Details about the extent of our regulation by the FCA and PRA are available from our website. This information has been approved for publication and is distributed in the European Economic Area (EEA) by BoFA Securities (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by BoFA Japan, a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BoFA 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 139602833D]. Merrill Lynch is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AS license 235132 (MLSA) distributes this information in Australia only to "wholesale" clients as defined by s761G of the Corporations Act 2001. With the exception of Bank of America NA, Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorized 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 as 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 BoFA Securities (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 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 BoFA 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. BoFA and/or MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to BoFA 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 BoFA 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 on 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 all non-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:

Tax: Readers: Neither the information nor any opinion expressed herein constitutes an offer or 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 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 ERM, 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, NA). 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 a security or financial instrument mentioned herein. Investors in such securities and instruments, including ADRs, effectively assume currency risk. BoFA or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BoFA 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 BoFA or the provision of research services for a separate fee, and in connection therewith BoFA may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the recipient's connection with whom BoFA has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BoFA). If such recipient uses the services of BoFA in connection with the sale or purchase of a security referred to herein, BoFA may act as principal for its own account or as agent for another person. BoFA 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. iQdatabse® 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. This document and its content is provided solely for informational purposes and cannot be used for training or developing artificial intelligence (AI) models, or as an input in any AI application (collectively, an AI tool). Any attempt to utilize this document or any of its content in connection with an AI tool without explicit written permission from BoFA Global Research is strictly prohibited. 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. Recopy and reuse 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 and are not intended to provide a comprehensive view on any sustainability claim with respect to any issuer or security. 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 BoFA or 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 sustainability in this material is limited as discussed herein and is not intended to provide a comprehensive view on any sustainability claim with respect to any issuer or security. 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 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 endorsement by or 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(s) in the future(s) is subject to applicable quiet periods. You should understand that BoFA Securities will not update or amend this information.

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 restricted or may be under review. In such cases, investors should consider any investment opinion relating to such issuer (or security and/or financial instrument) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of an offer. Sales persons and financial advisors affiliated with BoFA 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 or financial instruments 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.