

## Steel Price Tracker

# Brazilian steelmakers successful on HRC hike

Industry Overview

## Tracking global steel and raw materials price variations

Our Steel Price Tracker aims to track variations in steel prices across the globe, as well as regional simplified cash margins. We also provide a snippet of key news articles related to price movements, as well as a weekly tracking of import parity premiums in Brazil and a summary of the latest industry data.

We hope you find it useful. We welcome any feedback or suggestions readers may have.

## Exhibit 1: Snapshot of steel prices (USD/t)

Summary of weekly price movements

Steel Price Reference	Current Price (USD/t)	w/w Change (USD/t)	w/w Change (%)
China Domestic	· · ·		
HRC	553.3	0.00	0.00%
Rebar	535.2	0.00	0.00%
China Export			
HRC	553.0	0.00	0.00%
Rebar	566.0	0.00	0.00%
Brazil Domestic*			
HRC	4,100.0	0.00	0.00%
Rebar	3,750.0	0.00	0.00%
US Domestic			
HRC	992.1	0.00	0.00%
Rebar	855.0	-15.00	-1.72%
Türkiye Export			
HRC	680.0	0.00	0.00%
Rebar	610.0	0.00	0.00%
Raw Materials			
HCC Australia	315.0	-0.50	-0.16%
HCC China	320.0	0.00	0.00%
Iron Ore 58	116.5	0.60	0.52%
Iron Ore 62	130.0	1.00	0.78%
Iron Ore 65	143.2	1.00	0.70%
Iron Ore Pellet	152.7	0.00	0.00%
Brazil Pig Iron	452.5	0.00	0.00%
Black Sea Pig Iron	407.5	2.50	0.62%
Scrap			
US	447.8	0.00	0.00%
Brazil	191.3	-0.45	-0.24%
Türkiye	416.0	-3.25	-0.78%

**Source:** BofA Global Research, Platts

(\*) Brazilian prices in BRL

BofA GLOBAL RESEARCH

#### 20 February 2024

Equity Latin America Metals & Mining

Caio Ribeiro Research Analyst BofAS +1 646 855 4051 caio.ribeiro@bofa.com

Leonardo Neratika >> Research Analyst Merrill Lynch (Brazil) +55 11 2188 4200 leonardo.neratika@bofa.com

Guilherme Rosito >> Research Analyst Merrill Lynch (Brazil) +55 11 2188 4363 guilherme.rosito@bofa.com

HRC = hot rolled coil

CRC = cold rolled coil

HDG = hot dip galvanized

HMS = heavy melting scrap

HCC = hard coking coal

w/w = week over week

y/y = year over year

>> 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 25 to 26.

12661672

## Weekly news flow

## Asia: Prices stable w/w; BF op rates up to 83.97%

Steel export prices were stable w/w in China last week, with Chinese exported hot rolled coil (HRC) stable at \$553/t, and rebar flat w/w at \$566/t. The blast furnace (BF) capacity utilization rate among the 247 Chinese steel producers under Mysteel's regular tracking nudged up for the sixth straight week to reach 83.97% during February 9-15, higher by 0.17 percentage point from the prior week, while the daily hot metal output among these steelmakers also rose by 4,800 tonnes/day on week to average 2.25Mt per day.

## Larger-than-expected 5yr LPR cut signals policy support to property sector

China's benchmark 1-year Loan Prime Rate (LPR) remained unchanged at 3.45% in February, against market expectations of a small 5bp cut. However, the 5y LPR was lowered by 25bps to 3.95%, beating consensus forecast of a 10bp cut. The magnitude of the 5y LPR cut was larger than the previous few reductions (10bps in June '23, 15bps in May and August '22) and also marked the biggest move on record. This reduction in the 5y LPR came on the back of prior rounds of deposit rate cuts and the 50bp reserve requirement ratio (RRR) cut that took effect on February 5. Note that the People's Bank of China (PBoC) did not cut the medium-term lending facility (MLF) rate two days ago, amid renewed currency depreciation pressure as the market expected timeline for Fed cuts was delayed further.

In our economists' view, the PBoC will likely step up on monetary easing this year, as external constraints gradually ease. In the near term, the pace of further interest rate cuts could be limited, given the PBoC's continued focus on FX stability and pressure on the net interest margins of commercial banks. However, they see room for more rate cuts for the rest of the year, facilitated by likely further deposit rate reductions and the Fed's pivot to rate cuts (our US Economics team expects the first cut in June). They still expect the 1y LPR to decline by a cumulative 45bps in 2024, mostly during the 2H. But even before the Fed pivot mid-year, they think the PBoC may still guide down the 5y loan prime rate (LPR) further without changing the 1y tenor. Meanwhile, they think the PBoC is likely to provide more funding support to several targeted areas (technology, green economy, small and midsize enterprises (SMEs), senior care and digital economy) and continue to drive a reasonable pace of credit growth. Policymakers may also continue to utilize quasi-fiscal tools (such as pledged supplementary lending (PSL)) to prop up investment growth (link to China Watch).

#### Post-CNY ground checks on steel: quiet but less bearish sentiment

Mysteel suggests the market remains in low production, low demand, low inventory, and high cost. Specifically, most BFs maintained production while electric arc furnace (EAF) plants halted for maintenance. Molten iron production was more stable, while finished steel production declined. Demand was -14%wow (long steel -29%, flat steel -10%) and -38%yoy at 5.51mnt as construction and trader procurement were suspended during the holiday. The market appears positive on the marginal demand improvement post-holiday. Inventory was +18%wow/-12%yoy at 21.03mnt. Steel mills usually hike prices after the holiday based on past trends. Mysteel reported steel billet price was +RMB80/t on 18 Feb. Price should be supported by cost near term (link to our China Basic Materials' team report).

## China property - Primary home: tier 1 cities outperformed

According to China Index Academy (a leading real estate consulting firm), the registered primary home sales volume in 25 cities dropped 27% y/y compared to the Lunar New Year (LNY) in 2023. Tier 1 cities' rose by 108% y/y, yet tier 2 cities' dropped 46% y/y and lower tier cities' dropped 29% y/y. Also, per the China Index Academy, foot traffic at sales centers was seen to have improved, but conversion rate remained lukewarm. "Zhuge Home Search" (online property agency) also showed a similar trend: 10 key cities' primary home sales volume was down by 13.6% y/y during LNY: tier 1 cities' was slightly up, and the rest of the cities saw decline compared to the CNY period in 2023. New



supplies for primary homes were seen down by around 10% in 50 cities tracked by CRIC (China Real Estate Information Corporation) (ink to our team's tracker).

### Quality developers' monthly land acquisition tracker - Jan

In Jan 2024, the largest quality developers that our China Property team tracks (the largest state-owned enterprises (SOEs), along with Vanke and Longfor) spent RMB10.5bn on land acquisitions on a gross basis, down 66% y/y and 85% m/m. Our colleagues believe the large y/y decline in land acquisitions was probably due to quality developers' more cautious stance towards land investments amid weak new home sales volume and prices. 302 cities land sales revenue in Jan was up by 61% y/y – either smaller developers and non-developer SOEs were more proactive or local-government financing vehicles (LGFVs) were buying, and the timing of Chinese New Year (in Jan 2023 but in Feb 2024) also played a role in the increase (link to our China property team report).

### Will strong LNY travel lead to a broader consumption recovery and less easing?

National tourism recovery came in better than the market originally expected during the LNY holiday (10-17 Feb), with more on the move and higher tourism spending. This is corroborated with a faster y/y growth of value-added tax (VAT) invoice data in services sectors and the record-high box office revenue, implying strong growth in service consumption. Such holiday tourism strength is consistent with what we already know -tourism demand has been very resilient since 2023, and the market believes it was partly driven by the pent-up demand. Hence, a more important set of follow-up questions may be 1) will the pent-up demand for services eventually fade?, 2) will the services consumption recovery eventually lead to a goods consumption recovery? While the strong LNY service spending data beat analyst expectations, they do not change the fact that the other part of the economy, the more investment-driven and commodity-intensive industrial activities remained below par. Not to forget persistent deflationary pressure shown in headline CPI inflation and PMI data in Jan. Our economists do not think the policy trajectory will deviate from the current accommodative stance (link to our China economists' report).

## Türkiye: rebar prices to correct on lower scrap prices

Turkish export rebar prices were stable w/w at \$610/t last week. According to Platts' contacts, Turkish rebar prices were expected to drop given weaker scrap prices. According to Platts' sources, rebar was tradable around \$605-610/t, however mills were offering rebar at higher prices, around \$615-620/t, with some willing to accept prices of \$610/t for larger volume deals. Platts assessed the Turkish heavy melting scrap at \$416/t. The spread between rebar and scrap was \$194/t.

## Europe: prices down on weak demand and higher supply

Platts reported that European steel prices were pressured by the combination of weak real demand, increased supply and the end of restocking and dropped over the past week. Market participants were expecting prices to decrease to EUR 700/t. Steel buyers reduced their orders given both the end of restocking, as well as their bearish outlook for prices and are waiting to see mills' next move.

## North America: further downside for HRC prices

Platts' weekly prices were stable w/w at \$992.1/t for US HRC and down \$15/t w/w to \$855/t for rebar last week. Platts' US lead times dropped w/w to 5,4 weeks for HRC and 7.4 weeks for CRC. Platts reported that market participants were seeing further downside to HRC prices in the US. According to some contacts prices should drop more before it is time to restock and some contacts indicated mills were offering HRC at \$840-860/st already. As for rebar, Platts reported that buyers were able to get rebar price discounts given lower scrap prices.



## Latin America: HRC hike ongoing

Brazilian steel prices were flat w/w at R\$3,750/t for rebar and at R\$4,100/t for HRC. Platts reported that the HRC price hikes were being absorbed and as of now the increase in prices averaged 2.5%. Prices were expected to continue to increase in the coming months as we reach the new contract periods. Industry and auto contacts mentioned that mills were first focused on increasing prices for distribution now and would then turn to negotiating with the industry. As for rebar, Platts' contacts said that mills were trying to increase prices by 4% but were unsuccessful so far. The market was still dealing with the new import tariffs, but most contacts agreed that the increases were small and would not mean an increase for rebar.



## **Exhibit 2: Summary of steel price movements** Snapshot of steel price movements

Steel Price Reference	Current Price (USD/t)	w/w Change (USD/t)	w/w Change (%)	m/m Change (%)	y/y Change (%)	Last Change
China Domestic						
HRC	553.3	0.00	0.00%	-0.71%	-10.70%	9-Feb-24
HRC Cash Margin	-47.5	-5.56	-13.27%	23.13%	-150.98%	16-Feb-24
Rebar	535.2	0.00	0.00%	0.04%	-10.88%	9-Feb-24
Rebar Cash Margin	-55.8	-5.56	-11.06%	24.38%	-458.10%	16-Feb-24
China Export						
HRC	553.0	0.00	0.00%	-0.72%	-14.26%	2-Feb-24
Rebar	566.0	0.00	0.00%	1.07%	-11.01%	26-Jan-24
Brazil Domestic*						
HRC	4,100.0	0.00	0.00%	2.50%	-12.77%	9-Feb-24
HRC Cash Margin	2,132.1	-23.05	-1.07%	7.19%	-13.39%	16-Feb-24
Rebar	3,750.0	0.00	0.00%	0.00%	-3.85%	27-Oct-23
Rebar Cash Margin	2,800.0	0.00	0.00%	0.46%	-3.45%	22-Jan-24
Mexico Domestic	·					
HRC	971.8	-91.46	-8.60%	-20.74%	10.40%	16-Feb-24
HRC Cash Margin	524.0	-91.46	-14.86%	-32.67%	19.81%	16-Feb-24
Rebar	968.6	-20.10	-2.03%	-9.26%	-12.98%	16-Feb-24
Rebar Cash Margin	520.7	-20.10	-3.72%	-15.95%	-22.29%	16-Feb-24
Argentina Domestic						
HRC	889.0	0.00	0.00%	0.00%	0.00%	1-Mar-18
HRC Cash Margin	492.7	-3.72	-0.75%	2.39%	7.08%	16-Feb-24
Rebar	805.0	0.00	0.00%	0.00%	-4.17%	14-Dec-23
Rebar Cash Margin	408.7	-3.72	-0.90%	2.90%	-0.59%	16-Feb-24
JS Domestic						
HRC	992.1	0.00	0.00%	-18.18%	5.88%	9-Feb-24
HRC Cash Margin	544.3	0.00	0.00%	-28.83%	10.16%	9-Feb-24
Rebar	855.0	-15.00	-1.72%	-2.29%	-7.07%	16-Feb-24
Rebar Cash Margin	407.2	-15.00	-3.55%	-4.68%	-14.66%	16-Feb-24
Türkiye Domestic	107.2	15.00	3.33 %	1.00 /0	1 1.00 /0	10 100 21
HRC	690.0	-10.00	-1.43%	-2.82%	-9.80%	16-Feb-24
HRC Cash Margin	274.0	-6.75	-2.40%	-4.86%	-22.16%	16-Feb-24
Rebar	752.6	-3.55	-0.47%	0.22%	-11.07%	16-Feb-24
Rebar Cash Margin	336.6	-0.30	-0.09%	2.32%	-22.31%	16-Feb-24
Türkiye Export	330.0	0.50	0.05/0	2.52 10	22.5170	10 1 00 24
HRC	680.0	0.00	0.00%	-0.73%	-9.93%	9-Feb-24
Rebar	610.0	0.00	0.00%	0.00%	-12.86%	7-Feb-24
Russia Domestic	010.0	0.00	0.00 /0	0.00 /0	12.00 /0	7 1 00 2 7
HRC	463.4	0.00	0.00%	1.85%	5.32%	31-Jan-24
HRC Cash Margin	67.1	-3.72	-5.25%	42.22%	500.66%	16-Feb-24
Rebar	438.1	8.43	1.96%	6.12%	24.00%	14-Feb-24
Rebar Cash Margin	41.9	4.71	12.68%	724.89%	n.m.	16-Feb-24
Rebar Cash Margin Black Sea Export	41.3	4./ I	12.00%	7 24.03%	H.H.	10-760-24
HRC	580.0	-5.00	-0.85%	-1.69%	-16.55%	14-Feb-24
		- <u>5.00</u> 0.00	- <del>0.85%</del> 0.00%	0.00%	-16.55% -9.09%	
Rebar	550.0	U.UU	0.00%	0.00%	-9.09%	1-Jan-24

**Source:** BofA Global Research, Platts

(\*) Brazilian prices in BRL



## **Exhibit 3: Summary of raw materials price movements**Snapshot of raw materials price movements

Steel Price Reference	Current Price (USD/t	) w/w Change (USD/t	) w/w Change (%)	m/m Change (%)	y/y Change (%)	Last Change
Raw Materials						
HCC Australia	315.0	-0.50	-0.16%	-6.53%	-18.18%	14-Feb-24
HCC China	320.0	0.00	0.00%	0.00%	-4.76%	7-Feb-24
Iron Ore 62 Kallanish	129.5	2.51	1.98%	0.83%	4.77%	16-Feb-24
Iron Ore 58	116.5	0.60	0.52%	2.73%	9.19%	16-Feb-24
Iron Ore 62	130.0	1.00	0.78%	1.84%	4.21%	16-Feb-24
Iron Ore 65	143.2	1.00	0.70%	2.36%	2.32%	16-Feb-24
Iron Ore 58 Discount to 62	13.6	0.40	3.04%	-5.24%	-25.14%	14-Feb-24
Iron Ore 65 Premium to 62	13.2	0.00	0.00%	7.76%	-13.16%	11-Feb-24
Iron Ore 62 Lump	141.3	0.00	0.00%	-1.05%	8.28%	9-Feb-24
Iron Ore Pellet	152.7	0.00	0.00%	0.04%	-1.67%	9-Feb-24
Brazil Pig Iron	452.5	0.00	0.00%	0.00%	-6.70%	8-Jan-24
Black Sea Pig Iron	407.5	2.50	0.62%	3.16%	-0.61%	16-Feb-24
Scrap						
US	447.8	0.00	0.00%	0.00%	1.11%	11-Jan-24
Brazil	191.3	-0.45	-0.24%	-2.02%	-0.13%	16-Feb-24
Türkiye	416.0	-3.25	-0.78%	-1.42%	0.73%	16-Feb-24
Semi-Finished						
Türkiye Billet	570.0	0.00	0.00%	0.00%	-8.06%	1-Jan-24
Black Sea Billet	515.0	0.00	0.00%	0.00%	-10.43%	16-Feb-24
Southeast Asia Billet	539.0	0.00	0.00%	0.00%	-9.87%	8-Feb-24
Latin America Billet	545.0	0.00	0.00%	0.00%	18.48%	11-Jan-24
Black Sea Slab	540.0	0.00	0.00%	3.85%	-9.24%	31-Jan-24
Southeast Asia Slab	620.0	0.00	0.00%	0.00%	1.64%	1-Jan-24
Brazil Slab	660.0	-10.00	-1.49%	-4.35%	-10.81%	16-Feb-24
Futures						
Iron Ore Active Contract	94.0	0.00	0.00%	0.04%	-22.55%	9-Feb-24
China HRC Active Contract	553.0	0.00	0.00%	-1.08%	N/A	N/A
China Rebar Active Contract	779.0	0.00	0.00%	0.04%	-4.67%	9-Feb-24
China HRC Simplified Cash Margin**	402.6	0.00	0.00%	-1.49%	n.m.	N/A
China Rebar Simplified Cash Margin**	628.7	0.00	0.00%	0.04%	0.90%	9-Feb-24

**Source:** BofA Global Research, Platts, MySteel, Bloomberg

 $(\ensuremath{^{\star\star}})$  Simplified cash margins calculated based on steel futures prices - iron ore futures

## **Exhibit 4: Steel price period comparison**Price snapshot

teel Price Reference	Current Price	Last Week Price	<b>Last Month Price</b>	Last Year Price	12M Average	5Y Average
nina Domestic						
RC	553	553	557	620	560	632
RC Cash Margin	-47	-42	-62	-19	-18	29
ebar	535	535	535	601	540	612
ebar Cash Margin	-56	-50	-74	-10	-15	35
nina Export					-	
RC	553	553	557	645	568	616
ebar	566	566	560	636	564	579
razil Domestic*						
RC	4,100	4,100	4,000	4,700	4,344	4,358
RC Cash Margin	2,132	2,155	1,989	2,462	2,504	2,661
ebar	3,750	3,750	3,750	3,900	3,808	3,770
ebar Cash Margin	2,800	2,800	2,787	2,900	2,793	2,652
exico Domestic	_,	_,	_,		_,	_,
RC	972	1,063	1,226	880	1,019	1,004
RC Cash Margin	524	615	778	437	588	621
ebar	969	989	1,067	1,113	1,005	859
ebar Cash Margin	521	541	620	670	575	475
gentina Domestic	321	511	020	0,0	5,5	17.5
RC	889	889	889	889	889	889
RC Cash Margin	493	496	481	460	519	550
ebar	805	805	805	840	798	885
ebar Cash Margin	409	412	397	411	427	546
5 Domestic	103	TIZ	551	111	127	310
RC	992	992	1,213	937	1,054	1,052
RC Cash Margin	544	544	765	494	624	669
ebar	855	870	875	920	894	874
ebar Cash Margin	407	422	427	477	463	491
irkiye Domestic	-107	722	727	7//	COF	171
RC	690	700	710	765	703	704
RC Cash Margin	274	281	288	352	306	326
ebar	753	756	751	846	746	699
ebar Cash Margin	337	337	329	433	350	320
irkiye Export	337	337	323	433	330	320
RC	680	680	685	755	680	689
ebar	610	610	610	700	612	590
ıssia Domestic	610	010	010	700	012	390
RC	463	463	455	440	110	575
	67	403 71	47	11	448 77	237
RC Cash Margin Bar	438	430	413	353	407	489
ebar Bebar Cash Margin	438	430	413 5	-75	37	489 150
ack Sea Export	42	3/	3	-/ 3	٥/	150
ack sea Export RC	580	585	500	60F	63E	622
RC. Pbar	550		590 550	695 605	635 551	632 553
ebar Aw Materials	550	550	SSU	CUO	22.1	223
	215	210	227	205	205	240
CC Australia	315	316	337	385	295	240
CC China	320	320	320	336	283	268
on Ore 62 Kallanish	130	127	128	124	121	122
on Ore 58	116	116	113	107	106	99
on Ore 62	130	129	128	125	121	122
on Ore 65	143	142	140	140	133	138
on Ore 58 Discount to 62	14	13	14	18	15	23
on Ore 65 Premium to 62	13	13	12	15	12	16
on Ore 62 Lump	141	141	143	131	132	140
on Ore Pellet	153	153	153	155	143	164
azil Pig Iron	453	453	453	485	452	453
ack Sea Pig Iron	408	405	395	410	373	413
rap						
5	448	448	448	443	430	383
azil Irkiye	191 416	192 419	195 422	192 413	205 397	223 379



## **Exhibit 4: Steel price period comparison**

Price snapshot

Steel Price Reference	Current Price	Last Week Price	Last Month Price	Last Year Price	12M Average	5Y Average
Semi-Finished						
Türkiye Billet	570	570	570	620	569	546
Black Sea Billet	515	515	515	575	508	506
Southeast Asia Billet	539	539	539	598	538	542
Latin America Billet	545	545	545	460	531	511
Black Sea Slab	540	540	520	595	532	538
Southeast Asia Slab	620	620	620	610	572	569
Brazil Slab	660	670	690	740	665	621
Futures						
Iron Ore Active Contract	94	94	94	121	105	119
China HRC Active Contract	553	553	559	N/A	N/A	N/A
China Rebar Active Contract	779	779	779	817	786	701
China HRC Simplified Cash Margin**	403	403	409	N/A	N/A	N/A
China Rebar Simplified Cash Margin**	629	629	628	623	619	614

**Source:** BofA Global Research, Platts, MySteel, Bloomberg



<sup>(\*)</sup> All prices are quoted in USD per metric ton, except Brazil Domestic prices and margins which are quoted in BRL per metric ton. (\*\*) Simplified cash margins calculated based on steel futures prices – iron ore futures

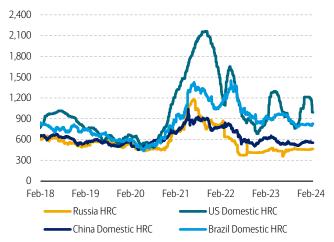
BofA GLOBAL RESEARCH

## **Key charts**

## Main global steel references

## Exhibit 5: HRC price comparison around the globe (US\$/t)

US HRC prices are correcting



Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 7: China HRC domestic prices (US\$/t)

HRC prices are rebounding, but remain below recent peaks

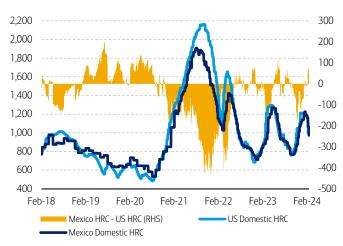


Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 6: Mexico HRC and US HRC prices (US\$/t)

Mexican HRC historically follows US prices, and both started to drop

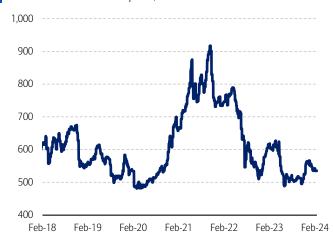


Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 8: China rebar domestic prices (US\$/t)

Prices remain below recent peaks, close to 2019 levels



Source: BofA Global Research, Platts

## Exhibit 9: China HRC margins (US\$/t)

Margins are below the historical average



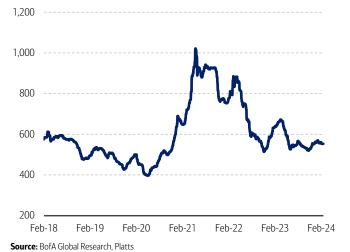
Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## **China Exports**

## Exhibit 11: China HRC export prices (US\$/t)

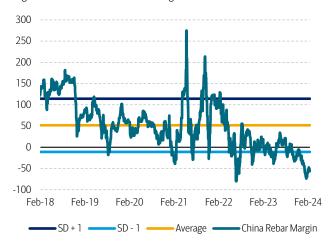
HRC prices began 2024 increasing



BofA GLOBAL RESEARCH

## Exhibit 10: China rebar margins (US\$/t)

Margins are below the historical average



Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

### Exhibit 12: China rebar export prices (US\$/t)

Prices are recovering early in 2024



Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH



10

## **Brazil**

### Exhibit 13: Brazil HRC domestic prices (R\$/t)

HRC prices were recently hiked



Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 15: Brazil HRC margins (R\$/t)

Margins are close to the historical avg. of ~R\$2,200/t



**Source:** BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 14: Brazil rebar domestic prices (R\$/t)

Long steel prices started to drop in the second half of 2022 and remain flat



Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 16: Brazil rebar margins (R\$/t)

Margins are still above average



Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

### Exhibit 17: Brazil HRC parity premium/discount calculation

We estimate Brazilian HRC at an 8.6% premium, considering a \$60/t freight

Brazilian HRC import parity calculation				
Chinese HRC price (US\$/t)	553			
Freight (US\$/t)	60			
Insurance rate (%)	0.5%			
Insurance (US\$/t)	3.1			
Import tariff rate (%)	12.0%			
Import tariff (US\$/t)	73.9			
Other costs (US\$/t)	70			
Total (US\$/t)	760			
USDBRL	4.97			
Imported HRC price (R\$/t)	3,774			
Brazilian HRC price (R\$/t)	4,100			
Premium/discount	8.6%			

Source: BofA Global Research, Platts, Bloomberg



## Exhibit 18: Brazil Rebar parity premium/discount calculation

We estimate Brazilian Rebar at a 6.6% discount, considering a \$55/t freight

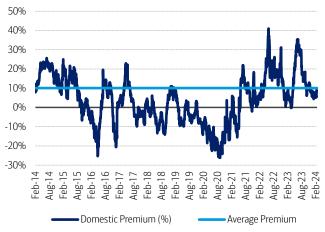
Brazilian rebar import parity calculation					
Turkish Rebar price (US\$/t)	610				
Freight (US\$/t)	55				
Insurance rate (%)	0.5%				
Insurance (US\$/t)	3.33				
Import tariff rate (%)	12.0%				
Import tariff (US\$/t)	80				
Other costs (US\$/t)	60				
Total (US\$/t)	809				
USDBRL	4.97				
Imported rebar price (R\$/t)	4,015				
Brazilian rebar price (R\$/t)	3,750				
Premium/discount	-6.6%				

Source: BofA Global Research, Platts, Bloomberg

BofA GLOBAL RESEARCH

## Exhibit 19: Brazilian historical premium/discount to Chinese HRC landed prices (%)

The premium is currently at ~5.9%

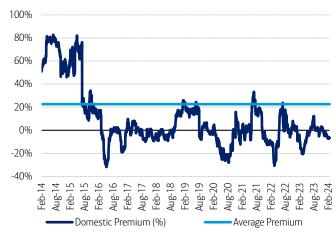


Source: BofA Global Research, Platts, Bloomberg

BofA GLOBAL RESEARCH

## Exhibit 20: Brazilian historical premium/discount to Turkish rebar landed prices (%)

The discount is currently at  $\sim 6.5\%$ 



Source: BofA Global Research, Platts, Bloomberg

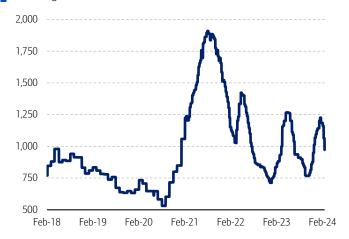
BofA GLOBAL RESEARCH

12

## Mexico

## Exhibit 21: Mexico HRC prices (US\$/t)

HRC prices were increasing as US prices were moving up and are now correcting  $\ensuremath{\mathsf{US}}$ 

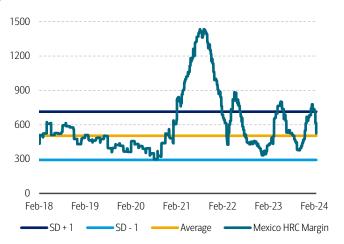


Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

### Exhibit 23: Mexico HRC margins (US\$/t)

Margins are now above close to the historical average

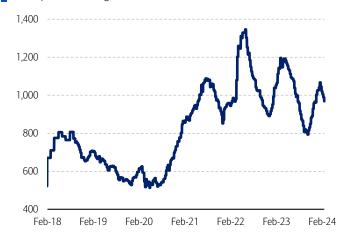


Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

### Exhibit 22: Mexico rebar prices (US\$/t)

Rebar prices are rising

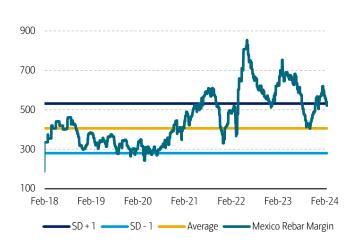


Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 24: Mexico rebar margins (US\$/t)

Rebar margins are above historical average

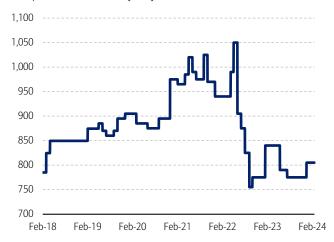


Source: BofA Global Research, Platts

## **Argentina**

## Exhibit 25: Argentina rebar prices (US\$/t)

Rebar prices remained low by early 2024



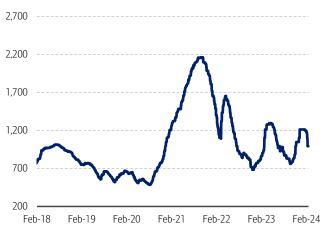
Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## US

### Exhibit 27: US HRC prices (US\$/t)

US HRC prices are increasing recently



Source: BofA Global Research, Platts

Source: BofA Global Research, CRU

BofA GLOBAL RESEARCH

## Exhibit 29: CRU – US monthly steel prices

Prices were mostly flat m/m in the US

	Feb-23	Jan-24	m/m%	y/y%
U.S.				
Scrap price (\$/gt)	390	410	-4.9%	-4.9%
Rebar prices (\$/st)	880	880	0.0%	6.0%
Metal spread (rebar vs. scrap) (\$/gt)	586	566	3.5%	14.6%
Beam price (\$/st)	1,345	1,345	0.0%	3.9%
M. bar price (\$/st)	1,176	1,176	0.0%	5.4%

BofA GLOBAL RESEARCH

### Exhibit 26: Argentina rebar margins (US\$/t)

Margins are below historical average in Argentina



Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 28: US rebar prices (US\$/t)

Rebar prices are recovering in the US



Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 30: CRU - US weekly prices

Prices mostly down w/w in the US

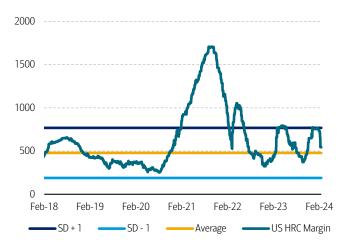
	14-Feb-24	w/w%	m/m%	y/y%
U.S. Flat steel weekly				
HRC price (\$/st)	926	-8.0%	-14.0%	14.5%
CRC price (\$/gt)	1,259	-1.6%	-4.9%	20.6%
HDG (\$/st)	1,310	-1.4%	-7.1%	21.9%
Plate (\$/gt)	1,309	-0.4%	-3.7%	-8.8%

Source: BofA Global Research, CRU



#### Exhibit 31: US HRC margins (US\$/t)

Margins have followed price's movements and are above the historical avg

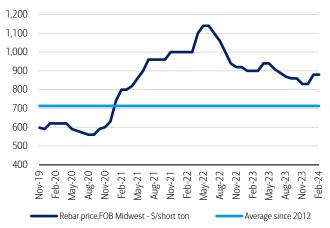


Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 33: US rebar prices (US\$/short ton)

Rebar prices are currently above the historical average

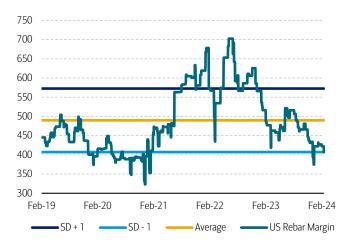


Source: BofA Global Research, CRU

BofA GLOBAL RESEARCH

### Exhibit 32: US rebar margins (US\$/t)

Margins are below the historical average



Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 34: US beam prices (US\$/short ton)

Beam prices are currently above the historical average



Source: BofA Global Research, CRU

### Exhibit 35: US M. bar prices (US\$/short ton)

M. bar prices are currently above the historical average



Source: BofA Global Research, CRU

BofA GLOBAL RESEARCH

## Exhibit 37: US scrap prices (US\$/gross ton)

US scrap prices are above the historical average

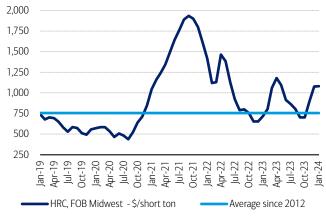


Source: BofA Global Research, CRU

BofA GLOBAL RESEARCH

### Exhibit 36: US HRC prices (US\$/short ton)

US HRC prices are above the historical average

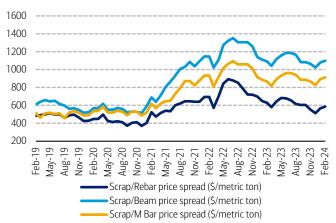


Source: BofA Global Research, CRU

BofA GLOBAL RESEARCH

## Exhibit 38: Long steel metal spreads (US\$/t)

Spreads are rebounding

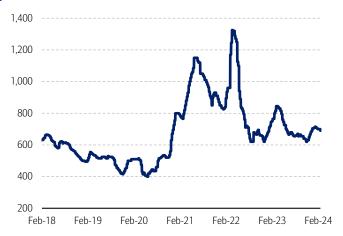


Source: BofA Global Research, CRU

## Türkiye

## Exhibit 39: Türkiye HRC prices (US\$/t)

HRC prices declined after peak post the Russian invasion in Ukraine

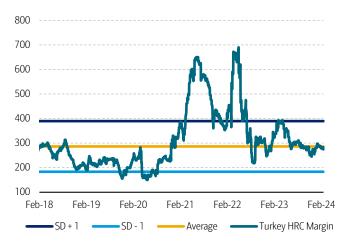


Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 41: Türkiye HRC margins (US\$/t)

Margins are close to the historical level

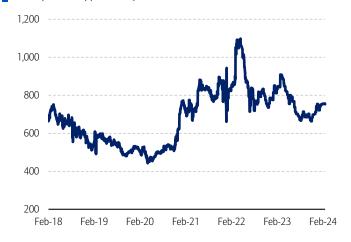


Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 40: Türkiye rebar prices (US\$/t)

Rebar prices dropped from peaks in 2022

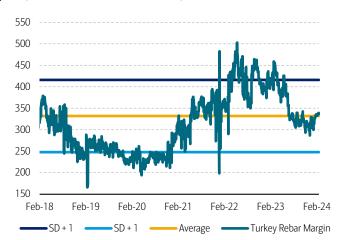


Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 42: Türkiye rebar margins (US\$/t)

Margins are close to the historical average

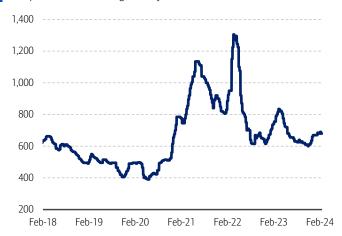


Source: BofA Global Research, Platts

## Türkiye & Black Sea exports

## Exhibit 43: Türkiye HRC export prices (US\$/t)

HRC prices are rebounding recently

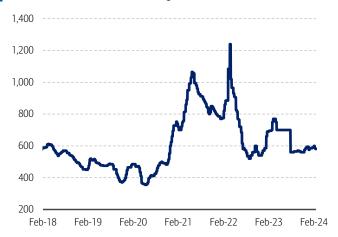


Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 45: Black Sea HRC export prices (US\$/t)

Prices for Black Sea HRC are declining

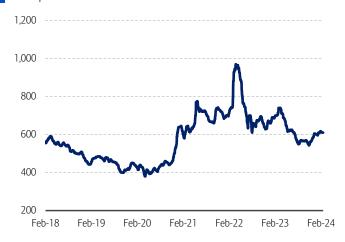


Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 44: Türkiye rebar export prices (US\$/t)

Rebar prices declined and are lower than 2021 levels



**Source:** BofA Global Research, Platts

BofA GLOBAL RESEARCH

### Exhibit 46: Black Sea rebar export prices (US\$/t)

Prices for Black Sea's rebar have corrected, but remain above past years

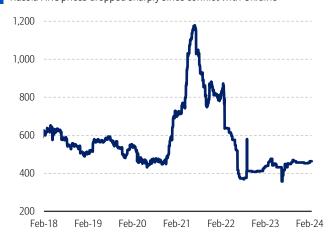


Source: BofA Global Research, Platts

## Russia

## Exhibit 47: Russia HRC prices (US\$/t)

Russia HRC prices dropped sharply since conflict with Ukraine



Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

### Exhibit 49: Russia HRC margins (US\$/t)

HRC margin levels have bottomed and are now way below historical average



**Source:** BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 48: Russia rebar prices (US\$/t)

Russia rebar dropped after a rebound



Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

### Exhibit 50: Russia rebar margins (US\$/t)

Margins have dropped strongly, now below historical average



Source: BofA Global Research, Platts



## **Raw Materials**

## Exhibit 51: Iron ore 62% CFR China prices (US\$/t)

Prices are correcting after having increased



Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 52: Iron ore grade discount/premium to 62% Fe content benchmark product (US\$/t)

Discounts dropped from higher levels



**Source:** BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 53: Iron ore prices by grade (US\$/t)

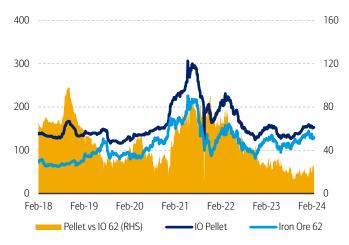
Prices have been increasing since the end of 2022



Source: BofA Global Research, Platts

### Exhibit 54: Iron ore pellets (US\$/t)

Iron ore pellet prices are increasing, premium below 2022 level



Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

## Exhibit 56: Pig iron prices (US\$/t)

Pig iron close to 2020 levels

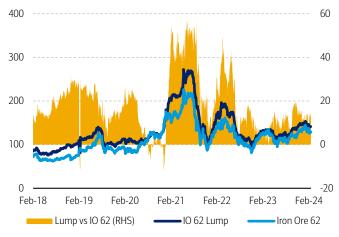


**Source:** BofA Global Research, Platts

BofA GLOBAL RESEARCH

#### Exhibit 55: Iron ore 62% lump (US\$/t)

Iron ore lump premium showing positive recover after bottom by the end of 2021

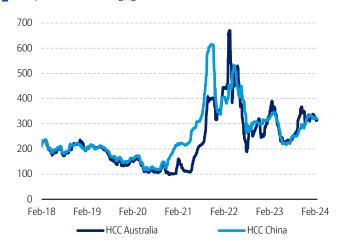


Source: BofA Global Research, Bloomberg

BofA GLOBAL RESEARCH

## Exhibit 57: Hard cooking coal (HCC) prices (US\$/t)

Coal prices are increasing again in Australia and China



Source: BofA Global Research, Platts

#### Exhibit 58: Scrap prices (US\$/t)

Scrap prices remain on elevated levels, especially for Türkiye and the US, while Brazilian scrap started to correct



**Source:** BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Semi-Finished

### Exhibit 59: Türkiye billet prices (US\$/t)

Türkiye billet prices started to normalize after the peak in 2021, but still at high levels  $\,$ 



Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

### Exhibit 60: Black Sea billet prices (US\$/t)

Black Sea billet prices are mainly dropping during 2023



Source: BofA Global Research, Platts

## Exhibit 61: Southeast Asia billet prices (US\$/t)

Southeast Asia billet has been relatively stable



Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 63: Black Sea slab prices (US\$/t)

Black Sea slab prices are decreasing



Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 62: Latin America billet prices (US\$/t)

As for Latin America, billet prices are currently above US\$500/t

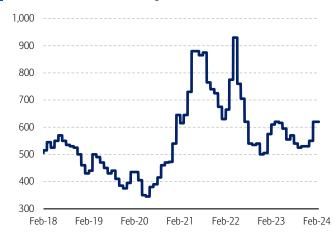


Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

## Exhibit 64: Southeast Asia slab prices (US\$/t)

Southeast Asian slab started rising in the end of 2022



Source: BofA Global Research, Platts

## **Exhibit 65: Brazil slab prices (US\$/t)**Brazilian slab prices are recovering recently



Source: BofA Global Research, Platts

## **Disclosures**

## **Important Disclosures**

BofA Global Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.

## **Other Important Disclosures**

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

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

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

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

Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments. Refer to BofA Global Research policies relating to conflicts of interest.

'BofA Securities' includes BofA Securities, Inc. ('BofAS') and its affiliates. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. 'BofA Securities' is a global brand for BofA Global Research.

#### Information relating to Non-US affiliates of BofA Securities and Distribution of Affiliate Research Reports:

BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudential et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF). BofA Securities Europe SA ("BofASE") with registered address at 51, rue La Boétie, 75008 Paris is registered under no 842 602 690 RCS Paris. In accordance with the provisions of French Code Monétaire et Financier (Monetary and Financial Code), BofASE is an établissement de crédit et d'investissement (credit and investment institution) that is authorised and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers. BofASE's share capital can be found at www.bofaml.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 (Hong Kong): Merr (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSFC); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch (Canada): Merrill Lynch (Canada): Merrill Lynch (Mexico): Merrill Ly 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): Merrill Lynch (International (DIFC Branch), 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 HKSFC; 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 in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securit

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

#### General Investment Related Disclosures

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Securities. This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Securities clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options,

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

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

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

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

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

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

BofA Securities, through business units other than BofA Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Securities is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information. In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS). If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

#### Copyright and General Information:

Copyright 2024 Bank of America Corporation. All rights reserved. iQdatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Securities clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Securities. BofA Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Securities and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Securities. Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel's knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public inform

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofAS any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

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

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

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

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.

