

Daily Boarding

Stars aligning for rates to decline (and bond-proxies to thrive)

Industry Overview

The door is open for rates to decline

US rates are declining following a soft US employment report and CPI print. Our US team now thinks the hiking cycle is over (see [US Watch, 14 November 2023](#)). If rates finally provide a breather in Brazil and abroad, other data points could add to the positive domestic narrative near the end of the year: soft comps vs 4Q22, a lower Selic rate, and improving consumer NPLs (non-performing loans) and lower household indebtedness. Our 14 November 2023, [LatAm Fund Manager Survey](#) in fact showed an uptick in sentiment, although some investors might prefer to remain cautious until year-end after the volatility of 2023.

Utilities: picks for fear of missing out and defensiveness

In our view, some Utilities stocks could offer a good balance for investors concerned about missing out on a rally but also willing to add some defensiveness: (1) Fear of missing out: we think that Sabesp (SBSP3) and Eletrobras (ELET) offer high re-rate potential (>20%) and potential triggers; (2) Defensiveness: we pick defensive names where we think positioning is currently light like Cemig (CMIG, ~7% dividend yield). See [Utilities: Regret aversion through year-end?, 09 November 2023, for more details](#).

Telcos: Solid 3Q results support rally and our bullish view

Telcos have had strong performance since the last report, with Vivo up 9% (+33% YTD) and TIM up 13% (+40% YTD), boosted by a strong 3Q, which supported our bullish view. We see solid momentum, with real top-line growth (~2x inflation in 3Q), expanding EBITDA margin and declining capex. We prefer Vivo given its strong FCF yield of 9% for 2024 and discounted valuation at 4.3x EV/EBITDA 24 (vs 4.6x L5Y avg) (See: Capex is declining globally - A new era of profitability for the Brazilian Telcos, [16 October 2023](#)).

Brazil's bond-proxies tracker: a comprehensive view

Bond proxies are stocks with relatively predictable cash flows, which is why investors tend to value them through implied internal rate of return (IRR). In Brazil, investors usually see utilities, transportation (toll roads, rail) and malls as bond proxies. Our tracker gathers bond-proxies: (1) current implied equity IRR; (2) equity risk premium; (3) recent performance; (4) stocks' cash-flow duration; (5) dividend yields and more.

16 November 2023

Equity
Latin America
Daily Boarding

LatAm Research
BofAS

Transportation team
Rogério Araujo >>
Research Analyst
Merrill Lynch (Brazil)
+55 11 2188 4255
rogerio.araujo@bofa.com

Gabriel Frazao >>
Research Analyst
Merrill Lynch (Brazil)
+55 11 2188 4252
gabriel.frazao@bofa.com

Utilities team
Arthur Pereira, CFA >>
Research Analyst
Merrill Lynch (Brazil)
+55 11 2188 4157
arthur.pereira@bofa.com

Gustavo Faria >>
Research Analyst
Merrill Lynch (Brazil)
+55 11 2188 4295
gustavo.faria@bofa.com

Real Estate team
Aline Caldeira >>
Research Analyst
Merrill Lynch (Brazil)
+55 11 2188 4583
aline.caldeira@bofa.com

Carlos Peyrelongue >>
Research Analyst
Merrill Lynch (Mexico)
+52 55 5201 3276
carlos.peyrelongue@bofa.com

TMT team
Fred Mendes, CFA >>
Research Analyst
Merrill Lynch (Brazil)
fred.mendes@bofa.com

Lucca R Brendim >>
Research Analyst
Merrill Lynch (Brazil)
+55 11 2188 4100
lucca.brendim@bofa.com

Strategy Team
Paula Andrea Soto, CFA >>
LatAm Equity Strategist
Merrill Lynch (Brazil)
+55 11 2188 4226
paula.soto@bofa.com

See Team Page for List of Analysts

>> Employed by a non-US affiliate of BofAS and is not registered/qualified as a research analyst under the FINRA rules.

Refer to "Other Important Disclosures" for information on certain BofA Securities entities that take responsibility for the information herein in particular jurisdictions.

BofA Securities does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 6 to 8. Analyst Certification on page 4. Price Objective Basis/Risk on page 2.

12628152

Timestamp: 16 November 2023 04:07AM EST

Exhibit 1: Stocks mentioned

Prices and ratings for stocks mentioned in this report

BofA Ticker	Bloomberg ticker	Company name	Price	Rating
CEMCF	CMIG4 BZ	Cemig	BRL 13.10	C-1-8
CIG	CIG US	Cemig	US\$ 2.67	C-1-8
XPAZF	CPL11 BZ	Cia Paranaense	BRL 46.01	B-1-8
ELP	ELP US	Cia Paranaense	US\$ 9.40	B-1-8
XLPUF	CPL6 BZ	Cia Paranaense	BRL 9.26	C-1-8
CAIFF	ELET3 BZ	Eletrobras	BRL 39.47	C-1-7
EBR	EBR US	Eletrobras	US\$ 8.10	C-1-7
CAIGF	ELET6 BZ	Eletrobras-Pref	BRL 43.17	C-1-7
EBRB	EBR/B US	Eletrobras-Pref	US\$ 9.00	C-1-7
XCPTF	VVT3 BZ	Telefonica Brasil	BRL 50.91	B-1-7
VIV	VIV US	Telefonica Brasil	US\$ 10.41	B-1-7
XZUAF	TIMS3 BZ	TIM Brasil	BRL 17.17	B-1-7
TIMB	TIMB US	TIM Brasil	US\$ 17.66	B-1-7

Source: BofA Global Research

BofA GLOBAL RESEARCH

Price objective basis & risk**Cemig (CEMCF)**

Our R\$16/US\$3.2 price objective is based on free cash flow-to-equity discounted at 10% in real BRL terms (14% in nominal terms). We assume there is no residual value /terminal growth value. We value Cemig's stake in TAESA (22%) based on current market cap. We value the 45% Aliança and Belo Monte stake with a DCF model. We use a Ke (cost of equity) real of 10% - no terminal growth, we model the assets until the end of the concession period. We attribute book value to Cemig's remaining stakes.

Downside risks to our PO are: 1) a change in the strategy of divesting non-core assets, 2) difficulty in refinancing short-term debt obligations (FX-related), 3) potential capitalization requirements of subsidiaries, 4) worse-than-expected pricing on Cemig GT's energy sales/trading, 5) worse-than-expected distribution tariff review conditions (scheduled for 2023), and 6) weak hydrology in Brazil leading to electricity rationing.

Upside risks are: 1) improvements on the residual value from expired hydro concessions, 2) sale of non-core asset at attractive conditions, 3) cost-reduction initiatives improving results and 4) privatization.

Cemig (CIG)

Our R\$16/US\$3.2 price objective is based on free cash flow-to-equity discounted at 10% in real BRL terms (14% in nominal terms). We assume there is no residual value /terminal growth value. We value Cemig's stake in TAESA (22%) based on current market cap. We value the 45% Aliança and Belo Monte stake with a DCF model. We use a Ke (cost of equity) real of 10% - no terminal growth, we model the assets until the end of the concession period. We attribute book value to Cemig's remaining stakes.

Downside risks to our PO are: 1) a change in the strategy of divesting non-core assets, 2) difficulty in refinancing short-term debt obligations (FX-related), 3) potential capitalization requirements of subsidiaries, 4) worse-than-expected pricing on Cemig GT's energy sales/trading, 5) worse-than-expected distribution tariff review conditions (scheduled for 2023), and 6) weak hydrology in Brazil leading to electricity rationing.

Upside risks are: 1) improvements on the residual value from expired hydro concessions, 2) sale of non-core asset at attractive conditions, 3) cost-reduction initiatives improving results and 4) privatization.

COPEL (XPAZF / ELP)

We derive our R\$60 (ADR: US\$12) price objective using free cash flow which considers a cost of equity of 10% real. We discount cash flows through the end of existing generation and transmission concessions in 2053E and no real perpetuity growth for the distribution. A R\$10/MWh higher energy price for un-contracted capacity vs our energy pricing assumption raises our DCF by 3%.

Upside risks

1) higher-than-expected dividend payout/yield, 2) higher-than-expected long-term generation prices for un-contracted capacity (each +R\$10/MWh vs R\$110/MWh base-case assumption implies +3% upside), 3) divestment of non-core assets under favorable conditions, and 4) higher than expected cost-cutting

Downside risks

1) lower-than-expected long-term generation prices for un-contracted capacity, 2) sub-par returns in potential new Greenfield projects or acquisitions

COPEL PN (XLPUF)

We derive our R\$12 price objective using free cash flow which considers a cost of equity of 10% real. We discount cash flows through the end of existing generation and transmission concessions in 2053E and no real perpetuity growth for the distribution. A R\$10/MWh higher energy price for un-contracted capacity vs our energy pricing assumption raises our DCF by 3%.

Upside risks

1) higher-than-expected dividend payout/yield, 2) higher-than-expected long-term generation prices for un-contracted capacity (each +R\$10/MWh vs R\$110/MWh base-case assumption implies +3% upside), 3) divestment of non-core assets under favorable conditions, and 4) higher than expected cost-cutting

Downside risks

1) lower-than-expected long-term generation prices for un-contracted capacity, 2) sub-par returns in potential new Greenfield projects or acquisitions

Eletrobras (CAIFF / EBR)

Our R\$50 PO (ELET3) (US ADR: \$9.40) is built on a sum-of-the-parts valuation that does not incorporate any of the upside of a potential privatization. We derive our fair value from: 1) DCF-based valuation for main subsidiaries, discounted by a 10% real terms (14.3% in nominal terms). We estimate FCFEs through the end of the concession periods and do not assume any residual value. 2) market value of listed equity holdings, and 3) average sector multiples for non-listed equity holdings (wind, hydro and transmission SPVs).

Upside risks: 1) higher energy prices, 2) further cost-cutting initiatives

Downside risks: 1) compulsory loans liability increasing above our R\$20bn NPV-loss base-case, and 3) unattractive investments

Eletrobras-Pref (CAIGF / EBRB)

Our R\$56 PO (ELET6) (US ADR: \$10.60) is built on a sum-of-the-parts valuation that does not incorporate any of the upside of a potential privatization. We derive our fair value from: 1) DCF-based valuation for main subsidiaries, discounted by a 10% real terms (14.3% in nominal terms). We estimate FCFEs through the end of the concession periods and do not assume any residual value. 2) market value of listed equity holdings, and 3) average sector multiples for non-listed equity holdings (wind, hydro and transmission SPVs).

Downside risks: 1) compulsory loans liability increasing above our R\$20bn NPV-loss base-case, and 3) unattractive investments

Telefonica Brasil (XCPTF / VIV)

Our price objective of R\$58/US\$12 per share is based on a 10-year DCF-to-Firm, discounted at a weighted average cost of capital (WACC) of 12.5%, assuming a capital structure of 95% equity / 5% debt in the long term. Our cost of equity (Ke) is composed of a Beta of 0.80, a risk-free rate of 3%, a market risk premium of 5.7% and a country risk in Brazil of 280bps. We use cost of debt of 5% and terminal growth rate of 3%.

Risks: (i) limited benefit from the macroeconomic recovery given its premium customer base, (ii) legacy business continues to pressure top-line growth, (iii) price pressure in the mobile segment given the highest ARPU in the space, (iv) creation of dividend tax would strongly impact Vivo.

TIM Brasil (XZUAF / TIMB)

Our price objective of R\$21/US\$21 per share is based on a ten-year DCF-to-Firm, discounted at a weighted average cost of capital (WACC) of 12.3%, assuming a capital structure of 90% equity / 10% debt in the long term. Our cost of equity (Ke) is composed of a Beta of 0.90, a risk-free rate of 3%, a market risk premium of 5.7% and country risk in Brazil of 280bps. We use cost of debt of 5% and terminal growth rate of 3%.

Upside risks: (i) leaner than its peers in terms of systems since Pay TV and fixed telephony are irrelevant, (ii) major beneficiary from potential synergies with Oi, (iii) establishment of new fronts of revenue growth, such as the partnership with C6 Bank or advertising, (iv) potential to benefit the most in a scenario of macro recovery, (v) run sharing agreement with Vivo, which should lead to opex and capex savings.

Downside risks: (i) limited growth for the sector puts pressure on prices, (ii) net adds, which have been weak over the last two years, leading to market share losses, (iii) inefficient capital structure, as its controlling shareholder is highly leveraged, (iv) reduced focus on FTTH, which is a high-growth business but still too small for the company.

Analyst Certification

We, Rogerio Araujo, Aline Caldeira, Arthur Pereira, CFA, Fred Mendes, CFA, Gabriel Frazao, Gustavo Faria, Lucca R Brendim and Paula Andrea Soto, CFA, hereby certify that the views each of us has expressed in this research report accurately reflect each of our respective personal views about the subject securities and issuers. We also certify that no part of our respective compensation was, is, or will be, directly or indirectly, related to the specific recommendations or view expressed in this research report.

Special Disclosures

BofA Securities is currently acting as advisor to Cassa Depositi e Prestiti SpA in connection with its proposed non-binding offer jointly with Macquarie Asset Management, for the acquisition of Telecom Italia's NetCo, which was announced on March 5, 2023. Any proposed transaction is expected to be subject to approval by shareholders of Telecom Italia. This research report is not intended to provide voting advice, serve as an endorsement of the proposed transaction, or result in the procurement, withholding or revocation of a proxy.

BofA Securities is currently acting as Financial Advisor to Telefonica SA in connection with its voluntary public cash offer for outstanding shares of Telefonica Deutschland Holding AG, which was announced on November 7, 2023.

Latin America - Utilities Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	Alupar	XDFCF	ALUP11 BZ	Arthur Pereira, CFA
	Cemig	CIG	CIG US	Arthur Pereira, CFA
	Cemig	CEMCF	CMIG4 BZ	Arthur Pereira, CFA
	COPEL	ELP	ELP US	Arthur Pereira, CFA
	COPEL	XPAZF	CPLE11 BZ	Arthur Pereira, CFA
	COPEL PN	XLPUF	CPLE6 BZ	Arthur Pereira, CFA
	Edenor	XEDTF	EDN AR	Gustavo Faria
	Edenor	EDN	EDN US	Gustavo Faria
	Eletrobras	CAIFF	ELET3 BZ	Arthur Pereira, CFA
	Eletrobras	EBR	EBR US	Arthur Pereira, CFA
	Eletrobras-Pref	EBRB	EBR/B US	Arthur Pereira, CFA
	Eletrobras-Pref	CAIGF	ELET6 BZ	Arthur Pereira, CFA
	Energisa S/A	XLXGF	ENGI11 BZ	Arthur Pereira, CFA
	Eneva	XZUMF	ENEV3 BZ	Arthur Pereira, CFA
	Equatorial	XKERF	EQTL3 BZ	Arthur Pereira, CFA
	Neoenergia	XGXGF	NEOE3 BZ	Arthur Pereira, CFA
	Omega Energia	XZQAF	MEGA3 BZ	Arthur Pereira, CFA
	Pampa Energia	PPENF	PAMP AR	Gustavo Faria
	Pampa Energia	PAM	PAM US	Gustavo Faria
	SABESP	CSBJF	SBSP3 BZ	Arthur Pereira, CFA
NEUTRAL				
	Auren Energia	XZMXF	AURE3 BZ	Arthur Pereira, CFA
	Central Puerto	CEPU	CEPU US	Gustavo Faria
	Central Puerto	CEPUF	CEPU AR	Gustavo Faria
	COPASA	CSAOF	CSMG3 BZ	Arthur Pereira, CFA
	TAESA	XTAEF	TAE11 BZ	Arthur Pereira, CFA
UNDERPERFORM				
	AES Brasil	XDFDF	AESB3 BZ	Arthur Pereira, CFA
	CPFL Energia	XPFGF	CPFE3 BZ	Arthur Pereira, CFA
	CTEEP	XOOTF	TRPL4 BZ	Arthur Pereira, CFA
	Engie Brasil	XZDDF	EGIE3 BZ	Arthur Pereira, CFA
	Sanepar	XJALF	SAPR11 BZ	Arthur Pereira, CFA
RSTR				
	Ambipar	XAPEF	AMBP3 BZ	Arthur Pereira, CFA

Latin America - Telecom Services and Information Technology Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	America Movil	AMX	AMX US	Fred Mendes, CFA
	America Movil	AMXVF	AMXB MM	Fred Mendes, CFA
	Desktop S.A	XNUKF	DESK3 BZ	Fred Mendes, CFA
	Eletromidia	XSUHF	ELMD3 BZ	Fred Mendes, CFA
	Locaweb	XZVMF	LWSA3 BZ	Fred Mendes, CFA
	Telefonica Brasil	XCPTF	VVT3 BZ	Fred Mendes, CFA
	Telefonica Brasil	VIV	VIV US	Fred Mendes, CFA
	Televisa	TV	TV US	Fred Mendes, CFA
	Televisa	GRPFF	TLEVICPO MM	Fred Mendes, CFA
	TIM Brasil	TIMB	TIMB US	Fred Mendes, CFA
	TIM Brasil	XZUAF	TIMS3 BZ	Fred Mendes, CFA
	TOTVS	XBEGF	TOTS3 BZ	Fred Mendes, CFA
	VTEX	VTEX	VTEX US	Fred Mendes, CFA
NEUTRAL				
	Brisanet	XNHKF	BRIT3 BZ	Fred Mendes, CFA
	Intelbras S.A.	XLTXF	INTB3 BZ	Fred Mendes, CFA
UNDERPERFORM				
	Megacable Holdings SAB	MHSDF	MEGACPO MM	Fred Mendes, CFA
	Unifine S.A	XYDF	FIQE3 BZ	Fred Mendes, CFA

Latin America - Telecom Services and Information Technology Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst

Disclosures

Important Disclosures

Equity Investment Rating Distribution: Industrials/Multi-Industry Group (as of 30 Sep 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	43	48.86%	Buy	22	51.16%
Hold	26	29.55%	Hold	17	65.38%
Sell	19	21.59%	Sell	10	52.63%

Equity Investment Rating Distribution: Telecommunications Group (as of 30 Sep 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	53	49.07%	Buy	38	71.70%
Hold	30	27.78%	Hold	20	66.67%
Sell	25	23.15%	Sell	13	52.00%

Equity Investment Rating Distribution: Transport/Infrastructure Group (as of 30 Sep 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	71	53.38%	Buy	43	60.56%
Hold	29	21.80%	Hold	13	44.83%
Sell	33	24.81%	Sell	17	51.52%

Equity Investment Rating Distribution: Utilities Group (as of 30 Sep 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	80	51.28%	Buy	51	63.75%
Hold	42	26.92%	Hold	32	76.19%
Sell	34	21.79%	Sell	22	64.71%

Equity Investment Rating Distribution: Global Group (as of 30 Sep 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	1869	53.48%	Buy	1046	55.97%
Hold	828	23.69%	Hold	461	55.68%
Sell	798	22.83%	Sell	370	46.37%

^{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 ^{R2}
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

^{R2} Ratings 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: Cemig, Cia Paranaense, Eletrobras, Eletrobras-Pref, Telefonica Brasil, TIM Brasil.

The issuer is or was, within the last 12 months, an investment banking client of BofAS and/or one or more of its affiliates: Centrais Eletricas, Telefonica Brasil, TIM Brasil.

BofAS or an affiliate has received compensation from the issuer for non-investment banking services or products within the past 12 months: Cemig, Telefonica Brasil, TIM Brasil.

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: Telefonica Brasil, TIM Brasil.

BofAS or an affiliate has received compensation for investment banking services from this issuer within the past 12 months: Centrais Eletricas, Telefonica Brasil, TIM Brasil.

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: Centrais Eletricas, Telefonica Brasil, TIM Brasil.

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: Cemig, Cia Paranaense.

The country in which this issuer is organized has certain laws or regulations that limit or restrict ownership of the issuer's shares by nationals of other countries: Cemig, Centrais Elétricas, Cia Paranaense, Telefonica Brasil, TIM Brasil.

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: Cemig, Cia Paranaense, Eletrobras, Eletrobras-Pref, Telefonica Brasil, TIM Brasil.

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: Cemig, Telefonica Brasil, TIM Brasil. 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 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 (HKSCF); 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 HKSCF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofAS India; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the [Electronic Communications Disclaimers](#) for further information.

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

General Investment Related Disclosures:

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

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

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

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

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

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

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

BofAS or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BofAS or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Securities, through business units other than BofA Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Securities is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information.

In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS). If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

Copyright and General Information:

Copyright 2023 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.

Research Analysts

LatAm Research BofAS

Rogério Araujo >>
Research Analyst
Merrill Lynch (Brazil)
+55 11 2188 4255
rogerio.araujo@bofa.com

Gabriel Frazao >>
Research Analyst
Merrill Lynch (Brazil)
+55 11 2188 4252
gabriel.frazao@bofa.com

Arthur Pereira, CFA >>
Research Analyst
Merrill Lynch (Brazil)
+55 11 2188 4157
arthur.pereira@bofa.com

Gustavo Faria >>
Research Analyst
Merrill Lynch (Brazil)
+55 11 2188 4295
gustavo.faria@bofa.com

Aline Caldeira >>
Research Analyst
Merrill Lynch (Brazil)
+55 11 2188 4583
aline.caldeira@bofa.com

Carlos Peyrelongue >>
Research Analyst
Merrill Lynch (Mexico)
+52 55 5201 3276
carlos.peyrelongue@bofa.com

Fred Mendes, CFA >>
Research Analyst
Merrill Lynch (Brazil)
fred.mendes@bofa.com

Lucca R Brendim >>
Research Analyst
Merrill Lynch (Brazil)
+55 11 2188 4100
lucca.brendim@bofa.com

Paula Andrea Soto, CFA >>
LatAm Equity Strategist
Merrill Lynch (Brazil)
+55 11 2188 4226
paula.soto@bofa.com

>> Employed by a non-US affiliate of BofAS and is not registered/qualified as a research analyst under the FINRA rules. Refer to "Other Important Disclosures" for information on certain BofA Securities entities that take responsibility for the information herein in particular jurisdictions.