

House Builders

CMA: 'fundamental concerns' in the UK housebuilder market, but who's to blame?

Industry Overview

Mixed messages from the investigation

After a year long study on the UK's housebuilding market, the Competition and Markets Authority (CMA) has published its final report, finding 'fundamental concerns' in the housing market. Having reviewed the c200 page report, our view is that most of the issues are stemming from the complex planning system, and that the developers are not at the root cause of the issues. We think this could be a positive for the sector if the government takes note of this and starts to reform the planning system. However, the CMA also launched an investigation into eight of the UK homebuilders over the sharing of non-public information between them. This sparks some near-term uncertainty.

Several issues in the UK housing market

The reported stated that overall, the housebuilding market is not delivering well for consumers. It found that too few houses are being built, especially in the areas in which they are most needed, which is having a negative effect on affordability. Furthermore, it states that a growing number of homeowners are reporting a higher number of snagging issues and identified a significant consumer detriment arising from the private management of public amenities on housing estates.

Several contributing factors for these outcomes

The study stated that lack of the number of houses being built and their affordability are being driven by two main factors, the nature and operation of the planning system and the limited amount of housing being built outside the speculative approach. Beyond this, several other factors are affecting the housing market. **1/ Planning rules:** complex systems and under resourced departments. **2/ Land banks:** practice of land banking a symptom of a complex planning system. **3/ Speculative private development:** developers building houses towards a sales rate, rather than speculatively. **4/ Quality and innovation:** housebuilders do not have strong incentives to compete on quality and consumers have unclear routes of redress. **5/ Private Estate management:** growing trend of estates with privately managed public amenities.

A probe into anti-competitiveness between housebuilders

The CMA states they have seen evidence of the sharing of non-public information on sales prices, incentives, and rates of sale. This, they argue, has the potential to weaken competition between housebuilders. They have therefore launched an investigation into **Barratt, Bellway, Berkeley, Bloor Homes, Persimmon, Redrow, Taylor Wimpey, and Vistry**, to explore this conduct. We maintain our cautious view on the sector.

Recommendations from the CMA

The CMA has made several recommendations to the government, including streamlining the planning system, measures to increase the build-out of housing sites, and ensuring local authorities put in place local plans guided by clear targets, among others.

27 February 2024

Equity
Europe
House Builders

Lukha Aggarwal >>
Research Analyst
MLI (UK)
+44 20 7995 6920
lukha.aggarwal@bofa.com

Arnaud Lehmann >>
Research Analyst
MLI (UK)
+44 20 7995 8302
arnaud.lehmann@bofa.com

>> 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.

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 8.

12663973

Timestamp: 27 February 2024 12:30AM EST

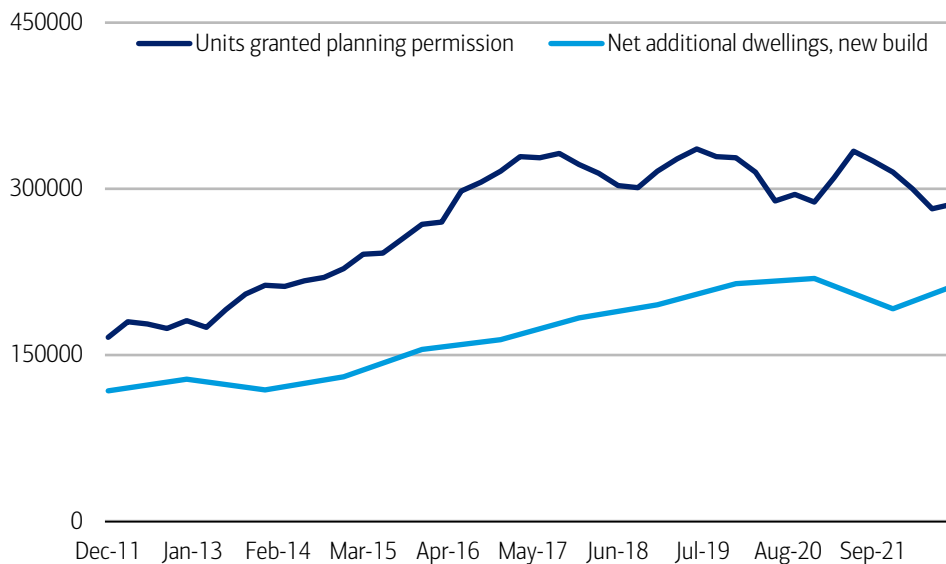
Details on the drivers of the poor market outcomes

The planning systems: causing significant problems

A prior condition for building houses is having permission to build them. The CMA has found that the planning system is exerting a significant downward pressure on the overall number of planning permissions being granted. Over the long-term, the number of permissions being given has been insufficient to support housebuilding at the level required to meet government targets and measures of assessed need. The number of planning permissions granted needs to be sustained at a higher level than new builds coming to market, as a proportion of permissions will lapse or be re-applications relating to a previously permissioned project. The data suggests that this has not been the case.

Exhibit 1: Net additional new homes built and net additional planning permissions in England

Not enough planning permission has been granted



Source: Department for Levelling Up, Housing and Communities, BofA Global Research

BofA GLOBAL RESEARCH

The CMA found several features of the planning system that are limiting the number of permissions they produce each year.

Lack of predictability

Firstly, governments frequently use the planning system as a means of implementing a range of new policies, most commonly environmental regulations, including Nutrient neutrality requirements and Biodiversity Net Gain rules. Where the introduction of such policies affects which developments can go ahead, this creates unpredictability for housebuilders. Secondly, there is a continuous revision of the planning process itself. Thirdly, there is a lack of up-to-date local plans, where <40% of Local Planning Authorities (LPA's) had in place a plan that was less than the suggested maximum age of five years old. Where plans are not up to date, there is more uncertainty for housebuilders on how likely applications are to be approved.

Overall, the uncertainty about whether planning permission will be granted has led to housebuilders being more reluctant to pursue residential development at a site, due to the number of sunk costs they incur, and has hence deterred them from bringing forward planning applications.

Length, costs and complexity

In England, the share of applications reviewed within the statutory deadline of 13 weeks fell from 55% in 2009 to 12% in 2021 and the average time to make an

outline planning permission decision between 2020 and 2022 was well over a year. The main reasons for the added length include the increasing amount of policy impacting the planning system, LPA resourcing constraints, with expenditure on planning falling by c.40% over the past decade, delays in receiving responses from statutory consultees, and the negotiation of site-specific agreements to secure housebuilder contributions to funding of local infrastructure.

The planning process has become increasingly costly and complex to negotiate. In addition, there are substantial and increasing policy-related costs involved in the development process. Recent analysis by Lichfields suggests that since 1990 the volume of evidence that is required to support a planning application has increased dramatically, as has the cost associated with making a planning application.

The land market: operating relatively well

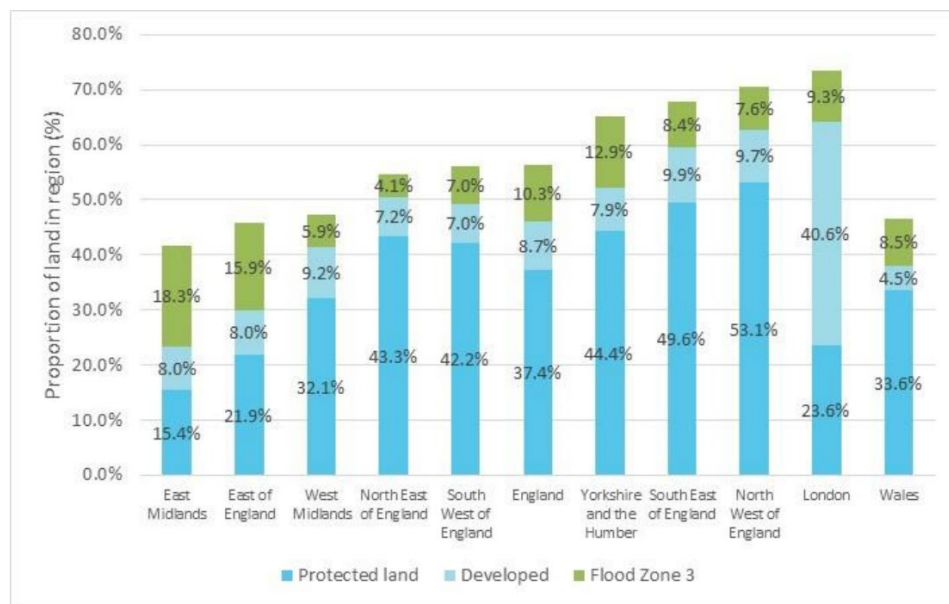
On the other hand, the CMA has concluded that operational nature of the land market is not a driver of negative outcomes in the housebuilding market.

Availability

The study found that approximately 43.6% of land in England assumed to be potentially developable. Except for London, developed land accounts for less than 10% of land in each region of England, meaning >30% remains potentially developable. This level is likely sufficient to meet future housing needs.

Exhibit 2: Proportion of land that is protected, developed or at risk of flooding, by region of England and by nation (England and Wales)

>30% of land remains potentially developable



Source: Department for Levelling Up, Housing and Communities, BofA Global Research

BofA GLOBAL RESEARCH

Competition for land

The CMA found that there was healthy competition for land purchases. Competitive bidding processes were used for the sale of 82% of sites included in the study, and limited tenders did not result in substantially lower bids for land. Furthermore, housebuilders exert a competitive constraint on each other based on their win rates.

Land banks

Housebuilders have previously been accused of 'land banking', where they may build up a large portfolio of land but choose not to develop on it. Opponents argue that this could reduce the amount of land available for development by other builders, thereby increasing scarcity and pushing up prices, slow the delivery of new homes, or hinder

small and medium-sized housebuilders from identifying and securing suitable land for development. The CMA therefore investigated whether housebuilders hold ‘too much’ land. As of 2022, they found that housebuilders had held short-term land for an average of 2.5 to 4.5 years, and 7 years for long term land. They state that these average time frames did not appear to be unreasonably long for land to remain in land banks.

Limited private speculative development

Housebuilders generally build-out to a sales rate on sites. This means that they can maintain prices, but results in them building homes at a slower pace than they otherwise could.

The extent to which housebuilders can expand their supply in a local area is inherently limited by the extent to which they can get hold of further land with planning permission in the area. As a result, the effect of lowering their prices is more likely to bring sales forward in time, rather than increase their overall sales over the medium term; therefore, doing this will rarely be a profit maximizing strategy for housebuilders. Given that it is costly for housebuilders to have capital tied up in partly finished or finished, unsold homes, they are incentivized to control their build-out rate to a level that maintains selling prices.

Builders’ incentives to pursue the strategy of maximizing sales prices are reinforced by the way they compete to purchase developable land. Most land is bought under the residual valuation model, meaning that when housebuilders bid for land, they offer a price that is affordable based on their estimate of the value of the homes they can build on it. Given the competition observed for land, housebuilders must offer the highest possible price to secure it. With all housebuilders subject to the same market forces, this further incentivizes housebuilders to build out at a rate that supports high prices, rather than (outside of a housing market downturn) reducing prices to increase the volume they can sell. The land market and planning system again underpins the housebuilder’s decision to not build speculatively.

Quality and innovation limitations

On quality outcomes, the CMA concluded that there are a range of limitations in how far competition drives quality. Specifically, they stated that consumers are limited in the attention they give to quality over other factors, such as location, availability, and price, and that they only have limited information available on quality when making purchase decisions. They argue that redress routes are not sufficiently clear and comprehensive to offer effective consumer protection. In terms of innovation, evidence indicates that the take-up of modern construction methods has been slow, largely due to high upfront costs, and that the implementation of energy efficiency measures is the result of government intervention rather than competition.

Private management of amenities on housing estates adding trouble

The CMA has observed a growing trend towards private management of public amenities on housing estates. These arrangements often come with inadequate protections for consumers and create significant detriment for households over an extended period. As a result, homebuyers may be poorly informed about important details about those arrangements and their long-term implications.

Unadopted amenities may not be constructed to an acceptable quality or may not be maintained to a satisfactory standard by the management company. Furthermore, it is often very difficult for households to switch management companies and, in some cases, there appears to be no feasible way for them to do this. Finally, bills can be large, with a high proportion relating to administration or management fees, and future bills unpredictable and potentially very high as amenities degrade over time.

A probe into anti-competitiveness between housebuilders

Evidence from housebuilders' internal documents suggests that some have been sharing non-public information on sales prices, incentives, and rates of sale with each other. The sharing of commercially sensitive information has the potential to weaken competition between housebuilders by reducing strategic uncertainty in the market and influencing housebuilders' commercial decisions, potentially including on output or prices.

Housebuilders may find it mutually beneficial to share this information because it helps to provide greater certainty about rivals' current market prices (including any incentives they provide) and sales rates and this potentially could influence the prices at which they bid for land and/or their own decisions about the current levels of pricing, sales rates, and build-out rates. As a result, the CMA has decided to launch an investigation into this suspected conduct under the Competition Act 1998, and is specifically investigating Barratt, Bellway, Berkeley, Bloor Homes, Persimmon, Redrow, Taylor Wimpey, And Vistry.

However, the CMA has 'not found conclusive evidence that law has been broken' and does not believe that the conduct is driving the fundamental outcomes in market, however, they still believe that it could be a contributing factor.

CMA's recommendations

Overall, it seems that the majority of the issues observed in the housing market stem from a complex planning system, rather than through malpractices among the housebuilders. This is reducing the supply on the market, resulting in higher prices and less homes. The CMA has as such made several recommendations to the government.

Reforming the planning system

- More objective and effective use of targets to ensure housing need is met.
- Effective monitoring and enforcement of local plans to encourage housebuilders to bring forward successful planning applications and build new houses.
- Streamlining the planning system to significantly increase the ability of housebuilders to begin work on new projects sooner and bring forward marginal projects which may have previously been non-viable due to the costs of taking them forward.
- Clearly defining and rationalizing statutory consultees to reduce the delay caused by the statutory consultation process.
- Effective monitoring and enforcement of deadlines for statutory consultees so as not to unnecessarily delay the planning process.
- Improving LPA capacity and resource by raising planning fees to a cost reflective level and ringfencing those fees.

Measures to support a higher build-out rate

- LPAs could require greater diversity of housing tenure for larger sites to be granted planning permission.
- LPAs could be incentivized by governments to increase the number of homes that are delivered through smaller sites.
- LPAs could require housebuilders to increase the diversity of the types of homes they build on larger sites.

Measures to improve quality

- A single mandatory consumer code.
- Activation of the New Homes Ombudsman Scheme.
- A specific banned practice on the drip pricing of all mandatory elements of a new home, as well as other charges that are presented as 'optional' but which it is reasonably foreseeable that most consumers would have to pay, even if others could avoid them.
- Where housebuilders present consumers with genuinely optional extras as a part of the purchasing process, these optional extras and their prices are prominently and fully disclosed alongside the headline price.
- Have an independent body to develop, maintain and undertake a single consumer satisfaction survey on the quality of new homes and the service provided by all housebuilders.
- Housebuilders to display their key quality metrics to consumers, and share this information with an independent body for public dissemination.

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.

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 BofA 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.bofam.com/BofASEdisclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI; BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (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; 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 Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Brazil): Merrill Lynch S.A. Corretora de Títulos e Valores Mobiliários, regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofASE (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by BofAS Japan, a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofAS India; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the [Electronic Communications Disclaimers](#) for further information.

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

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Securities.

This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Securities clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives,



financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

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

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 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 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.