

# **Building Products**

# Reiterate Buy on AZEK/TREX: expect TREX to beat 4Q and guide 1Q above consensus

**Price Objective Change** 

# Composite decking proving to be secular growth category

We estimate composite decking dealer and retail sales grew mid-single-digits (or better) in 2023 compared to a low-single-digit decline in overall repair & remodel (R&R) spending. Composite decking grew despite a volume base that is roughly 20% higher than 2019 levels (price +30-40%). Many categories that benefitted from a boom in demand in 2021/2022 are now facing revenue declines in 2023 and into 2024 from normalization (home improvement, sporting goods, pools/spa). Composite decking has been able to grow off the higher base, which demonstrates: 1) composite decking is early stage in the conversion from wood and consumer awareness is growing, 2) decking has a large installed base making it less discretionary than other building products because of replacement demand, and 3) composite decking will hold price in a downturn.

# Recent checks are still positive in tough R&R backdrop

Web traffic data and recent company commentary indicate that composite decking "sell-through" (sales to distributors) continues to grow. While there is some potential weather disruption in 1Q, January and February are primarily stocking periods for composite decking companies.

# Valuation: growth outperformance warrants premium

Trex and Azek stock valuations have re-rated higher relative to peers recently, however, we think higher multiples are justified given the stronger revenue growth outperformance compared to other building product companies. Azek looks particularly attractive given its trading at the low-end of its historical discount to Trex. Azek also trades just in-line with its historical premium to building products despite stronger relative growth outlook. Trex trades at a wider premium than Azek, but its multiple is highly correlated with its revenue growth, which we anticipate to accelerate in 1H24.

# **AZEK** remains a top pick

Azek remains a top pick in building products (added to US 1 on January 30<sup>th</sup>). We reiterate our Buy rating: 1) Guidance looks conservative, 2) Azek's residential sell-out trends remain exceptionally strong and composite decking/exteriors continue to meaningfully outperform over the renovation market, and 3) we see upside to margin guidance from the flow-through of PVC deflation, higher utilization, and use of more recycled materials. We raise our PO on Azek to \$52 (from \$50) now based on a 19X EBITDA (was 18X) to reflect higher sector multiples.

# TREX preview: we expect 4Q upside + guide > consensus

Trex is scheduled to report 4Q23 earnings on Monday, February 26<sup>th</sup> after the market close. We expect modest upside vs. consensus driven by better sales (we model \$0.21 vs. consensus \$0.19). We expect Trex to initiate 2024 revenue guidance at the high-end or above its long-term 11-13% target with incremental EBITDA margins in the high-30% range. We also anticipate 1Q24 revenue guidance ahead of street forecasts. We raise our 2024E EPS by 3% and raise our PO to \$103 (from \$90) now based on a higher target multiple of 25X EV/2025E EBITDA (from 23X) given higher sector multiples.

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 8 to 11. Analyst Certification on page 7. Price
Objective Basis/Risk on page 6.

Timestamp: 23 February 2024 08:24AM EST

#### 23 February 2024

Equity United States Building Products

Rafe Jadrosich Research Analyst BofAS +1 646 855 5815 rafe.jadrosich@bofa.com

Shaun Calnan, CFA Research Analyst BofAS shaun.calnan@bofa.com

Victoria Piskarev Research Analyst BofAS victoria.piskarev@bofa.com

# Key changes

#### Exhibit 1: PO changes

Raising POs for AZEK and TREX

Building	New	Old	New			
Products	Rating	Rating	PO	Old PO	New Multiple (2025 EV/EBITDA)	Old Multiple (2025 EV/EBITDA)
AZEK	Buy	Buy	\$52	\$50	19.0	18.0
TREX	Buy	Buy	\$103	\$90	25.0	23.0

Source: BofA Global Research estimates

BofA GLOBAL RESEARCH

### **Exhibit 2: TREX estimate changes**

Raising TREX 2024E/2025E EPS estimates 3%/2%

				New					New	
Building			Consensus	VS.	New vs.			Consensus	VS.	New vs.
<b>Products</b>	New 2024E	Old 2024E	2024E	Old	Consensus	New 2025E	Old CY 2025E	2025E	Old	Consensus
TREX	2.41	2.33	2.28	3%	5%	2.71	2.62	2.70	2%	0%

Source: BofA Global Research estimates, Bloomberg

BofA GLOBAL RESEARCH

# Recent checks are still positive in tough R&R backdrop

Web traffic data and recent company commentary indicate that composite decking "sellthrough" (sales to distributors) continues to grow. While there is some potential weather disruption in 1Q, January and February are primarily stocking periods for composite decking companies.

AZEK 4Q23 - February 2nd: "We continued to experience strong double-digit sellthrough growth in fiscal 1Q 2024. The retail POS data continues to experience healthy growth year-over-year. Total retail POS remained above our pro-channel sell-through. We see our residential sell-through in the mid-single digits for the balance of the fiscal year."

FBIN 4Q23 commentary – January 30th: "Decking sales were down mid-single digits in the weaker as weaker retail sales offset strong whole channel point of sales (POS) trends. Our POS data indicates that our Fiberon wholesale sell-through consistently paced ahead of the market with strong sequential improvement throughout the year and exited the year up mid-single-digits versus last year and above the market."

TREX 3Q23 commentary – October 30th: "Channel sell-through growth for TREX products was in the mid-single-digits in 3Q23. We expect low-single-digit growth in the 4th quarter driven by consumer demand. We expect a little bit of channel inventory build in the 4th quarter."

#### Decking web traffic: Jan +19% YoY; +52% vs. Jan 2019

Web traffic to composite decking websites (AZEK, TREX and Fiberon) rose +18.6% YoY in January and was +52.4% higher vs. January 2019. By company, Trex (trex.com and decks.com) web traffic increased +3.0% YoY in January and rose +59.1% higher vs. January 2019. Total AZEK (timbertech.com + AZEK.com) web traffic rose +48.2% YoY in January and increased +48.0% vs. January 2019. **Fiberon** web traffic increased +122.7% YoY in January and rose +9.7% vs. January 2019.



2

Exhibit 3: Aggregated web traffic data, Y/Y

Overall January decking web traffic increased 19% YoY and rose 52% vs. January 2019

Monthly YoY Web Traffic Trend	Jul.	Aug.	Sep.	Q3	Oct.	Nov.	Dec.	Q4	Jan.	Δ*
Total Decking	4%	19%	14%	11%	18%	1%	10%	10%	19%	1
TREX (decks.com + trex.com	10%	27%	7%	14%	19%	10%	-10%	8%	3%	1
AZEK (Azek.com + timbertech.com)	-9%	4%	37%	7%	23%	-4%	79%	25%	48%	$\downarrow$
Fiberon	-3%	10%	-35%	-7%	-34%	-56%	-32%	-43%	123%	1
Monthly vs 2019 Web Traffic Trend	Jul.	Aug.	Sep.	Q3	Oct.	Nov.	Dec.	Q4	Jan.	Δ*
Monthly vs 2019 Web Traffic Trend Total Decking	<b>Jul.</b> 29%	<b>Aug.</b> 48%	<b>Sep.</b> 55%	<b>Q3</b> 42%	<b>Oct.</b> 61%	<b>Nov.</b> 97%	<b>Dec.</b> 122%	<b>Q4</b> 85%	<b>Jan.</b> 52%	Δ*
,										<b>Δ</b> *  ↓  ↓
Total Decking	29%	48%	55%	42%	61%	97%	122%	85%	52%	<b>Δ*</b> ↓  ↓

**Source:** SimilarWeb, \*  $\Delta$  in YoY trend vs. prior month

BofA GLOBAL RESEARCH

# Valuation: growth outperformance warrants premium

The biggest pushback from investors to our bullish view on composite decking is valuation, especially after the recent run in both Trex and Azek. Year-to-date TREX has increased 13% and Azek is up 21.5% vs. the S&P Composite 1500 Building Products Index +5.5%. Trex and Azek stocks valuations have re-rated higher relative to peers recently, however, we think higher multiples are justified given the stronger revenue growth outperformance compared to other building product companies. Azek looks particularly attractive given its trading at the low-end of its historical discount to Trex. Azek also trades just in-line with its historical premium to building products despite stronger relative growth outlook. Trex trades at a wider premium than Azek, but its multiple is highly correlated with its revenue growth, which we anticipate to accelerate in 1H24.

Exhibit 4: We expect Trex and Azek's valuation premium vs. peers to widen with revenue growth outperformance

Composite decking company historical revenue growth and valuation premium

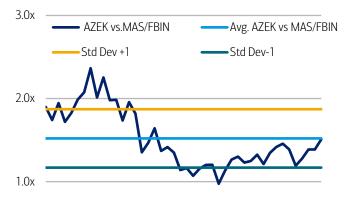
Sales Growth (ex. acquisitions)	2020	2021	2022	2023	2024E
AZEK (residential)	20%	31%	0%	12%	8%
TREX (residential)	19%	38%	-7%	3%	17%
FBIN	6%	19%	-2%	-7%	0%
MAS	7%	15%	6%	-8%	0%
Valuation	2020	2021	2022	2023	Current
AZEK Fwd EV/EBITDA	21.3x	18.8x	11.1x	15.3x	16.9x
TREX Fwd EV/EBITDA	27.3x	34.7x	14.6x	21.3x	22.5x
FBIN Fwd EV/EBITDA	11.0x	11.3x	8.8x	10.8x	11.0x
MAS Fwd EV/EBITDA	10.5x	11.5x	8.8x	11.2x	11.4x
Relative revenue growth performance vs.					
FBIN/MAS	2020	2021	2022	2023	2024E
AZEK (residential)	14%	14%	-2%	20%	8%
TREX (residential)	13%	21%	-9%	10%	17%
Relative valuation vs. FBIN/MAS	2020	2021	2022	2023	Current
AZEK (residential)	10.6x	7.3x	2.3x	4.3x	5.7x
TREX (residential)	16.6x	23.3x	5.8x	10.3x	11.3x

Source: BofA Global Research

BofA GLOBAL RESEARCH

#### **Exhibit 5: AZEK fwd EV/EBITDA relative to MAS/FBIN**

AZEK is trading in line with its historical avg. vs. MAS/FBIN





**Source:** Bloomberg; Data through Feb 22, 2024

BofA GLOBAL RESEARCH

### **Exhibit 6: TREX fwd EV/EBITDA relative to MAS/FBIN**

TREX is trading in line with its historical avg. vs. MAS/FBIN



0.0x \_\_\_\_\_\_\_ Jan-18 Jan-19 Jan-20 Jan-21 Jan-22 Jan-23 Jan-24

Source: Bloomberg; Data through Feb 22, 2024

BofA GLOBAL RESEARCH

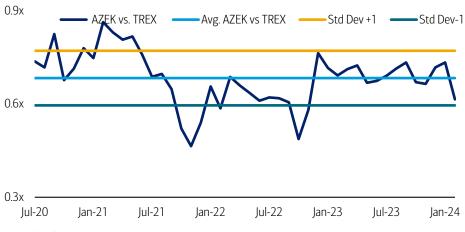
# Azek remains a top pick

Azek remains a top pick in building products (added to US 1 on January 30<sup>th</sup>). We reiterate our Buy rating: 1) Guidance looks conservative, 2) Azek's residential sell-out trends remain exceptionally strong and composite decking/exteriors continues to meaningfully outperform over renovation market, and 3) we see upside to margin guidance from the flow-through of PVC deflation, higher utilization, and use of more recycled materials. We raise our PO on Azek to \$52 (from \$50) now based on a 19X EBITDA (was 18X) to reflect higher sector multiples.

### Azek trades at the low-end of its historical valuation vs. Trex

## **Exhibit 7: AZEK vs. TREX forward EV/EBITDA**

AZEK is trading below its historical discount to TREX



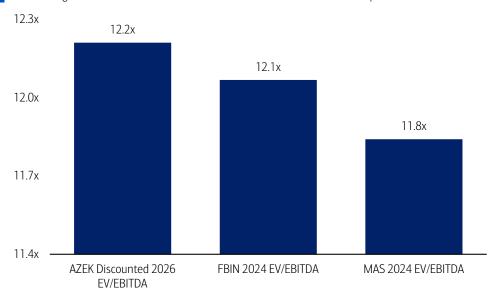
Source: Bloomberg

BofA GLOBAL RESEARCH

# Azek's multiple looks attractive relative to MAS/FBIN when accounting for its growth

# Exhibit 8: AZEK 2026 EV/EBITDA multiple discounted back to 2024 vs. FBIN and MAS 2024 EV/EBITDA

AZEK trading at similar levels to FBIN and MAS when discounted to the 2026 multiple



Source: BofA Global Research estimates, company reports

BofA GLOBAL RESEARCH

# TREX preview: we expect 4Q upside + guide > consensus

### Raise 2024E EPS/revenue forecasts; Reiterate Buy

We raise our 2024E EPS estimate by 3% to \$2.41 (5% above consensus) to reflect a stronger revenue growth outlook. We anticipate YoY revenue growth above Trex's long-term 11-13% target in 2024 given: 1) continued outperformance of composite decking relative to other building product categories due to the conversion from wood, 2) \$60-80mm of revenue that will fall in 1H24 instead of 4Q23 due to an early buy timing shift, 3) distributors are entering 2024 more confident than last year following strong sell-out performance in 2023 despite a choppy macro environment, 4) Trex has a robust product launch schedule (strongest since 2019 in our view) including color and geographic expansion for Signature, 5) adjacent categories are gaining traction (including recently launched fasteners and entry level railing), and 6) we believe Trex (and Azek) are gaining share from smaller tertiary brands.

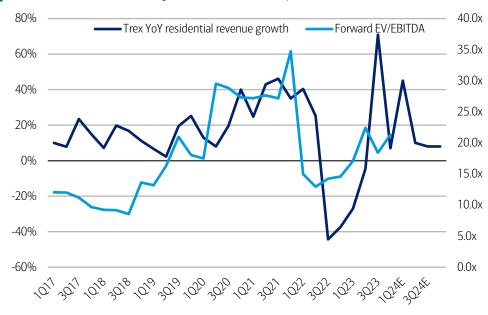
#### Expect strong incremental margins in 2024 as well

We expect incremental EBITDA margins in the high-30% range in 2024 driven by improving utilization (roughly 150bps of gross margin expansion for every \$100mm of sales). We also expect a return to modest SG&A leverage in 2024 (20-30bps) following a significant step-up in marketing expense in 2023 (which will stay elevated).



### Exhibit 9: TREX's valuation multiple and revenue growth are highly correlated

TREX historical residential revenue growth and EV/EBITDA multiple



Source: BofA Global Research, Company Data

BofA GLOBAL RESEARCH

### **Exhibit 10: Stocks mentioned**

Prices and ratings for stocks mentioned in this report

<b>BofA Ticker</b>	Bloomberg ticker	Company name	Price	Rating
AZEK	AZEK US	The AZEK Company	US\$ 46.49	C-1-9
TREX	TREX US	Trex Company, Inc.	US\$ 93.52	C-1-9

Source: BofA Global Research

BofA GLOBAL RESEARCH

# Price objective basis & risk

#### The AZEK Company Inc. (AZEK)

Our \$52 PO for AZEK shares is based on a CY2025E EV/EBITDA multiple of 19x, which implies Azek trades in line with its historical discount to key peer Trex. We believe a discount to TREX is appropriate given AZEK's lower return on invested capital, margins and brand recognition.

Upside risks to our PO are: 1) an acceleration in residential repair & remodeling and outdoor living spending, 2) a faster than expected conversion from wood decks to composite decks, 3) faster than expected share gain, 4) continued consumer preference towards enhancing the overall outdoor living space, and 5) faster than expected transition to recycled materials.

Downside risks to our PO are: 1) a slowdown in residential repair & remodeling spending, 2) a slower than expected conversion from wood decks to composite decks, 3) potential market share loss, 4) a mix shift in consumer preferences away from outdoor living and 5) a slowing US economy.

Trex Company, Inc. (TREX)

Our \$103 PO is based on a 25X 2025E EV/EBITDA multiple, which is slightly above TREX's trailing 5-year average (22X), given a favorable growth outlook and a lower rate backdrop. We believe EV/EBITDA is the most appropriate metric for valuing the building product companies.

Upside risks to our PO: 1) an acceleration in residential repair & remodeling and outdoor living spending, 2) a faster than expected conversion from wood decks to composite decks, 3) faster than expected share gains, 4) stronger than anticipated pricing, and 5) continued consumer preference towards enhancing the overall outdoor living space.

Downside risks to our PO: 1) a slowdown in residential repair & remodeling spending, 2) a slower than expected conversion from wood decks to composite decks, 3) market share loss, 4) a mix shift in consumer preferences away from outdoor living, 5) a slowing US economy and 6) rising interest rates.

# **Analyst Certification**

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



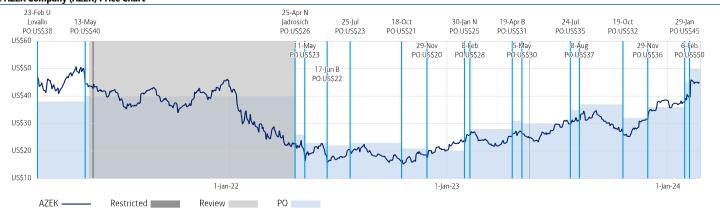
#### **US - Homebuilders and Building Products Coverage Cluster**

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	Armstrong World Industries, Inc.	AWI	AWI US	Rafe Jadrosich
	Builders FirstSource Inc	BLDR	BLDR US	Rafe Jadrosich
	D.R. Horton, Inc.	DHI	DHI US	Rafe Jadrosich
	Latham Group, Inc.	SWIM	SWIM US	Shaun Calnan, CFA
	Leslie's	LESL	LESL US	Shaun Calnan, CFA
	NVR, Inc.	NVR	NVR US	Rafe Jadrosich
	Owens Corning	OC	OC US	Rafe Jadrosich
	PulteGroup Inc.	PHM	PHM US	Rafe Jadrosich
	The AZEK Company Inc.	AZEK	AZEK US	Rafe Jadrosich
	Toll Brothers, Inc.	TOL	TOL US	Rafe Jadrosich
	TopBuild Corp	BLD	BLD US	Rafe Jadrosich
	Trex Company, Inc.	TREX	TREX US	Rafe Jadrosich
NEUTRAL				
	Dream Finders Homes, Inc.	DFH	DFH US	Rafe Jadrosich
	KB Home	KBH	KBH US	Rafe Jadrosich
	Lennar Corporation	LEN	LEN US	Rafe Jadrosich
	Smith Douglas Homes Corp.	SDHC	SDHC US	Rafe Jadrosich
UNDERPERFORM				
	Fortune Brands Innovations Inc	FBIN	FBIN US	Rafe Jadrosich
	Hayward Holdings, Inc.	HAYW	HAYW US	Rafe Jadrosich
	Masco Corp	MAS	MAS US	Rafe Jadrosich
	Mohawk Industries	MHK	MHK US	Rafe Jadrosich
	Patrick Industries, Inc.	PATK	PATK US	Rafe Jadrosich
	Pool Corporation	POOL	POOL US	Shaun Calnan, CFA

# **Disclosures**

# **Important Disclosures**

The AZEK Company (AZEK) Price Chart



B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

The Investment Opinion System is contained at the end of the report under the heading "Fundamental Equity Opinion Key". Dark grey shading indicates the security is restricted with the opinion suspended. Medium grey shading indicates the security is under review with the opinion withdrawn. Light grey shading indicates the security is not covered. Chart is current as of a date no more than one trading day prior to the date of the report.



#### Trex Company, Inc. (TREX) Price Chart



B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

The Investment Opinion System is contained at the end of the report under the heading "Fundamental Equity Opinion Key". Dark grey shading indicates the security is restricted with the opinion suspended. Medium grey shading indicates the security is under review with the opinion withdrawn. Light grey shading indicates the security is not covered. Chart is current as of a date no more than one trading day prior to the date of the report.

#### Equity Investment Rating Distribution: Building Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	39	44.83%	Buy	22	56.41%
Hold	18	20.69%	Hold	11	61.11%
Sell	30	34.48%	Sell	8	26.67%

#### Equity Investment Rating Distribution: Global Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	1895	53.62%	Buy	1083	57.15%
Hold	832	23.54%	Hold	454	54.57%
Sell	807	22.84%	Sell	383	47.46%

R1 Issuers that were investment banking clients of BofA Securities or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only stocks. A stock rated Neutral is included as a Hold, and a stock rated Underperform is included as a Sell.

FUNDAMENTAL EQUITY OPINION KEY: Opinions include a Volatility Risk Rating, an Investment Rating and an Income Rating. VOLATILITY RISK RATINGS, indicators of potential price fluctuation, are: A - Low, B - Medium and C - High. INVESTMENT RATINGS reflect the analyst's assessment of both a stock's absolute total return potential as well as its attractiveness for investment relative to other stocks within its Coverage Cluster (defined below). Our investment ratings are: 1 - Buy stocks are expected to have a total return of at least 10% and are the most attractive stocks in the coverage cluster; 2 - Neutral stocks are expected to remain flat or increase in value and are less attractive than Buy rated stocks and 3 - Underperform stocks are the least attractive stocks in a coverage cluster. An investment rating of 6 (No Rating) indicates that a stock is no longer trading on the basis of fundamentals. Analysts assign investment ratings considering, among other things, the 0-12 month total return expectation for a stock and the firm's guidelines for ratings dispersions (shown in the table below). The current price objective for a stock should be referenced to better understand the total return expectation at any given time. The price objective reflects the analyst's view of the potential price appreciation (depreciation).

# Investment rating Total return expectation (within 12-month period of date of initial rating) Ratings dispersion guidelines for coverage cluster<sup>R2</sup>

Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Jnderperform	N/A	≥ 20%

R2Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

INCOME RATINGS, indicators of potential cash dividends, are: 7 - same/higher (dividend considered to be secure), 8 - same/lower (dividend not considered to be secure) and 9 - pays no cash dividend. Coverage Cluster is comprised of stocks covered by a single analyst or two or more analysts sharing a common industry, sector, region or other classification(s). A stock's coverage cluster is included in the most recent BofA Global Research report referencing the stock.

Price Charts for the securities referenced in this research report are available on the Price Charts website, or call 1-800-MERRILL to have them mailed.

BofAS or one of its affiliates acts as a market maker for the equity securities recommended in the report: The AZEK Company, Trex Company, Inc.

BofAS or an affiliate was a manager of a public offering of securities of this issuer within the last 12 months: The AZEK Company.

The issuer is or was, within the last 12 months, an investment banking client of BofAS and/or one or more of its affiliates: The AZEK Company.

BofAS or an affiliate has received compensation from the issuer for non-investment banking services or products within the past 12 months: The AZEK Company, Trex Company, Inc.

The issuer is or was, within the last 12 months, a non-securities business client of BofAS and/or one or more of its affiliates: The AZEK Company, Trex Company, Inc. BofAS or an affiliate has received compensation for investment banking services from this issuer within the past 12 months: The AZEK Company.

BofAS together with its affiliates beneficially owns one percent or more of the common stock of this issuer. If this report was issued on or after the 9th day of the month, it reflects the ownership position on the last day of the previous month. Reports issued before the 9th day of a month reflect the ownership position at the end of the second month preceding the date of the report: The AZEK Company.

BofAS or one of its affiliates is willing to sell to, or buy from, clients the common equity of the issuer on a principal basis: The AZEK Company, Trex Company, Inc.

The issuer is or was, within the last 12 months, a securities business client (non-investment banking) of BofAS and/or one or more of its affiliates: The AZEK Company, Trex Company, Inc. 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 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 Prudential 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 <a href="https://www.bofaml.com/BofASEdisclaimer">www.bofaml.com/BofASEdisclaimer</a>; 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 (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 HKSFC; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in 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 conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is r

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.

#### BofA ESGMeter Methodology:

ESGMeter is a proprietary metric based on quantitative analysis and fundamental analyst inputs that reflects our assessment of a company's Environmental, Social and Governance-related attributes. The ESGMeter is intended to indicate a company's likelihood of experiencing stronger financial stability (higher return on equity and lower earnings and price volatility) over the next three years relative to peer group. There are three ESGMeter levels - Low, Medium, and High - which indicate whether a company has attributes most likely to translate into superior financial stability (in the case of a High level) or weaker financial stability (in the case of a Low level) over the next three years relative to its peer group. A Medium level suggests that a company exhibits ESG characteristics that are likely associated with financial stability results in line with its peer group over the next three years. Full details of our methodology, financial stability definition and disclaimers are available at <a href="mailto:BGMeter methodology">BGMeter methodology</a>. ESGMeter is not indicative of a company's future stock price performance and is not an investment recommendation or rating. ESGMeter is independent of the BofA Global Research fundamental equity analyst's investment rating, volatility risk rating, income rating or price objective for that company.

#### 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.

Subject to the quiet period applicable under laws of the various jurisdictions in which we distribute research reports and other legal and BofA Securities policy-related restrictions on the publication of research reports, fundamental equity reports are produced on a regular basis as necessary to keep the investment recommendation current.

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 accents any liability what soever for any direct, indirect, or consequential damages or losses arising from any use of this

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.

