

Telecom

Weighing fundamental and technical cross currents

Rating Change - Credit

Supportive fundamental backdrop

Telecom fundamentals continue to hold up well amid uncertainty in the broadband/cable (and media) landscape with solid subscriber trends and FCF generation. Pricing trends (ARPU) have also held up (but below CPI) as cable offerings have yet to permeate the postpaid base. AT&T and VZ remain focused on execution and deleveraging but progress on the balance sheet is slow moving owing to large dividends (55-60% of FCF) and ~2-3% EBITDA growth partly due to drag from business wireline. VZ is sourcing growth from multiple channels including its new plan offerings, which include media bundles among other benefits likely at low margins, localized marketing to better target opportunities for pricing (where it has share) or share (where under indexed), and fixed wireless plans to complement its FIOS fiber footprint. AT&T's growth profile is supported by efforts in both wireless and its fiber build out.

Technicals are mixed: positive for VZ/T

VZ and AT&T bond spreads are benefiting from positive technicals from the lack of new issue, compounded by the broader lack of 10Y+ TMT issuance until recently. VZ is trying to bring leverage below 2.25x in order to begin stock buybacks (1.75-2x long term target) and is currently at 2.6x by its definition (ex. ABS). VZ recently issued a \$1B 30Y green bond (UOP for renewable energy) and €2B 8Y and 12Y bonds, using proceeds from the latter to tender for €1.9B of bonds maturing from 2025-2028. Near term, debt reduction is likely to be achieved through maturities (\$2.3B in 1H24) but low dollar bond tenders could become part of the deleveraging calculus at some point as FY FCF after dividends (~\$7B) is likely to exceed maturities. Similarly, AT&T debt maturity towers (\$6.5B in '24 and \$4.5B in '25 ex CP) are less than FCF after dividends (\$8-10B/year), limiting new issue needs but larger towers in 2026-2027 limit long end tender likelihood.

AT&T to UW; Updating estimates

We lower our issuer rating on AT&T to Underweight (UW long end bonds already) as bonds look rich to us relative to peers given its weaker credit profile, despite improvement on execution. We maintain our Marketweight rating on VZ as we believe spreads fairly reflect its credit profile and positive technicals. We update our estimates for 2024 and 2025, generally raising EBITDA 1-2% each year.

14 March 2024

High Grade Credit
United States
Telecom

Tom Curcuruto, CFA
Research Analyst
BofAS
+1 646 855 6870
tom.curcuruto@bofa.com

Michelle Zhang
Research Analyst
BofAS
michelle.zhang2@bofa.com

Glossary

CHTR: Charter Comm
CMCSA: Comcast
TMUS: T-Mobile USA
ORCL: Oracle
RCICN: Rogers Comm
UOP: Use of proceeds
VZ: Verizon Comm

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 11. Analyst Certification on page 6. Valuation & Risk on page 6.

12670184

Timestamp: 14 March 2024 06:00AM EDT

Relative Value

As the telco space has converged since fall '23 (and from initial lead-related concerns at AT&T and VZ in July '23), we look at spreads relative to CMCSA as a proxy for the highest quality name in cable/telco. VZ trades within 5 bp of CMCSA, leaving little room for further upside, and AT&T about 20 bp behind CMCSA, which is materially tighter than the 40-50bp range in 1H23 pre-lead time frame.

Exhibit 1: Relative Value Summary

Representative bonds ordered by 30Y spread, adjusted for dollar prices (1)

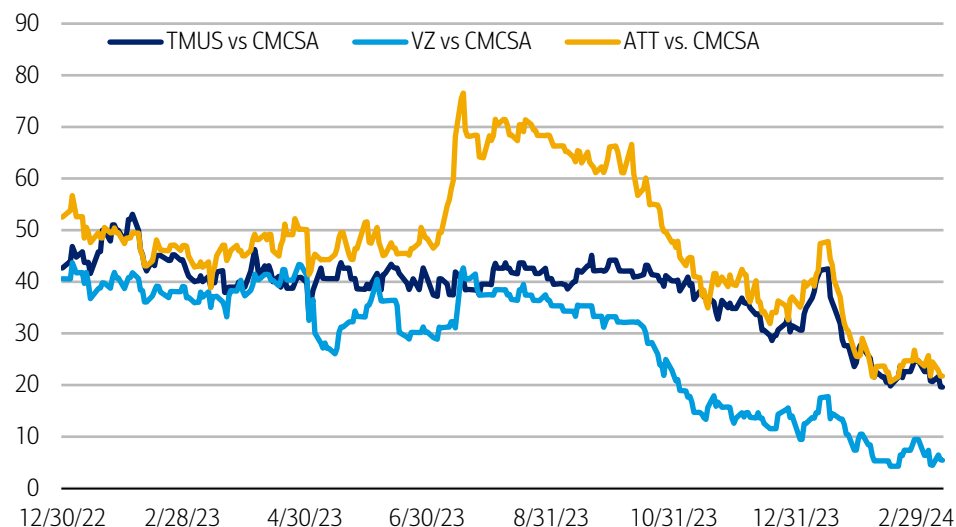
| | CMCSA | VZ | TMUS | T | ORCL | RCICN | CHTR | |
|-----------------------------|---------------------|-------------------|---------------------|-------------------|---------------------|---------------------|---------------------|-----|
| Bonds | | | | | | | | |
| 10Y | CMCSA 4.8 05/15/33 | VZ 5.05 05/09/33 | TMUS 5.15 04/15/34 | T 5.4 02/15/34 | ORCL 6 1/4 11/09/32 | RCICN 5.3 02/15/34 | CHTR 6.65 02/01/34 | |
| 30Y | CMCSA 5.35 05/15/53 | VZ 5 1/2 02/23/54 | TMUS 5 1/2 01/15/55 | T 3 1/2 09/15/53 | ORCL 5.55 02/06/53 | RCICN 4.55 03/15/52 | CHTR 5 1/4 04/01/53 | |
| Spreads | | | | | | | | |
| 10Y | | 79 | 85 | 101 | 103 | 103 | 119 | 217 |
| 30Y | | 106 | 110 | 119 | 121 | 137 | 143 | 259 |
| Adjusted Spreads (1) | | | | | | | | |
| 10Y | 80 | 85 | 102 | 103 | 100 | 120 | 216 | |
| 30Y | 107 | 110 | 120 | 136 | 138 | 152 | 270 | |
| 10s30s | 27 | 25 | 18 | 33 | 39 | 32 | 54 | |
| Ratings | | | | | | | | |
| | A3 / A- / A- | Baa1 / BBB+ / A- | Baa2 / BBB / BBB+ | Baa2 / BBB / BBB+ | Baa2 / BBB / BBB | Baa3 / BBB- / BBB- | Ba1 / BBB- / BBB- | |
| Net Leverage | 2.3 | 2.6 | 2.4 | 3.2 | 3.0 | 4.3 | 3.1 | |
| LTV % | 35% | 43% | 28% | 53% | 18% | 57% | 47% | |
| Capex / EBITDA (2) | 32% | 35% | 29% | 42% | 29% | 40% | 55% | |
| FCF after Div / Debt (2) | 9% | 6% | 17% | 6% | 8% | 5% | 4% | |
| EBITDA Growth (3) | 3.5% | 1.9% | 7.2% | 3.1% | 11.2% | 13.9% | 1.7% | |

Source: Company filings, Bloomberg, BofA Global Research. Bloomberg consensus estimates used for FCF and EBITDA. (1) Adjusted for difference in prices at 0.5bp per point, (2) FY1 estimate for FCF, Capex and EBITDA, (3) FY1 vs. LY. Notes: VZ excludes ABS debt in leverage and LTV calculations; AT&T leverage includes opco preferreds; CHTR metrics are for IG portion of the cap structure, including LTV

BofA GLOBAL RESEARCH

Exhibit 2: VZ 10Y basis to CMCSA at ~5bp and ATT at ~20bp

10Y Basis vs. CMCSA (highest quality comp)



Source: Bloomberg. Spreads adjusted for dollar prices (0.5 bp/pt)

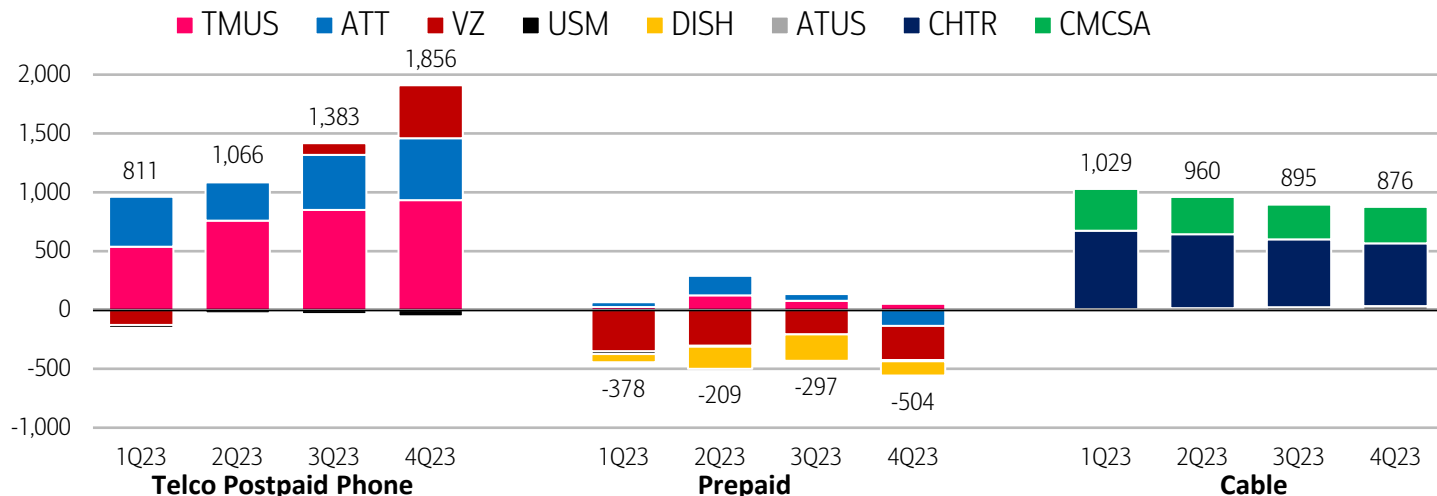
BofA GLOBAL RESEARCH

Wireless and Fixed Broadband subscriber trends

In wireless, quarterly net adds continued at a ~2mm/quarter pace in 4Q with telco postpaid phone subs gaining share recently (esp. VZ in 4Q) while the cable companies' net adds slowed. On balance, it appears most of the subscribers added by cable companies are sourced from the shrinking prepaid market but whether that bleeds into postpaid phones at some point remains a risk in our view. In broadband, all of the growth is driven by fixed wireless access (FWA), while fiber net adds are steady and continue to be offset by non-fiber net losses. VZ is targeting 4-5mm by YE'25 (vs. 3.1mm at YE'23), implying future run-rate well below the current run-rate.

Exhibit 3: Cable wireless (~900k net adds) taking from Prepaid

Postpaid phone and prepaid wireless subscriber net adds (000s)

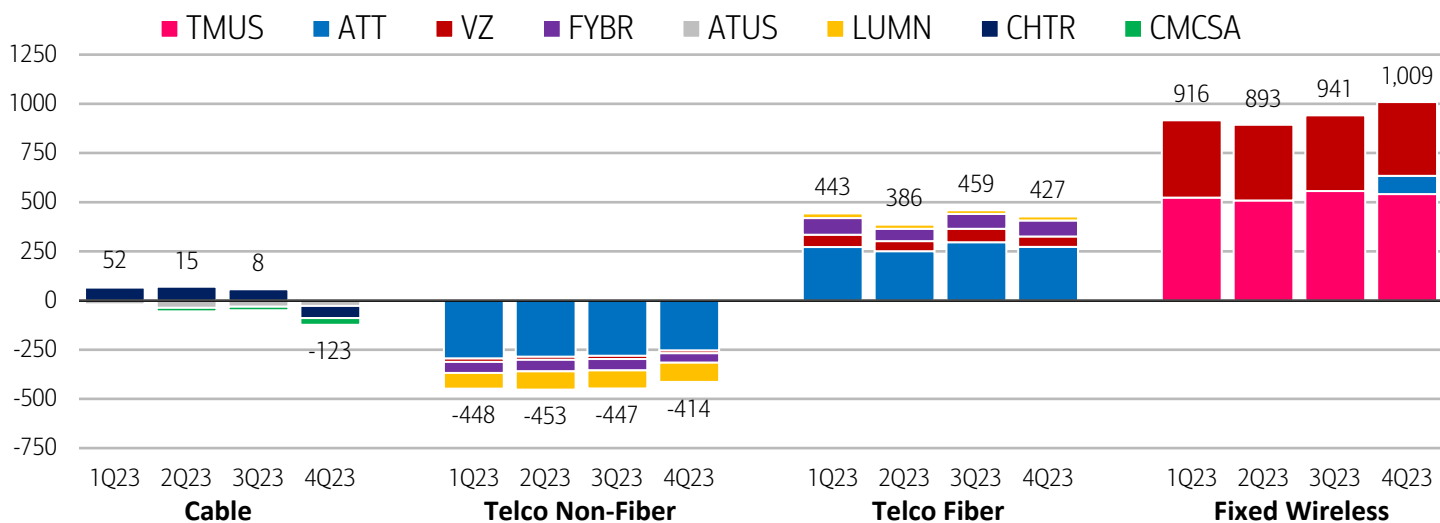


Source: Company filings.

BofA GLOBAL RESEARCH

Exhibit 4: FWA net adds (~1mm net adds) capturing all the growth in fixed broadband

Broadband subscriber net adds (000s)



Source: Company filings.

BofA GLOBAL RESEARCH

Exhibit 6: Verizon Communications Inc. Summary Model

Company model

| | 2023 | 2024 | 2025 | 1Q24 | 2Q24 | 3Q24 | 4Q24 |
|--|---------|---------|---------|---------|---------|---------|---------|
| | Act | Est | Est | Est | Est | Est | Est |
| Income Statement (\$MM) | | | | | | | |
| Revenue | 133,974 | 136,228 | 137,890 | 33,408 | 33,190 | 33,934 | 35,696 |
| Expenses | 86,185 | 87,507 | 88,231 | 21,369 | 20,982 | 21,537 | 23,619 |
| EBITDA | 47,789 | 48,721 | 49,660 | 12,040 | 12,208 | 12,397 | 12,077 |
| Interest | 5,524 | 6,417 | 6,388 | 1,608 | 1,604 | 1,601 | 1,604 |
| Pretax Income | 24,543 | 24,711 | 25,748 | 6,022 | 6,203 | 6,402 | 6,085 |
| Net income | 19,170 | 19,027 | 19,826 | 4,637 | 4,776 | 4,929 | 4,685 |
| Cash Flow (\$MM) | | | | | | | |
| EBITDA | 47,789 | 48,721 | 49,660 | 12,040 | 12,208 | 12,397 | 12,077 |
| Interest | -5,524 | -6,417 | -6,388 | -1,608 | -1,604 | -1,601 | -1,604 |
| Taxes | -4,892 | -5,684 | -5,922 | -1,385 | -1,427 | -1,472 | -1,399 |
| Net working capital | -267 | -800 | -800 | -200 | -200 | -200 | -200 |
| Other | 369 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cash from operations | 37,475 | 35,821 | 36,549 | 8,846 | 8,978 | 9,124 | 8,873 |
| Capex | -18,767 | -17,250 | -17,768 | -4,313 | -4,313 | -4,313 | -4,313 |
| FCF | 18,708 | 18,571 | 18,782 | 4,534 | 4,665 | 4,811 | 4,561 |
| Dividends | -11,025 | -11,299 | -11,525 | -2,798 | -2,798 | -2,852 | -2,852 |
| FCF after Dividends | 7,683 | 7,272 | 7,257 | 1,736 | 1,867 | 1,960 | 1,709 |
| Balance Sheet (\$MM) | | | | | | | |
| Cash | 2,065 | 8,061 | 12,821 | 2,754 | 4,972 | 6,932 | 8,061 |
| PP&E | 108,310 | 107,557 | 107,408 | 108,110 | 107,918 | 107,733 | 107,557 |
| Total Assets | 380,255 | 387,082 | 393,382 | 382,032 | 383,751 | 385,829 | 387,082 |
| Total Debt | 150,674 | 149,287 | 146,791 | 150,127 | 149,867 | 149,867 | 149,287 |
| Total Net Debt | 148,609 | 141,226 | 133,969 | 147,373 | 144,895 | 142,935 | 141,226 |
| Credit Metrics | | | | | | | |
| Gross Leverage | 3.2 | 3.1 | 3.0 | 3.1 | 3.1 | 3.1 | 3.1 |
| Net Leverage | 3.1 | 2.9 | 2.7 | 3.1 | 3.0 | 3.0 | 2.9 |
| Net Leverage ex ABS (Co Def) | 2.6 | 2.4 | 2.3 | 2.6 | 2.5 | 2.5 | 2.4 |
| FCF / Total Debt | 12% | 12% | 13% | 14% | 13% | 12% | 12% |
| Segment & Operating Metrics | | | | | | | |
| Consumer EBITDA | 42,088 | 43,419 | 44,522 | 10,715 | 10,873 | 11,069 | 10,761 |
| Business EBITDA | 6,554 | 6,271 | 6,106 | 1,566 | 1,577 | 1,570 | 1,558 |
| Other EBITDA | -853 | -968 | -968 | -242 | -242 | -242 | -242 |

Source: Company filings and BofA Global Research estimates

BofA GLOBAL RESEARCH



Exhibit 7: AT&T Inc. Summary Model

Company model

| | 2023 | 2024 | 2025 | 1Q24 | 2Q24 | 3Q24 | 4Q24 |
|--|---------|---------|---------|---------|---------|---------|---------|
| | Act | Est | Est | Est | Est | Est | Est |
| Income Statement (\$MM) | | | | | | | |
| Revenue | 122,428 | 123,485 | 124,146 | 30,685 | 30,367 | 30,534 | 31,900 |
| Expenses | 79,028 | 78,886 | 78,655 | 19,644 | 19,109 | 19,411 | 20,722 |
| EBITDA | 43,400 | 44,599 | 45,491 | 11,041 | 11,258 | 11,123 | 11,178 |
| Interest | 6,704 | 6,190 | 5,927 | 1,573 | 1,546 | 1,534 | 1,537 |
| Adj. Pretax Income | 22,635 | 22,235 | 21,940 | 5,452 | 5,677 | 5,536 | 5,570 |
| Net income | 14,192 | 16,859 | 16,623 | 4,129 | 4,309 | 4,196 | 4,224 |
| Cash Flow (\$MM) | | | | | | | |
| EBITDA | 43,400 | 44,599 | 45,491 | 11,041 | 11,258 | 11,123 | 11,178 |
| Interest | -6,496 | -6,272 | -6,009 | -1,797 | -1,363 | -1,758 | -1,354 |
| Taxes | -1,599 | -3,647 | -3,588 | -890 | -935 | -907 | -914 |
| Net working capital | -2,456 | 9 | 262 | -750 | -503 | 762 | 500 |
| Other | 7,514 | 4,800 | 3,800 | 1,200 | 1,200 | 1,200 | 1,200 |
| Cash from operations | 40,363 | 39,489 | 39,956 | 8,803 | 9,656 | 10,420 | 10,610 |
| Capex & Vendor financing | -23,595 | -21,500 | -23,000 | -5,250 | -5,250 | -5,250 | -5,750 |
| FCF | 16,768 | 17,989 | 16,956 | 3,553 | 4,406 | 5,170 | 4,860 |
| Dividends | -8,136 | -8,133 | -8,291 | -2,033 | -2,033 | -2,033 | -2,033 |
| FCF after Dividends | 8,632 | 9,857 | 8,665 | 1,520 | 2,373 | 3,137 | 2,827 |
| Balance Sheet (\$MM) | | | | | | | |
| Cash | 8,472 | 12,866 | 12,290 | 7,817 | 8,978 | 11,931 | 12,866 |
| PP&E | 128,489 | 131,006 | 134,567 | 129,022 | 129,535 | 130,030 | 131,006 |
| Total Assets | 407,060 | 412,230 | 413,231 | 406,689 | 407,866 | 410,816 | 412,230 |
| Total Debt | 137,331 | 132,601 | 124,094 | 135,339 | 134,310 | 134,310 | 132,601 |
| Total Net Debt | 128,859 | 119,736 | 111,804 | 127,522 | 125,333 | 122,379 | 119,736 |
| Credit Metrics | | | | | | | |
| Gross Leverage | 3.2x | 3.0x | 2.7x | 3.1x | 3.0x | 3.1x | 3.0x |
| Net Leverage | 3.0x | 2.7x | 2.5x | 2.9x | 2.8x | 2.8x | 2.7x |
| FCF / Total Debt | 11% | 14% | 14% | 13% | 14% | 14% | 14% |
| Segment & Operating Metrics | | | | | | | |
| Wireless EBITDA | 34,378 | 36,434 | 37,812 | 8,939 | 9,162 | 9,149 | 9,183 |
| Consumer Broadband EBITDA | 4,120 | 4,424 | 4,603 | 1,071 | 1,130 | 1,071 | 1,152 |
| Business Wireline EBITDA | 6,666 | 5,494 | 4,828 | 1,468 | 1,404 | 1,341 | 1,280 |
| Other EBITDA | -1,764 | -1,752 | -1,752 | -438 | -438 | -438 | -438 |

Source: Company filings and BofA Global Research estimates

BofA GLOBAL RESEARCH



Valuation & risk

AT&T (T)

Our Underweight rating reflects AT&T's weaker credit profile relative to peers (high leverage and LTV including structural adjustments, capex intensity, and lower FCF), slow rate of deleveraging, increasingly complex competitive landscape with mobile and fixed broadband convergence, and rich valuation, in our view.

Upside risks are continued execution on FCF guidance, net debt reduction, and/or achieving net leverage targets within its current timeline, resolution of lead sheathing concerns, stronger ARPU and/or subscriber growth in Mobility and Consumer broadband segments, and improvement in equity sentiment leading to a lower LTV.

Verizon Comm (VZ)

We rate Verizon at Marketweight owing to a balanced risk/reward profile in our view as the bonds are trading relatively tight to higher rated Comcast but we do not foresee a catalyst for material underperformance in the short term either.

Upside risks are 1) gaining subscribers in wireless, fiber, and/or fixed wireless product offerings to re-accelerate EBITDA growth, 2) execution on improving FCF generation that leads to faster debt reduction (including opportunistic tenders out the curve), and 3) resolution of lead-sheathed copper concerns. Downside risks are 1) weaker execution or faster market share losses due to poor execution or more aggressive competition, 2) a more shareholder-friendly posture to defend the stock, 3) pursuit of any available spectrum or acquisitions funded by debt or FCF that delays deleveraging, and 4) unfavorable developments in lead-sheathed cable matters.

Analyst Certification

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

Security/Loan pricing

AT&T Inc. / T

| | Amt | | Ratings | | | Yield | Spread |
|---------------------------|-------|---------------|-------------------|--------|-------------|-------|--------|
| Security | | Maturity date | Moody's/S&P/Fitch | Price | Price date | (%) | (bps) |
| 2.25, Senior, USD, 2032:B | 2,500 | 01-FEB-2032 | Baa2/BBB/BBB+ | 81.39 | 12-Mar-2024 | 5.15 | 102 |
| 3.65, Senior, USD, 2051:B | 3,000 | 01-JUN-2051 | Baa2/BBB/BBB+ | 73.57 | 12-Mar-2024 | 5.54 | 120 |
| 2.75, Senior, USD, 2031:B | 3,000 | 01-JUN-2031 | Baa2/BBB/BBB+ | 86.20 | 12-Mar-2024 | 5.06 | 98 |
| 3.55, Senior, USD, 2055:B | 7,495 | 15-SEP-2055 | Baa2/BBB/BBB+ | 69.80 | 12-Mar-2024 | 5.60 | 138 |
| 2.55, Senior, USD, 2033:B | 3,744 | 01-DEC-2033 | Baa2/BBB/BBB+ | 80.15 | 12-Mar-2024 | 5.17 | 109 |
| 5.4, Senior, USD, 2034:B | 2,750 | 15-FEB-2034 | Baa2/BBB/BBB+ | 101.63 | 12-Mar-2024 | 5.18 | 110 |
| 4.35, Senior, USD, 2029:B | 3,000 | 01-Mar-2029 | Baa2/BBB/BBB | 97.58 | 12-Mar-2024 | 4.91 | 77 |
| 4.3, Senior, USD, 2030:B | 3,144 | 15-Mar-2030 | Baa2/BBB/BBB | 96.45 | 12-Mar-2024 | 5.00 | 90 |
| 3.8, Senior, USD, 2057:B | 5,923 | 01-Dec-2057 | Baa2/BBB/BBB | 72.23 | 12-Mar-2024 | 5.65 | 143 |
| 3.65, Senior, USD, 2059:B | 6,495 | 15-Oct-2059 | Baa2/BBB/BBB | 69.40 | 12-Mar-2024 | 5.66 | 143 |
| 3.85, Senior, USD, 2060:B | 1,500 | 01-Jul-2060 | Baa2/BBB/BBB | 72.27 | 12-Mar-2024 | 5.66 | 143 |
| 3.5, Senior, USD, 2053:B | 7,496 | 15-SEP-2053 | Baa2/BBB/BBB+ | 70.41 | 12-Mar-2024 | 5.55 | 130 |

For pricing information refer to "Other Important Disclosures" below.

B=Bond; L=Loan; CS=Capital Security (Not including Equity Preferred); CDS=Credit Default Swap; EP=Equity Preferred

Verizon Communications / VZ

| | Amt | | Ratings | | | Yield | Spread |
|----------------------------|-------|---------------|-------------------|--------|-------------|-------|--------|
| Security | | Maturity date | Moody's/S&P/Fitch | Price | Price date | (%) | (bps) |
| 1.75, Senior, USD, 2031:B | 2,250 | 20-JAN-2031 | Baa1/BBB+/A- | 80.97 | 12-Mar-2024 | 5.07 | 93 |
| 2.875, Senior, USD, 2050:B | 2,750 | 20-NOV-2050 | Baa1/BBB+/A- | 65.50 | 12-Mar-2024 | 5.31 | 94 |
| 4.125, Senior, USD, 2027:B | 3,250 | 16-MAR-2027 | Baa1/BBB+/A- | 97.74 | 12-Mar-2024 | 4.94 | 60 |
| 3.55, Senior, USD, 2051:B | 4,500 | 22-MAR-2051 | Baa1/BBB+/A- | 74.30 | 12-Mar-2024 | 5.36 | 101 |
| 2.1, Senior, USD, 2028:B | 2,840 | 22-MAR-2028 | Baa1/BBB+/A- | 89.86 | 12-Mar-2024 | 4.91 | 70 |
| 2.355, Senior, USD, 2032:B | 4,626 | 15-MAR-2032 | Baa1/BBB+/A- | 82.21 | 12-Mar-2024 | 5.09 | 102 |
| 4.329, Senior, USD, 2028:B | 4,178 | 21-Sep-2028 | Baa1/BBB+/BBB+ | 97.91 | 12-Mar-2024 | 4.85 | 68 |
| 4.016, Senior, USD, 2029:B | 3,960 | 03-Dec-2029 | Baa1/BBB+/BBB+ | 95.62 | 12-Mar-2024 | 4.90 | 80 |
| 2.55, Senior, USD, 2031:B | 3,706 | 21-Mar-2031 | Baa1/BBB+/BBB+ | 85.35 | 12-Mar-2024 | 5.05 | 98 |
| 5.05, Senior, USD, 2033:B | 1,000 | 09-May-2033 | Baa1/BBB+/BBB+ | 100.28 | 12-Mar-2024 | 5.01 | 94 |
| 4.5, Senior, USD, 2033:B | 2,136 | 10-Aug-2033 | Baa1/BBB+/BBB+ | 95.79 | 12-Mar-2024 | 5.07 | 99 |
| 2.65, Senior, USD, 2040:B | 3,000 | 20-Nov-2040 | Baa1/BBB+/BBB+ | 70.49 | 12-Mar-2024 | 5.34 | 106 |
| 4.862, Senior, USD, 2046:B | 2,360 | 21-Aug-2046 | Baa1/BBB+/BBB+ | 93.93 | 12-Mar-2024 | 5.33 | 91 |
| 3.7, Senior, USD, 2061:B | 3,500 | 22-Mar-2061 | Baa1/BBB+/BBB+ | 73.15 | 12-Mar-2024 | 5.38 | 116 |
| 3.4, Senior, USD, 2041:B | 3,750 | 22-Mar-2041 | Baa1/BBB+/BBB+ | 78.48 | 12-Mar-2024 | 5.34 | 104 |

For pricing information refer to "Other Important Disclosures" below.

B=Bond; L=Loan; CS=Capital Security (Not including Equity Preferred); CDS=Credit Default Swap; EP=Equity Preferred

Disclosures

Important Disclosures

Credit opinion history

AT&T Inc. / T

| Company | Date ^{R1} | Action | Recommendation | Price |
|---------------------------|--------------------|------------------------|----------------|-------|
| AT&T Inc. / T | 28-Feb-2021 | | Marketweight | |
| | 17-May-2021 | Upgrade | Overweight | |
| | 09-Jan-2023 | Downgrade | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | |
| Security | Date ^{R1} | Action | Recommendation | Price |
| 2.25, Senior, USD, 2032:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | NA |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 77.51 |
| 3.65, Senior, USD, 2051:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | NA |
| | 05-Sep-2023 | Coverage Reinstatement | Underweight | 67.66 |
| 2.75, Senior, USD, 2031:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | NA |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 82.06 |
| 3.55, Senior, USD, 2055:B | 28-Feb-2023 | | Marketweight | |



AT&T Inc. / T

| Company | Date^{R1} | Action | Recommendation | |
|---------------------------|--------------------------|------------------------|-----------------------|-------|
| | 08-Mar-2023 | Extended Review | NA | NA |
| | 05-Sep-2023 | Coverage Reinstatement | Underweight | 64.17 |
| 2.55, Senior, USD, 2033:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | NA |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 75.73 |
| 5.4, Senior, USD, 2034:B | 02-Jun-2023 | New Issue | NA | |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 96.40 |
| 4.35, Senior, USD, 2029:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 94.34 |
| 4.3, Senior, USD, 2030:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 92.78 |
| 3.8, Senior, USD, 2057:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | |
| | 05-Sep-2023 | Coverage Reinstatement | Underweight | 66.36 |
| 3.65, Senior, USD, 2059:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | |
| | 05-Sep-2023 | Coverage Reinstatement | Underweight | 63.80 |
| 3.85, Senior, USD, 2060:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | |
| | 05-Sep-2023 | Coverage Reinstatement | Underweight | 66.99 |
| 3.5, Senior, USD, 2053:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | NA |
| | 05-Sep-2023 | Coverage Reinstatement | Underweight | 64.78 |

Table reflects credit opinion history as of previous business day's close.^{R1} First date of recommendation within the last 36 months, if for an issuer or within the last 12 months, if for a security or loan. The investment opinion system is contained at the end of the report under the heading "BofA Global Research Credit Opinion Key."

Pricing information in the table is provided for each action where available. In the case of bonds, loans, capital securities and equity preferreds, the price shown reflects the nominal cash price for the security; and in the case of CDS, the price shown reflects the spread, on the date of the relevant action.

B=Bond; L=Loan; CS=Capital Security (Not including Equity Preferred); EP=Equity Preferred; CDS=Credit Default Swap

Verizon Communications / VZ

| Company | Date^{R2} | Action | Recommendation | |
|-----------------------------|--------------------------|------------------------|-----------------------|--------------|
| Verizon Communications / VZ | 28-Feb-2021 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | |
| Security | Date^{R2} | Action | Recommendation | Price |
| 1.75, Senior, USD, 2031:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | NA |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 77.36 |
| 2.875, Senior, USD, 2050:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | NA |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 60.56 |
| 4.125, Senior, USD, 2027:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | NA |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 96.14 |
| 3.55, Senior, USD, 2051:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | NA |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 68.99 |
| 2.1, Senior, USD, 2028:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | NA |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 87.08 |
| 2.355, Senior, USD, 2032:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | NA |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 78.57 |
| 4.329, Senior, USD, 2028:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 95.46 |
| 4.016, Senior, USD, 2029:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 92.63 |
| 2.55, Senior, USD, 2031:B | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 81.75 |
| 5.05, Senior, USD, 2033:B | 09-May-2023 | New Issue | NA | |

Verizon Communications / VZ

| Company | Date ^{R2} | Action | Recommendation | |
|----------------------------|--------------------|------------------------|----------------|-------|
| 4.5, Senior, USD, 2033:B | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 96.32 |
| | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | |
| 2.65, Senior, USD, 2040:B | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 91.74 |
| | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | |
| 4.862, Senior, USD, 2046:B | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 66.01 |
| | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | |
| 3.7, Senior, USD, 2061:B | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 87.09 |
| | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | |
| 3.4, Senior, USD, 2041:B | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 67.09 |
| | 28-Feb-2023 | | Marketweight | |
| | 08-Mar-2023 | Extended Review | NA | |
| | 05-Sep-2023 | Coverage Reinstatement | Marketweight | 73.46 |

Table reflects credit opinion history as of previous business day's close.^{R2}First date of recommendation within the last 36 months, if for an issuer or within the last 12 months, if for a security or loan. The investment opinion system is contained at the end of the report under the heading "BofA Global Research Credit Opinion Key."

Pricing information in the table is provided for each action where available. In the case of bonds, loans, capital securities and equity preferreds, the price shown reflects the nominal cash price for the security; and in the case of CDS, the price shown reflects the spread, on the date of the relevant action.

B=Bond; L=Loan; CS=Capital Security (Not including Equity Preferred); EP=Equity Preferred; CDS=Credit Default Swap

BofA Global Research Credit Opinion Key

BofA Global Research provides recommendations on an issuer's bonds (including corporate and sovereign external debt securities), loans, capital securities, equity preferreds and CDS as described below. Convertible securities are not rated. An issuer level recommendation may also be provided for an issuer as explained below. BofA Global Research credit recommendations are assigned using a three-month time horizon.

Issuer Recommendations: If an issuer credit recommendation is provided, it is applicable to bonds and capital securities of the issuer except bonds and capital securities specifically referenced in the report with a different credit recommendation. Where there is no issuer credit recommendation, only individual bonds and capital securities with specific recommendations are covered. Loans, CDS and equity preferreds are rated separately and issuer recommendations do not apply to them.

BofA Global Research credit recommendations are assigned using a three-month time horizon:

Overweight: Spreads and/or excess returns are likely to outperform the relevant and comparable market over the next three months.

Marketweight: Spreads and/or excess returns are likely to perform in-line with the relevant and comparable market over the next three months.

Underweight: Spreads and/or excess returns are likely to underperform the relevant and comparable market over the next three months.

BofA Global Research uses the following rating system with respect to **Credit Default Swaps (CDS)**:

Buy Protection: Buy CDS, therefore going short credit risk.

Neutral: No purchase or sale of CDS is recommended.

Sell Protection: Sell CDS, therefore going long credit risk.

Corporate Credit Issuer Investment Rating Distribution: Global Group (as of 31 Dec 2023)

| Coverage Universe | Count | Percent | Inv. Banking Relationships ^{R3} | Count | Percent |
|-------------------|-------|---------|--|-------|---------|
| Buy | 144 | 37.21% | Buy | 119 | 82.64% |
| Hold | 193 | 49.87% | Hold | 163 | 84.46% |
| Sell | 50 | 12.92% | Sell | 37 | 74.00% |

^{R3} 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 corporate credit issuer recommendations. A corporate credit issuer rated Overweight is included as a Buy, a corporate credit issuer rated Marketweight is included as a Hold, and a corporate credit issuer rated Underweight is included as a Sell.

Credit Opinion History Tables for the securities referenced in this research report are available on the [Price Charts and Credit Opinion History Tables website](#), or call 1-800-MERRILL to have them mailed.

BofAS or an affiliate was a manager of a public offering of securities of this issuer within the last 12 months: AT&T, Verizon Comm.

The issuer is or was, within the last 12 months, an investment banking client of BofAS and/or one or more of its affiliates: AT&T, Verizon Comm.

BofAS or an affiliate has received compensation from the issuer for non-investment banking services or products within the past 12 months: AT&T, Verizon Comm.

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: AT&T, Verizon Comm.

BofAS or an affiliate has received compensation for investment banking services from this issuer within the past 12 months: AT&T, Verizon Comm.

BofAS or an affiliate expects to receive or intends to seek compensation for investment banking services from this issuer or an affiliate of the issuer within the next three months: AT&T, Verizon Comm.

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: AT&T, Verizon Comm.

BofAS or one of its affiliates has a significant financial interest in the fixed income instruments of the issuer. If this report was issued on or after the 15th day of the month, it reflects a significant financial interest on the last day of the previous month. Reports issued before the 15th day of the month reflect a significant financial interest at the end of the second month preceding the report: AT&T, Verizon Comm.

BofAS or one of its affiliates trades or may trade as principal in the debt securities (or in related derivatives) that are the subject of this research report: AT&T, Verizon Comm.

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: AT&T, Verizon Comm.

BofA Global Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall



profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.

BofA Securities fixed income analysts regularly interact with sales and trading desk personnel in connection with their research, including to ascertain pricing and liquidity in the fixed income markets.

Other Important Disclosures

From time to time research analysts conduct site visits of covered issuers. BofA Global Research policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits.

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for any recommendation in relation to an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report and in relation to a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including BofA Securities trading desks.

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

This report may refer to fixed income securities or other financial instruments that may not be offered or sold in one or more states or jurisdictions, or to certain categories of investors, including retail investors. Readers of this report are advised that any discussion, recommendation or other mention of such instruments is not a solicitation or offer to transact in such instruments. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor for information relating to such instruments.

Rule 144A securities may be offered or sold only to persons in the U.S. who are Qualified Institutional Buyers within the meaning of Rule 144A under the Securities Act of 1933, as amended. SECURITIES OR OTHER FINANCIAL INSTRUMENTS DISCUSSED HEREIN MAY BE RATED BELOW INVESTMENT GRADE AND SHOULD THEREFORE ONLY BE CONSIDERED FOR INCLUSION IN ACCOUNTS QUALIFIED FOR SPECULATIVE INVESTMENT.

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.

The securities or other financial instruments discussed in this report may be traded over-the-counter. Retail sales and/or distribution of this report may be made only in states where these instruments are exempt from registration or have been qualified for sale.

Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

This report, and the securities or other financial instruments discussed herein, may not be eligible for distribution or sale in all countries or to certain categories of investors, including retail investors.

Information relating to Affiliates of BofAS, MLPF&S and Distribution of Affiliate Research Reports:

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.

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.

BofA Securities is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

This report may contain a trading idea or recommendation which highlights a specific identified near-term catalyst or event impacting a security, issuer, industry sector or the market generally that presents a transaction opportunity, but does not have any impact on the analyst's particular "Overweight" or "Underweight" rating (which is based on a three month trade horizon). Trading ideas and recommendations may differ directionally from the analyst's rating on a security or issuer because they reflect the impact of a near-term catalyst or event.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned in this report. Investors in such securities and instruments effectively assume currency risk.

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 or any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

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

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

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

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 accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.