Erdemir

Upgrade to Neutral. Business recovered post a difficult 2023.

Resuming Coverage: NEUTRAL | PO: 47.00 TRY | Price: 45.94 TRY

04 March 2024

Equity

Upgrade to Neutral. Business recovered post earthquake

This report replaces a prior report issued 29 February 2024 correcting an error in assumed realized steel price which meant estimated EBITDA and derived price objective were not calculated correctly. **Results:** FY23 revenue TRY147.9 bn, +16% YoY, +3% vs BofAe, -1% vs consensus. EBITDA TRY15.2bn, -44% YoY, +19% vs BofAe but -16% vs. consensus. Steel production 7.4 Mt, -5% YoY and -3% vs. consensus. Model changes: 2024E EBITDA +49% to c. TRY40.4 bn on higher assumed steel prices (+21% increase to $797/t simple ASP) and weaker assumed TRY (to 36 from 28). Operational and financial gearing plus a raised target multiple (5.1x vs 4.0) drive a material upgrade to our price objective to TRY 47 (was TRY19). As such, we upgrade to Neutral. After a challenging 2023 we see the business as having mostly normalized. That said, even as we see a path to deleveraging we do see uncertainties and risks related to both local policies and global oversupply risks for steel hence Neutral. Shares trade on c. 4.9x 2024E EBITDA.

Earthquake had a big impact on 2023. 2024 looks better.

FY2023 steel production -5.5% YoY to 7.4 Mt, mainly due to impact in H1 of February 2023 earthquake. By Q4, however, Erdemir had recovered to typical quarterly production of c. 2.1 Mt / quarter implying FY production of c. 8.4 Mt. 2023 capacity utilization dropped to 75% but the company suggests that this is now back to a normal level of c. 90%. We model sales of 8.4 Mt in 2024E. **Investing for resilience:** We also note investments in upgraded blast furnaces and a US$550 mn project to add 3 Mtpa of pellet production. This should increase self-sufficiency in iron ore to c. 40%.

Company sees inflection for net debt in 2024 (in US$)

Net debt increased in 2023 as FCF fell mainly on earthquake related issues and lower steel prices. Net debt up 92% YoY to US$1.48 bn. Net Debt/EBITDA 2.3x vs. 0.4x twelve months ago. That said, "from here" management sees the business as having recovered from earthquake impact and EBITDA/t and FCF generation should also normalize. Erdemir also sees normalization of VAT receivables from TRY 16 bn to closer to TRY 1 bn which, alone, could drive a c. -$480 mn reduction in net debt in 2024E at spot TRY.

Estimates (Dec) (TRY)	2022A	2023A	2024E	2025E	2026E
EPS (Reported Diluted)	5.14	1.15	4.66	6.82	7.88
EPS Change (YoY)	16.2%	-77.6%	304.6%	46.3%	15.6%
Dividend / Share	0	0.50	1.17	1.71	1.97
Valuation (Dec)					
P/E	8.93x	39.9x	9.85x	6.73x	5.83x
Dividend Yield	0%	1.09%	2.54%	3.71%	4.29%
EV / EBITDA*	7.27x	12.9x	4.86x	3.52x	3.16x
Free Cash Flow Yield*	-1.52%	-6.28%	9.32%	9.01%	14.7%

* For full definitions of *iQmethod*SM measures, see page 24.

>This stock has been placed under review. Because there is no current coverage, you should consider this a no opinion. Until the opinion is reinstated, solicitations must follow procedures established for no opinion securities.
>> 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 27. Analyst Certification on page 23. Price Objective Basis/Risk on page 23. 12666821

Timestamp: 04 March 2024 06:14AM EST

Key Changes

(TRY)	Previous	Current
Recommendation	Underperform	Neutral
Price Obj.	19	47
2024E EPS	2.97	4.66
2025E EPS	2.58	6.82
2026E EPS	NA	7.88

Jason Fairclough >>
Research Analyst
MLI (UK)
+44 20 7995 0225
jason.fairclough@bofa.com

Patrick Mann, CFA >>
Research Analyst
MLI (UK)
patrick.mann@bofa.com

Paul Kirjanovs >>
Research Analyst
MLI (UK)
paul.kirjanovs@bofa.com

Alex Oppong >>
Research Analyst
MLI (UK)
alex.oppong@bofa.com

Michael Widmer
Commodity Strategist
MLI (UK)
michael.widmer@bofa.com

Stock Data

Price	45.94 TRY
Price Objective	47.00 TRY
Date Established	04-Mar-2024
Investment Opinion	B-2-7
52-Week Range	27.72 TRY-51.00 TRY
Mrkt Val / Shares Out (mn)	160,790 TRY / 3,500.0
Average Daily Value (mn)	234.24 USD
Free Float	50.7%
BofA Ticker / Exchange	ERELF / IST
Bloomberg / Reuters	EREGL TI / EREGL.IS
ROE (2024E)	7.2%
Net Dbt to Eqty (Dec2023A)	22.8%

*iQprofile*SM Erdemir

Key Income Statement Data (Dec)	2022A	2023A	2024E	2025E	2026E
(TRY Millions)					
Sales	127,783	147,900	241,649	279,006	286,435
EBITDA Adjusted	27,010	15,240	40,395	55,812	62,238
Depreciation & Amortization	(3,494)	(5,373)	(7,449)	(9,688)	(10,315)
EBIT Adjusted	23,516	9,867	32,946	46,124	51,923
Net Interest & Other Income	(1,458)	(4,497)	(8,148)	(9,836)	(9,988)
Tax Expense / Benefit	(3,459)	(4,508)	(7,440)	(10,886)	(12,581)
Net Income (Adjusted)	18,005	4,033	16,317	23,877	27,594
Average Fully Diluted Shares Outstanding	3,500	3,500	3,500	3,500	3,500
Key Cash Flow Statement Data					
Net Income (Reported)	18,005	4,033	16,317	23,877	27,594
Depreciation & Amortization	3,494	5,373	7,449	9,688	10,315
Change in Working Capital	(4,064)	4,147	3,030	5,166	1,357
Deferred Taxation Charge	(4,320)	(253)	0	0	0
Other CFO	(4,175)	(232)	24,189	11,361	11,749
Cash Flow from Operations	**8,940**	**13,068**	**50,985**	**50,091**	**51,014**
Capital Expenditure	(11,388)	(23,166)	(36,000)	(35,600)	(27,368)
(Acquisition) / Disposal of Investments	(251)	(3,475)	(999)	(662)	131
Other CFI	(774)	(689)	3,098	570	(113)
Cash Flow from Investing	**(12,412)**	**(27,330)**	**(33,901)**	**(35,692)**	**(27,349)**
Share Issue / (Repurchase)	0	0	0	0	0
Cost of Dividends Paid	(15,721)	0	(1,701)	(4,034)	(5,969)
Increase (decrease) debt	12,904	38,160	24,018	16,152	(3,094)
Other CFF	(6,811)	(23,151)	(32,286)	(25,894)	(6,802)
Cash Flow from Financing	**(9,628)**	**15,009**	**(9,969)**	**(13,776)**	**(15,866)**
Total Cash Flow (CFO + CFI + CFF)	**(13,100)**	**747**	**7,116**	**623**	**7,799**
FX and other changes to cash	5,097	8,139	6,422	6,705	(1,345)
Change in Cash	(8,003)	8,887	13,538	7,328	6,454
Change in Net Debt	20,908	29,273	10,480	8,824	(9,549)
Net Debt	14,394	43,668	54,148	62,972	53,424
Key Balance Sheet Data					
Property, Plant & Equipment	80,716	147,415	233,218	302,787	312,245
Goodwill	0	0	0	0	0
Other Intangibles	5,305	8,106	9,836	10,173	8,530
Other Non-Current Assets	8,217	19,994	27,167	31,921	30,979
Trade Receivables	15,602	20,353	26,857	32,534	31,518
Cash & Equivalents	15,186	24,073	37,611	44,939	51,393
Other Current Assets	49,868	90,092	102,692	115,117	110,355
Total Assets	174,894	310,033	437,380	537,472	545,020
Long-Term Debt	8,408	10,980	14,873	17,490	16,989
Other Non-Current Liabilities	11,914	18,233	24,730	29,058	28,200
Short-Term Debt	21,172	56,761	76,886	90,420	87,827
Other Current Liabilities	14,736	32,531	42,561	51,109	49,538
Total Liabilities	56,231	118,504	159,050	188,077	182,554
Total Equity	118,662	191,529	278,330	349,395	362,466
Total Equity & Liabilities	174,894	310,033	437,380	537,472	545,020
Business Performance*					
Return On Capital Employed	15.5%	3.01%	7.10%	7.59%	7.66%
Return On Equity	18.2%	2.67%	7.16%	7.86%	8.03%
Operating Margin	18.4%	9.02%	13.6%	16.5%	18.1%
Free Cash Flow (MM)	(2,448)	(10,098)	14,985	14,491	23,646
Quality of Earnings*					
Cash Realization Ratio	0.50x	3.24x	3.12x	2.10x	1.85x
Asset Replacement Ratio	3.26x	4.31x	4.83x	3.67x	2.65x
Tax Rate	15.6%	51.0%	30.0%	30.0%	30.0%
Net Debt/Equity	12.1%	22.8%	19.5%	18.0%	14.7%
Interest Cover	7.73x	1.28x	3.54x	4.01x	4.40x

* For full definitions of *iQmethod*SM measures, see page 24.

Company Sector

Steels

Company Description

Erdemir is the leading (and only) Turkish flat steel producer with c. 8.5mn tons steel product capacity (HRC, CRC, coated, long). In 2023, steel production was 7.4 Mt, negatively impacted by the 2023 earthquake. From here with the business largely recovered from the earthquake and bringing on new projects, we model steel production at 8.4 Mtpa in 2024 and moving towards c. 8.5 Mtpa medium term.

Investment Rationale

We rate Erdemir as Neutral. The business came under pressure in 2023 as a result of the earthquake in Southern Turkiye but has now recovered, operationally with both production and profitability normalizing. From here, the focus is on deleveraging. Leverage hit a fairly high 2.3x ND/EBITDA in 2023 but this ratio should drop as capex peaks and EBITDA & cashflow improve.

Stock Data

Price to Book Value	0.6x

Contents

Changes to earnings

We update our model factoring in higher realized TRY steel prices driven by a combination of a weaker assumed TRY and marking steel prices to market near term given that spot steel prices are higher than our estimates.

Exhibit 1: Model changes
We upgrade 2024E EBITDA +49% to TRY 40.4 bn

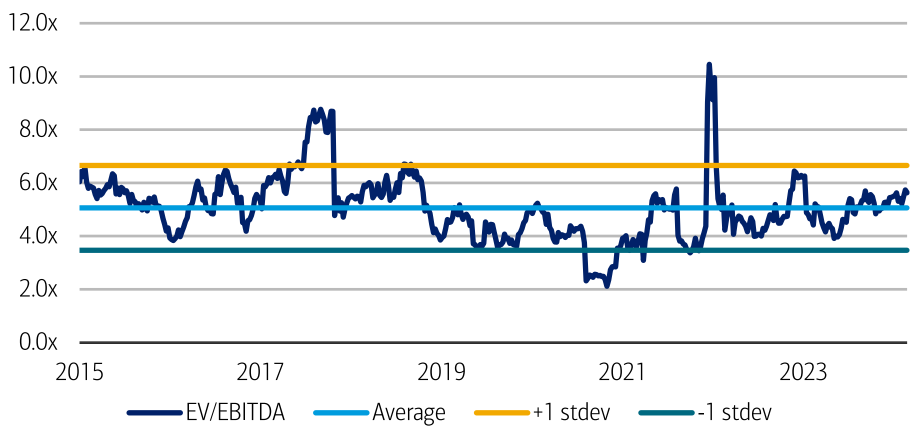
		2024E			2025E			2026E	
TRY mn	**New**	**Old**	**% Chg**	**New**	**Old**	**% Chg**	**New**	**Old**	**% Chg**
Revenue	241,649	158,520	*52%*	279,006	157,727	*77%*	286,435	-	*NA*
EBITDA	40,395	27,120	*49%*	55,812	24,982	*123%*	62,238	-	*NA*
EBIT	32,946	21,063	*56%*	46,124	18,781	*146%*	51,923	-	*NA*
Net income	16,317	10,409	*57%*	23,877	9,019	*165%*	27,594	-	*NA*
EPS	4.66	2.97	*57%*	6.82	2.58	*165%*	7.88	-	*NA*
DPS (TRY)	1.17	2.68	*-56%*	1.71	2.32	*-26%*	1.97	-	*NA*
Sales (kt)	8425	8,600	*-2%*	8450	8,600	*-2%*	8450	-	*NA*
Simple ASP (US$/t)	797	658	*21%*	742	611	*21%*	743	-	*NA*

Source: BofA Global Research estimates

BofA GLOBAL RESEARCH

Valuation & price objective derivation

Exhibit 2: EV/EBITDA
Erdemir's average EV/EBITDA through the cycle is 5.1x



Source: Bloomberg, based "Best Forward EBITDA".

BofA GLOBAL RESEARCH

Price objective derivation

We update our price objective setting a price objective at TRY47 based on 5.1x EV/EBITDA, Erdemir's average through cycle EV/EBITDA multiple.

Exhibit 3: Price objective derivation
We apply a 5.1x EV/EBITDA multiple to derive a price objective of TRY 47/sh

Metric	**TRY**
Target EV/EBITDA	5.1
EBITDA (2024)	40395
EV	**206013**
Less: net debt	-43668
Less: minority interest	-5337
Less: provisions for employee benefits	-5582
Adjustment (VAT receivable)	12000
Target equity value	**163425**
# shares	3500
Fair value (TRY/share)	**47**
Current share price (TRY)	46
% upside/(downside)	2%

Source: BofA Global Research estimates

BofA GLOBAL RESEARCH

Why the higher target multiple?

Previously we used 4x as a target EV/EBITDA multiple, more towards the low-end of the historic trading range reflecting 1) Pressure on the business as a result of the 2023 earthquake and 2) Broader risks on some unconventional economic policies in Türkiye. Now, as the business appears to have normalized post the earthquake, an "average" multiple (since 2015) feels appropriate to us. We also see early signs of normalization of economic policy.

Assuming monetization of VAT receivables

Erdemir has outstanding VAT receivables of c. TRY16 bn. Based on discussions with the company, Erdemir expects this to be largely repaid in 2024 (c. TRY15 bn out of TRY 16 bn). The company expects c. TRY 10 bn to be repaid in H1, TRY 5 bn in H2. For reference, at spot, TRY15 bn is about $480 mn. We include this in our financial model.

That said, recognizing the materiality but also being a little conservative, our new price objective explicitly assumes that TRY 12 bn out of the TRY 16 bn is turned into cash (about $380 mn at today's exchange rates). For our EV/EBITDA multiple calculations we make a similar adjustment. This US$ equivalent could also vary with moves in the TRY.

Steel company valuations

Exhibit 4: Comparable company valuations

These are comparable company valuations for our global steel valuations

			Mkt cap	EV	EPS		P/E (CY)		ND/E	FCF yield (CY)		EV/EBITDA (CY)		EV/sales		P/B	DY	
Company	**Ticker**	**Curr**	**US$mn**	**US$mn**	**2023**	**2024E**	**2023**	**2024E**	**2023**	**2023**	**2024E**	**2023**	**2024E**	**2023**	**2024E**	**2023E**	**2023**	**2024E**
Europe							**8.5x**	**13.6x**	**3%**	**9%**	**4%**	**4.9x**	**4.9x**	**0.4x**	**0.4x**	**0.58x**	**5.2%**	**4.8%**
Carbon steel							**8.1x**	**16.1x**	**-3%**	**11%**	**1%**	**3.6x**	**4.5x**	**0.4x**	**0.4x**	**0.52x**	**3.8%**	**3.1%**
ArcelorMittal	AMSYF	USD	21,429	21,986	2.8	4.1	9.6x	6.3x	5%	14%	2%	2.9x	3.1x	0.3x	0.3x	0.41x	1.7%	1.9%
ArcelorMittal	MT	USD	21,429	21,986	2.8	4.1	9.6x	6.3x	5%	14%	2%	2.9x	3.1x	0.3x	0.3x	0.41x	1.7%	1.9%
Thyssenkrupp	TYEKF	EUR	3,195	6,563	-3.2	0.5	nm	8.5x	-34%	9%	2%	3.8x	3.7x	0.2x	0.2x	0.25x	3.2%	3.2%
Salzgitter	SZGPF	EUR	1,395	3,631	3.5	0.46	6.8x	51.5x	12%	6%	-3%	4.9x	6.9x	0.3x	0.4x	0.26x	4.2%	4.2%
Voestalpine	VLPNF	EUR	4,734	8,387	6.2	2.8	8.0x	11.6x	24%	8%	-3%	4.1x	4.8x	0.4x	0.5x	0.57x	5.9%	3.9%
SSAB	SSAAF	SEK	7,936	6,232	12.7	6.5	6.3x	12.2x	-31%	18%	7%	3.2x	5.3x	0.5x	0.6x	1.21x	6.3%	3.3%
Stainless steel							**8.9x**	**11.2x**	**9%**	**7%**	**6%**	**6.1x**	**5.2x**	**0.4x**	**0.4x**	**0.64x**	**6.5%**	**6.5%**
Aperam	XASPF	EUR	2,158	2,864	3.0	1.56	9.1x	17.6x	14%	11%	2%	8.7x	7.0x	0.4x	0.4x	0.58x	7.3%	7.3%
Acerinox	ANIOF	EUR	2,694	3,488	1.7	1.5	5.8x	6.4x	13%	9%	7%	4.3x	4.7x	0.5x	0.5x	0.89x	6.3%	6.3%
Outokumpu	OUTFF	EUR	2,004	2,301	0.4	0.43	11.7x	9.6x	0%	2%	9%	5.3x	4.0x	0.3x	0.3x	0.45x	6.1%	6.1%
Alleima AB	SAMHF	SEK	1,676	1,699	6.2	6.05	11.0x	11.4x	32%	6%	13%	5.8x	5.4x	0.8x	0.8x	1.07x	3.2%	4.4%
North America							**10.4x**	**11.9x**	**7%**	**6%**	**4%**	**6.7x**	**7.0x**	**1.1x**	**1.1x**	**2.0x**	**1.0%**	**1.1%**
Commercial Metals	CMC	USD	6,457	6,848	7.4	5.3	8.2x	10.2x	12%	10%	7%	5.0x	5.7x	0.8x	0.8x	1.5x	1.2%	1.2%
Nucor	NUE	USD	46,881	48,025	18.1	16.1	10.5x	11.8x	2%	10%	4%	6.5x	7.0x	1.4x	1.4x	2.2x	1.1%	1.1%
Steel Dynamics	STLD	USD	21,636	23,214	15.0	13.3	8.9x	10.1x	11%	9%	3%	6.3x	7.0x	1.2x	1.2x	2.5x	1.3%	1.4%
US Steel	X	USD	12,621	14,064	4.7	3.9	10.0x	12.1x	11%	-4%	0%	6.6x	5.8x	0.8x	0.8x	1.1x	0.4%	0.4%
Reliance Steel & Al	RS	USD	18,337	18,257	22.6	21.2	14.2x	15.1x	1%	7%	6%	9.2x	9.8x	1.2x	1.3x	2.4x	1.2%	1.4%
South America							**13.6x**	**7.3x**	**3%**	**8%**	**8%**	**7.8x**	**5.1x**	**0.9x**	**0.9x**	**0.8x**	**5.2%**	**2.7%**
Cia Siderurgica SA	SID	USD	924	12,697	0.3	0.4	13.7x	7.7x	nm	22%	3%	5.4x	5.2x	1.4x	1.4x	1.3x	16.4%	3.3%
Gerdau S.A.	GGB	USD	1,602	9,916	0.9	0.5	5.1x	8.9x	9%	19%	6%	3.6x	5.3x	0.7x	0.8x	0.8x	6.8%	4.5%
Usiminas	USSPF	BRL	568	4,048	0.5	1.2	22.7x	9.0x	3%	13%	12%	17.0x	6.2x	0.7x	0.7x	0.6x	4.7%	2.9%
Ternium	TX	USD	7,923	14,095	3.1	11.5	13.0x	3.5x	-2%	-23%	11%	5.3x	3.9x	0.8x	0.7x	0.6x	-7.2%	0.0%
Japan							**7.8x**	**8.4x**	**37%**	**11%**	**17%**	**5.4x**	**5.2x**	**0.7x**	**0.7x**	**0.8x**	**4.8%**	**4.2%**
Nippon Steel	NISTF	JPY	23,953	41,049	671.9	445.3	7.8x	8.4x	37%	11%	17%	5.4x	5.2x	0.7x	0.7x	0.8x	4.8%	4.2%
South Korea							**17.7x**	**16.9x**	**13%**	**0%**	**-3%**	**6.6x**	**7.1x**	**0.7x**	**0.6x**	**0.7x**	**2.3%**	**2.3%**
POSCO	PKXFF	KRW	27,405	38,840	24,338	25,461	17.7x	16.9x	13%	0%	-3%	6.6x	7.1x	0.7x	0.6x	0.7x	2.3%	2.3%
India							**29.1x**	**16.9x**	**77%**	**-3%**	**3%**	**11.4x**	**8.6x**	**1.3x**	**1.2x**	**1.9x**	**1.3%**	**0.7%**
JSW Steel	XWWDF	INR	24,458	33,650	14.8	48.9	27.2x	13.8x	99%	1%	4%	10.3x	7.6x	1.7x	1.6x	2.8x	0.4%	0.8%
Tata Steel	XTLLF	INR	22,885	31,075	7.2	-3.1	nm	nm	75%	-6%	1%	12.1x	8.6x	1.2x	1.1x	1.9x	2.3%	0.4%
SAIL	SLAUF	INR	6,857	11,688	4.6	4.4	31.0x	19.9x	57%	-5%	4%	11.7x	9.7x	1.0x	1.0x	1.1x	1.1%	1.0%
ROW																		
Erdemir	ERELF	TRY	5,126	6,261	1.2	4.7	39.9x	9.9x	23%	-6%	9%	12.9x	4.9x	1.3x	0.8x	0.9x	1.1%	2.5%
BlueScope	BLSFF	AUD	6,633	6,899	2.4	2.2	9.9x	10.5x	-7%	10%	4%	4.8x	5.0x	0.6x	0.6x	1.0x	2.2%	2.2%
World							**15.7x**	**12.0x**	**18%**	**5%**	**5%**	**7.0x**	**5.7x**	**0.8x**	**0.7x**	**1.0x**	**3.2%**	**2.9%**

Source: BofA Global Research estimates

Exhibit 4: Comparable company valuations
These are comparable company valuations for our global steel valuations

	Mkt cap	EV	EPS	P/E (CY)	ND/E	FCF yield (CY)	EV/EBITDA (CY)	EV/sales	P/B	DY

BofA GLOBAL RESEARCH

FY2023 results key figures

Exhibit 5: FY2023 results
EBITDA was TRY 15.2 bn, -44% YoY, -16% vs. consensus but ahead of our forecast.

FY23 Results (TRY'000)	FY23A	FY22A	YoY	FY23E	vs. BofAe	Consensus	vs. Consensus
Revenue	147.9	127.8	16%	143.8	3%	149.61	-1%
EBITDA	15.2	27.1	-44%	12.8	19%	18.23	-16%
Net profit for the period	4.3	18.65	-77%	-2.9	nm	-0.24	nm
EBITDA/t (US$/t)	92	210	-56%	75.9	21%	103	-11%
Free Cash Flow	-10.1	-2.4	nm	-13.5	-25%		
Flat steel production (kt)	6704	7,048	-5%	7,203	-7%	6900	-3%
Long steel production (kt)	652	736	-11%	553	18%	662	-2%
Total steel production (kt)	7356	7784	-5%	7756	-5%	7562	-3%
Flat steel shipments (kt)	6684	7,005	-5%	7,203	-7%		
Long steel shipments (kt)	649	764	-15%	553	17%		

Source: BofA Global Research estimates

BofA GLOBAL RESEARCH

Key takeaways and thoughts on results

(Source: Discussion with company)

Current outlook

As it stands today, the company sees a "normal" order book with c. 2.5 months of orders booked. Local Turkish demand for steel is strong. Utilization has been trending above 90% and EBITDA/t is at "normal" levels i.e. around / above minimum level of US$100/t.

Reflecting on the earthquake impact

2023 was a difficult year for Türkiye and for Erdemir. On February 20th, 2023, southern Türkiye was hit by a 6.4 magnitude earthquake with another 5.6 magnitude on February 27th. Aside from the human tragedy, this created problems for Erdemir's business: Erdemir's operations at Iskenderun in Southern Türkiye lost almost three months of production including 600 kt of steel production & sales. This impact came through in the Q1 and Q2 results. By Q3, the production was largely back to normal levels. According to the company, Q3 and Q4 results were more "normal" or typical i.e. utilizations rates around 90% and producing > 2 Mt of steel with EBITDA/t of steel > US$100/t.

In terms of the earthquake impact on the steel plants, the company notes there were no large-scale damages to the facilities, no buildings collapsed. As such the shutdown / reduced production was a result of controlling the situation, checking that all the plant systems were safe and operational. The company did experience some damages in the port but these were not material. Some other facilities also lost production so local Turkish production wasn't enough to satisfy demand. As such, net exports from Türkiye actually dropped in 2023.

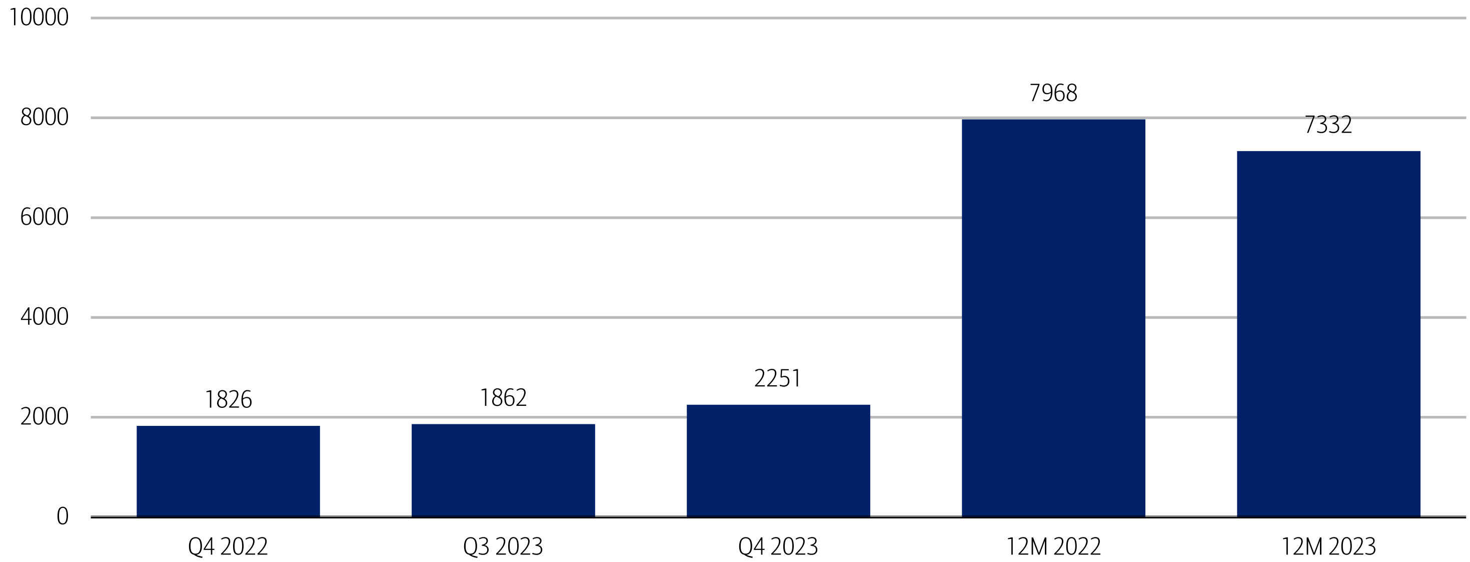
Bonus share issue announced

The company has announced a bonus share issue (effectively a share split) which will see the number of shares outstanding double. The timing of this is still to be confirmed but the company expects approval sometime in H1. Inasmuch as a share split is value neutral, we continue model the company based on current shares outstanding i.e. 3.5 bn.

Key charts from results

FY2023 liquid steel production down c. 8% mainly driven by the impact of the February 2023 earthquake. By Q4, however, the business had recovered to its typical quarterly steel production of around 2.1 Mt / quarter implying FY production at our assumed production level of 8.4 Mt.

Exhibit 6: Liquid Steel Production (Mt)
2023 liquid steel production down c. 8% mainly driven by the impact of the February 2023 earthquake

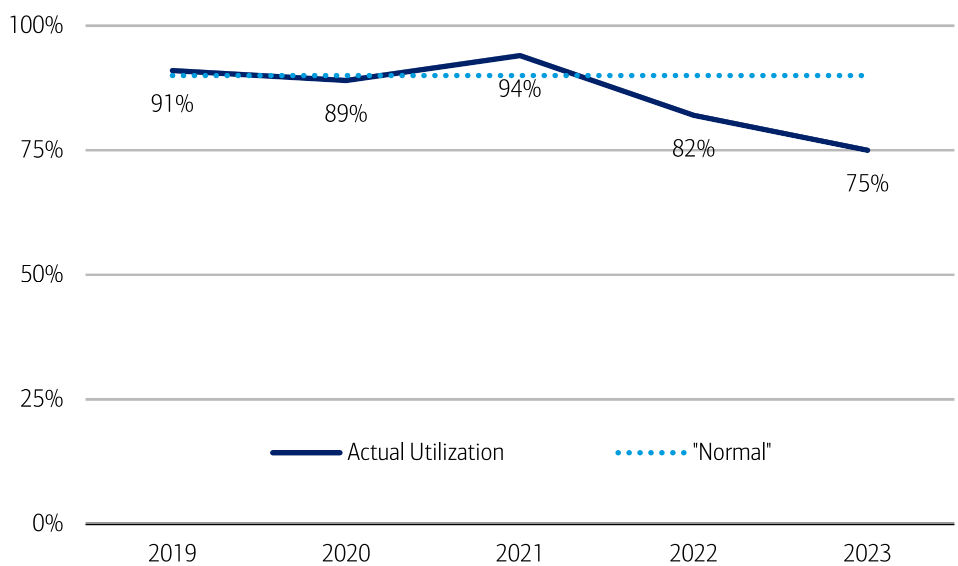


Source: Company data

BofA GLOBAL RESEARCH

Capacity utilization for the FY dropped to 75% but recent quarterly data suggests that this is now back to a normal of c. 90%.

Exhibit 7: 2023 utilization rate was c. 75% for the FY
Inasmuch as the company now producing at > 2.2 Mt/quarter, we think that utilization rate should increase to “normal” levels of c. 90%.

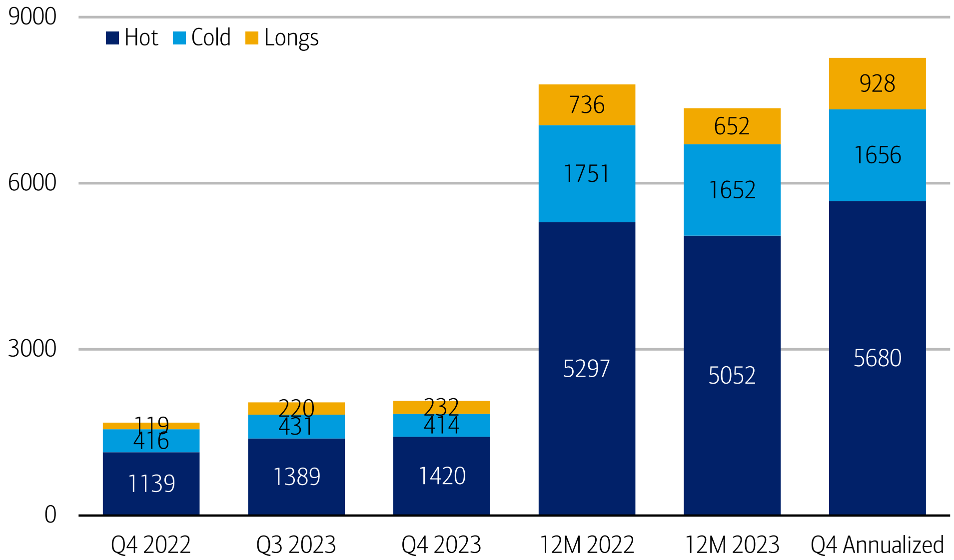


Source: Company data, BofA Global Research estimates

BofA GLOBAL RESEARCH

Production of key products down c. -5.5% YoY to around 7.4 Mt. But taking Q4 production annualized we see the business has now recovered to above 2022A production levels. Note: Erdemir defines "Hot" as Hot rolled coil (HRC) + plate and "Cold" as Cold-rolled coil (CRC), tin plate and galvanized steel. Long products are billets and wire-rod. No rebar. So both Hot and Cold are flat products.

Exhibit 8: Production of key products down c. 5% YoY to c. 7.4 Mt.
But taking Q4 production annualized we see business has now recovered to above 2022A production levels.

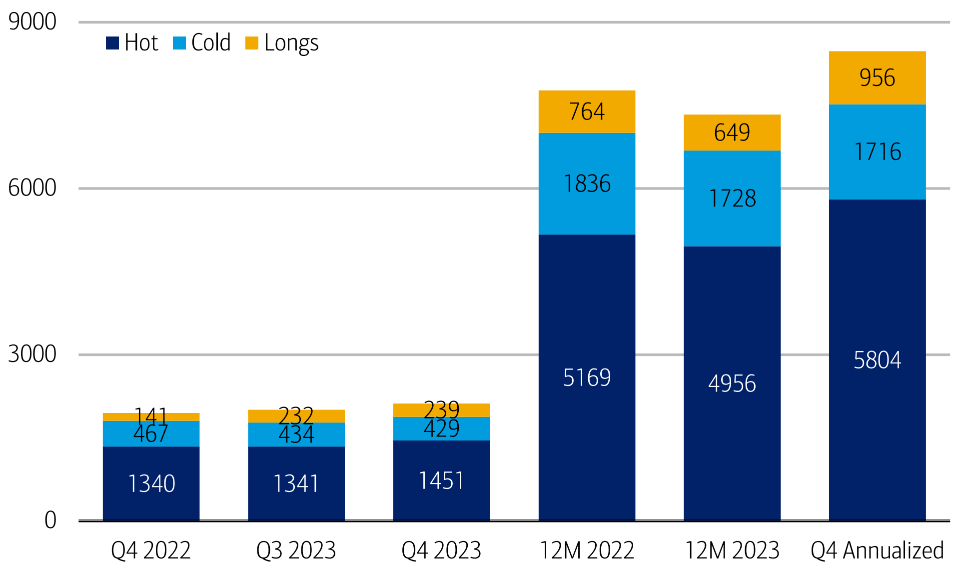


Source: Company data, BofA Global Research estimates

BofA GLOBAL RESEARCH

Inline with lower production, sales of key production down c. 5.6% to 7.3Mt. Again, as with production, taking Q4 sales levels annualized suggests that the business has recovered to above 2022A levels.

Exhibit 9: Sales of key productions down c. 5.6% YoY to 7.3 mt.
Again, taking Q4 sales levels annualized suggests that the business has recovered to / above 2022A levels.

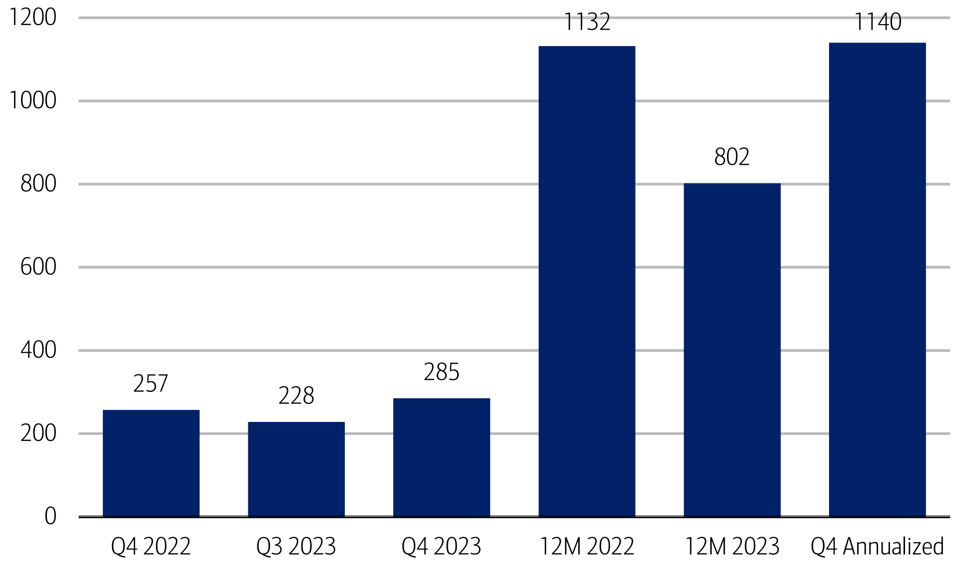


Source: Company data, BofA Global Research estimates

BofA GLOBAL RESEARCH

With steel needed for the reconstruction effort in Türkiye and lower steel production, exports dropped c. 29% YoY to 800 kt YoY. That said, again, taking Q4 export numbers annualized, we see that exports have recovered to the 2022 level of c. 1.1 Mt.

Exhibit 10: Steel exports down -29% YoY to c. 800 kt.
Again, taking Q4 exports annualized suggests that exports have now recovered to level inline with 2022.

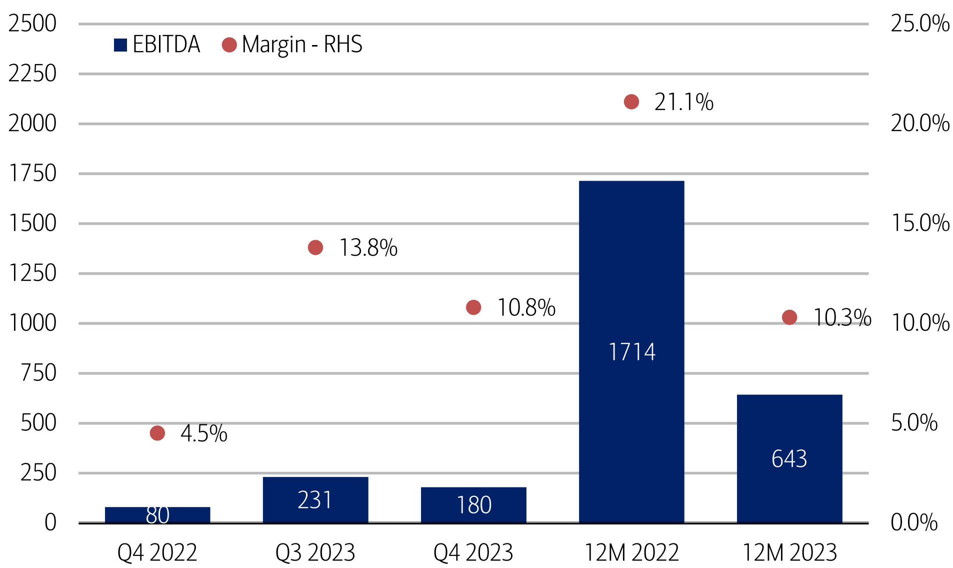


Source: Company data, BofA Global Research estimates

BofA GLOBAL RESEARCH

Looking at margins, EBITDA margin decreased YoY to 10.3% from 21.1% in 2022 Key drivers here: Earthquake impacts (lower volumes, lower fixed cost absorption), lower steel prices (Key regional benchmark price -16% to c US$700/t) Raw materials didn't have much impact, iron ore prices flat for the year at about $114/t CFR China reference price and benchmark seaborne coking coal price actually down YoY at just under US$300/t.

Exhibit 11: Gross EBITDA US$ mn – LHS vs. EBITDA margin - RHS
EBITDA margin decreased to 10.3% from 21% the previous year due to mainly to earthquake impact on volumes and lower steel prices



Source: Company data

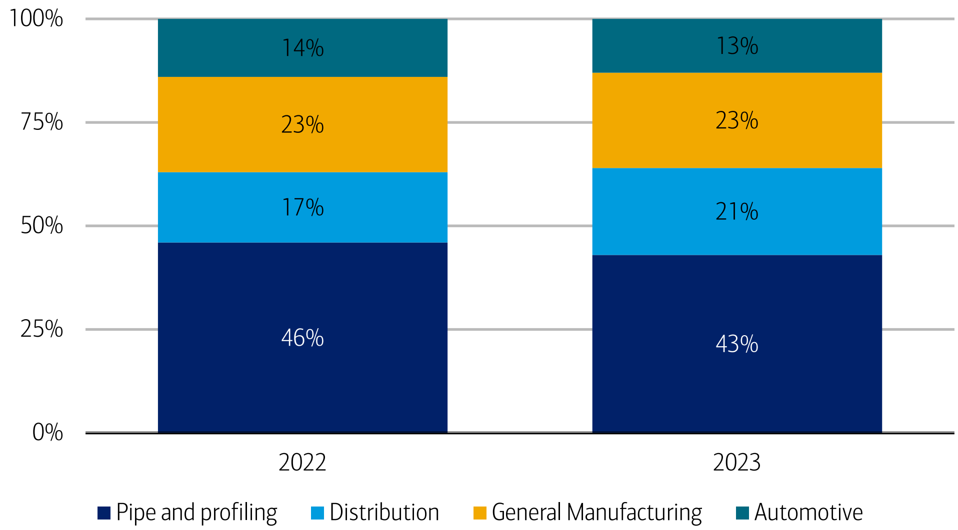
BofA GLOBAL RESEARCH

Key end markets

Flat steel is the key product for Erdemir. Within this product, Pipe and Rolling is the largest consumer at 43% of sales in 2023 followed by General Manufacturing and steel distribution. General manufacturing includes white goods. According to the company, c. 80% of sales goes to the domestic market. But interestingly, afterwards, almost half of its customers products are exported. Most of Türkiye's pipe producers are exporters.

Exhibit 12: Key end markets – Flat steel

The key end-market for Erdemir's flat steel is Pipe & Rolling. Interestingly, much of this product is exported.



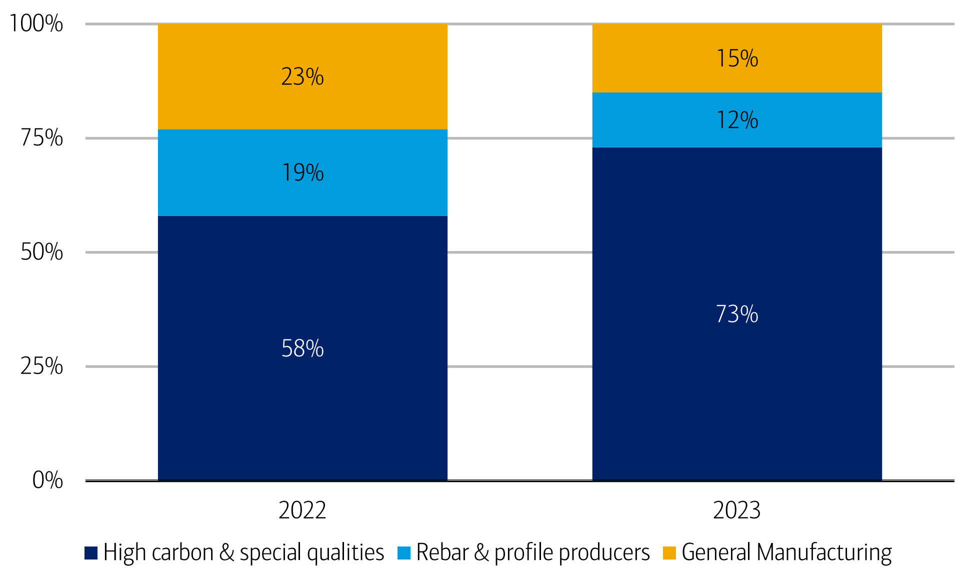
Source: Company data

BofA GLOBAL RESEARCH

Long products are a much smaller business for Erdemir. Key end-market / product is High carbon & special qualities.

Exhibit 13: Key end-markets – long products

Key end-product / use is High Carbon & special qualities



Source: Company data

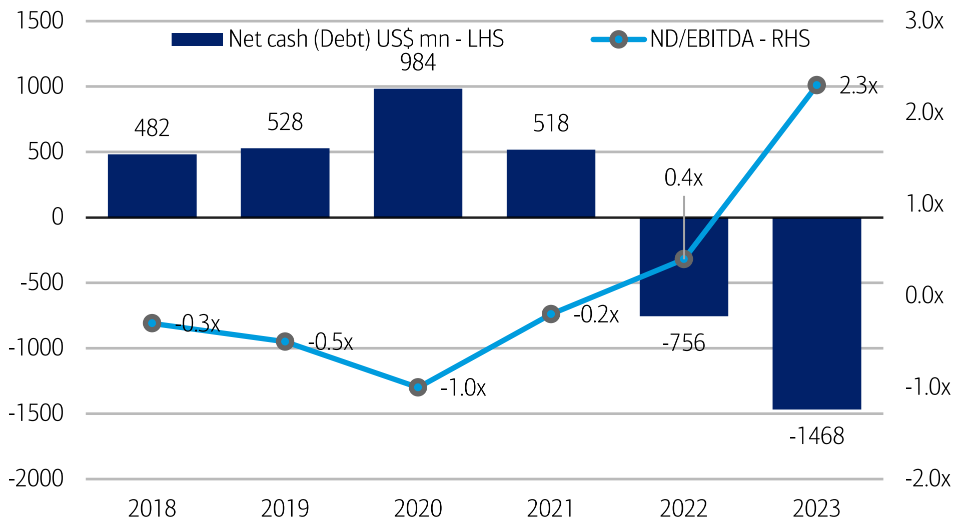
BofA GLOBAL RESEARCH

Deleveraging a focus

With the 2023 earthquake impacting cash flow and (fairly) high capex in 2023, net debt increased to just under $1.5 bn implying 2.3x net debt/EBITDA. The company believes that it is at an inflection point in terms of its balance sheet and sees deleveraging from there. In particular, the company sees an expected net inflow from a partial repayment of VAT receivables of c. TRY 15 bn (out of TRY 16 bn on balance sheet) with the expectation that much of this will be refunded in 2023. TRY15 bn is about $480 mn at current spot rates, so this would mean a material decrease in net debt.

Exhibit 14: Trend in net debt and leverage ratio

The company ran a net cash balance sheet for several years until 2022. 2023 saw net debt increase to just under US$1.5 bn.



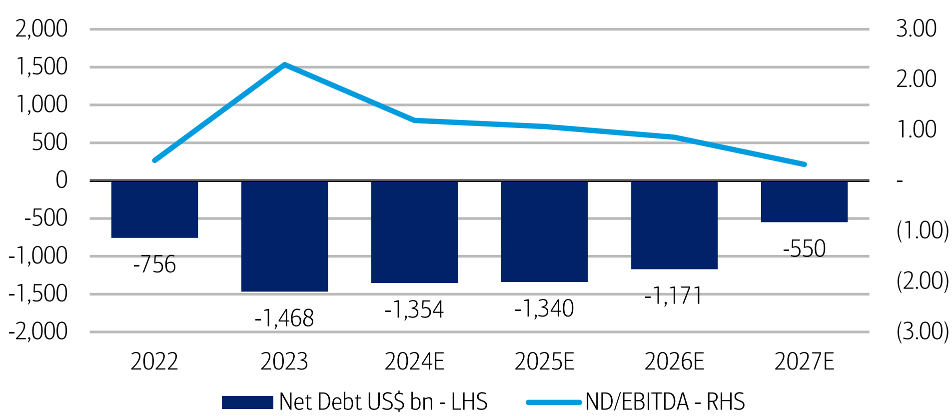
Source: Company data

BofA GLOBAL RESEARCH

Financial debt is held both in TRY and US$. The share of each can vary slightly year to year. As of the end-2023, the debt is largely US$ (c. 87%) at the end of 2022, this was c. 65%. Again because the group's functional currency is US$ and its products and costs are largely priced in US$, this seems appropriate. The company has no financial covenants on its debt. From here, we forecast deleveraging with ND/EBITDA dropping to below 1x by 2027. Reduction in ND/EBITDA is driven mainly by improved EBITDA but also a tapering of capex spend from current peak levels driving more deleveraging.

Exhibit 15: Forecast net debt & ND/EBITDA evolution

Capex peaking in 2023/2024 and then rolls off. EBITDA recovering from 2024E.



Source: BofA Global Research estimates

BofA GLOBAL RESEARCH

According to the company, the group is in a period of "peak" capex with group capex about US$1 bn last year (2023) and this year (2024). As we get out to 2026/2027, this period of growth capex should be largely behind the group and free cash flow will pick up.

Another key input into this deleveraging process is the assumptions on dividends. We assume 25% dividend payout on increasing profitability while the group is deleveraging the balance sheet. In theory, the group could pay lower dividends and deleverage more quickly but given Erdemir's history as a solid dividend player, we believe management will seek to balance dividend payment vs. deleveraging. As such, dividend payout could surprise up and be higher than our assumed 25%.

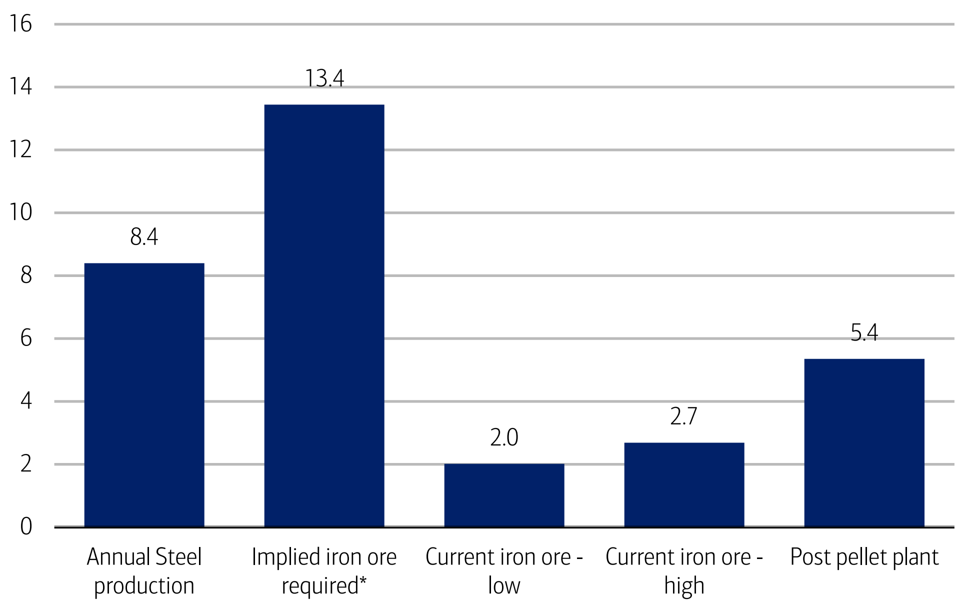
Investments for resilience

Erdemir is investing both in its steel facilities and its mining facilities. While these investments won't necessarily drive a big increase to finished steel production, the company believes that the investments will drive a better cost position and environmental performance. Erdemir expects 2024E capex of c. US$1 bn and is expected stay elevated for the next 1-2 years before normalizing to a "non-growth" level.

New pelletizing plant = increased iron ore self-sufficiency

The company is investing in a new pelletizing facility with capex of US$550 mn which will provide c. 3 Mtpa of pellet feed. Implied capital intensity of c. $183/t appears attractive vs. global benchmarks for incremental iron capacity + pelletizing (can be $200/t for mining only). The company anticipates incremental gross profitability anticipated at $200-250 mn/year as a result of making the investment. Post the pellet plant, self-sufficiency in iron ore should increase from 15-20% to around 40%.

Exhibit 16: New pellet plant increasing level of iron ore self-sufficiency.
New pellet plant with mining capacity should increase iron ore self-sufficiency to around 40%.



Source: BofA Global Research estimates. *Implied required iron ore based on 1.6x ratio applied to 8.4 Mtpa of steel production.
BofA GLOBAL RESEARCH

Investments = better cost & environmental performance

In October 2023 the company announced that it had completed the rebuilding of its Number 2 blast furnace, replacing a unit which had been in operations since the 1970s. The new furnace has marginally more capacity than the unit it replaced (1.775 Mt vs. 1.625 Mt). The company is upgrading several of its blast furnaces and coke batteries which should lead to better cost and environmental performance.

Longer term: US$3.2 bn to cut emissions

Longer term, the company plans to invest around US$3.2 bn to drive a 25% cut in its emissions by 2030. The improvement in performance is expected to come through reduced consumption of coal by substituting with Biomass and Natural Gas. According to group CFO Serdar Başoğlu 70-80% of the $3.2 billion investment will be sourced externally accessing dedicated funds that are available for the green transition.

Decarbonization goals

Longer term, the group has plans to achieve net zero emissions by 2050 and as such is a key contributor to the Türkiye 2053 net zero emission target. Intermediate targets are lowering CO2/t of steel produced by 25% by 2030, 40% by 2040 and achieving net zero emissions by 2050. All these are compared to a base year emissions level of 2022.

Some elements of the plan include

- a 1,710,000 MWh /year solar plant.
- Investing in enhanced energy efficiency and maximizing utilization of by-product gases and waste heat.
- Establishment of a new scrap collection / processing centre.
- New pellet plant investment reduces emissions/t.
- Ongoing efforts to replace coal with Biomass which has a zero-emission factor.
- Investments in Electric Arc Furnace (EAF) technology to take advantage of steel's 100% recyclability.
- Erdemir and Isdemir also envisage production with gas-based DRI (Direct Reduced Iron) to deliver iron units with lower CO2 emissions in the medium term.

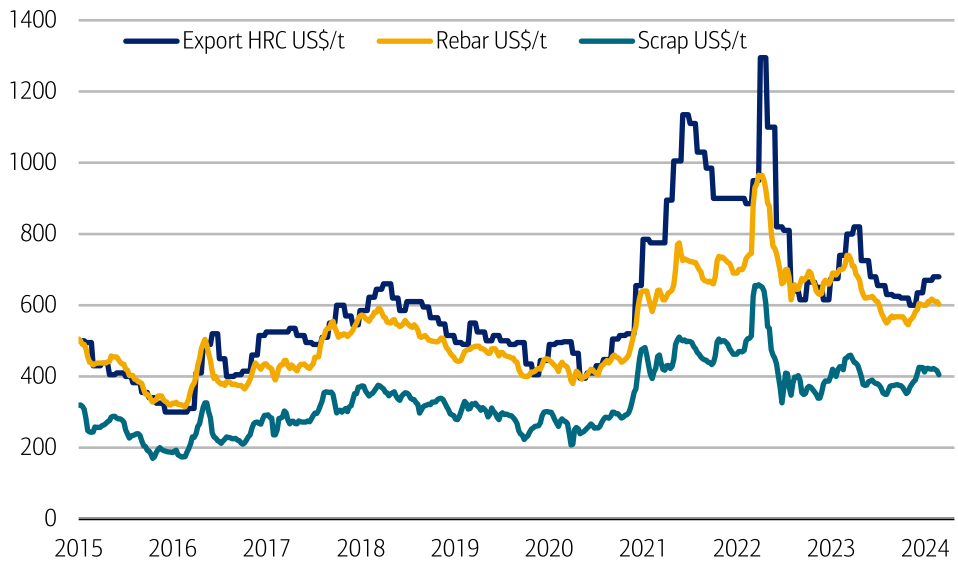
Turkish steel outlook

Spot Turkish HRC steel prices peaked at over $1200/t in early 2022 before correcting down to around US$600/t in late-2022. Prices then rallied to over $800/t in early 2023 before again correcting to around US$600/t. Today, domestic HRC prices are around $670-680/t.

Erdemir is mainly a FLAT steel producer

HRC (Hot rolled coil) is the key product for Erdemir. It benefits from Türkiye being a market which is net short flat steel. It is the only integrated flat steel producer in Türkiye and as such enjoys a privileged market position. It is worth noting that Erdemir is NOT a rebar producer. The Turkish market is oversupplied with rebar and as such local pricing for this product is much less attractive. Similarly scrap is a key input for Rebar producers, not as much for flat steel producers. We provide rebar prices as a reference to show how HRC trades at a consistent and material premium to Rebar in Türkiye.

Exhibit 17: Selected Turkish spot steel prices
Prices picking up off recent lows



Source: Platts, Bloomberg

BofA GLOBAL RESEARCH

For Erdemir we model to a reference Turkish HRC price of c. $717/t in H1 2024, up c. 8% from H2 2023. Of course, because of its product mix and market position, Erdemir usually achieves a premium vs. benchmark price indices. For example, Erdemir's disclosed realized price for flat products in 2023A was $811/t vs. the average for this Turkish HRC spot index at $707/t during the same period.

Anti-dumping investigation could be a benefit

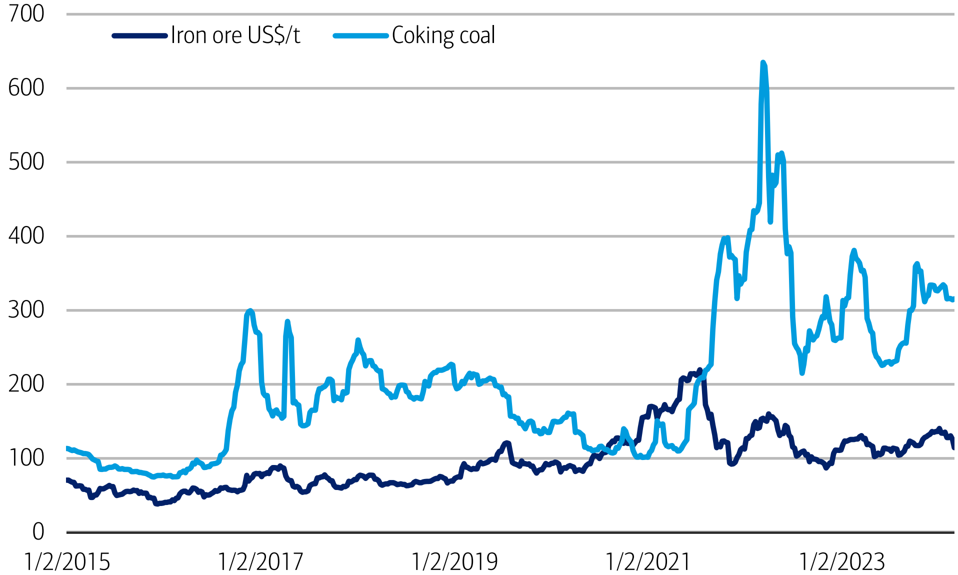
According to the company it generally benefits from various existing import tariffs applied by Türkiye (typically in 10-20% range), but it notes that there is an ongoing anti-dumping investigation which could be beneficial to Erdemir in the event of a positive outcome. According to the company: As a result of the application made to the Ministry of Trade by TÇÜD (Steel Producers Association) on behalf of the steel producers, an anti-dumping investigation has been started against the import of "hot rolled flat steel" originating from China, India, Japan and Russia on October 31, 2023. According to the relevant legislation, the ongoing investigation will be completed within 12 months.

Steelmaking raw materials

For reference we include price charts for key steelmaking raw materials, iron ore and coking coal based on typical global benchmark prices. It is worth noting that these tend to be reference delivery to China. Inasmuch as Erdemir is located in Türkiye, the company's realized prices and sourcing are likely to differ from other global peers.

Exhibit 18: Key steel making raw materials, benchmark CFR price

Coking coal peaked at over US$600/t in early 2022 at the start of the Ukraine way. Spot iron ore presently trading at c. $114/t



Source: Bloomberg

BofA GLOBAL RESEARCH

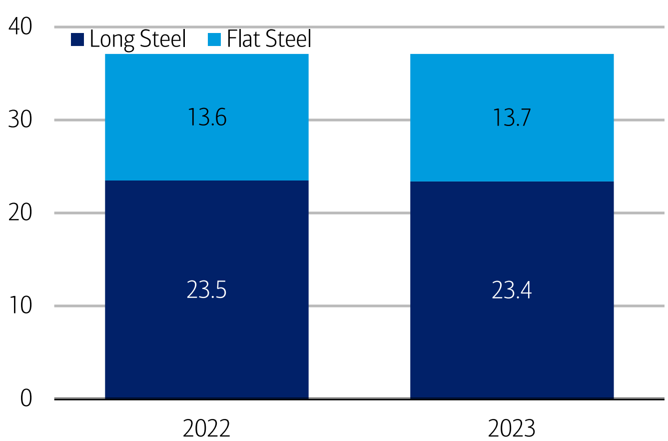
Selected market data

(Source: Company)

Local steel production was fairly flat YoY at c. 37 Mt, impressive considering the interruption to production caused by the February 2023 earthquake. Consumption increased c. 17% YoY with demand being helped by reconstruction efforts in our view.

Exhibit 19: Türkiye Steel Production (Mt)

Local steel production flat YoY at c. 37 Mt

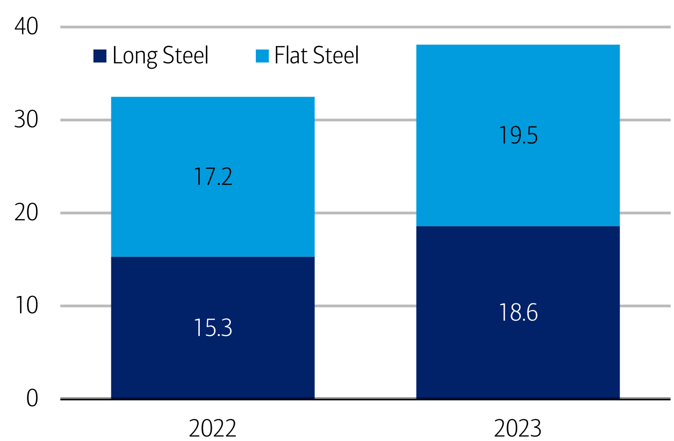


Source: TSPA, Company data

BofA GLOBAL RESEARCH

Exhibit 20: Türkiye Steel Consumption (Mt)

Local steel consumption increased c. 17% YoY to c. 38 Mt

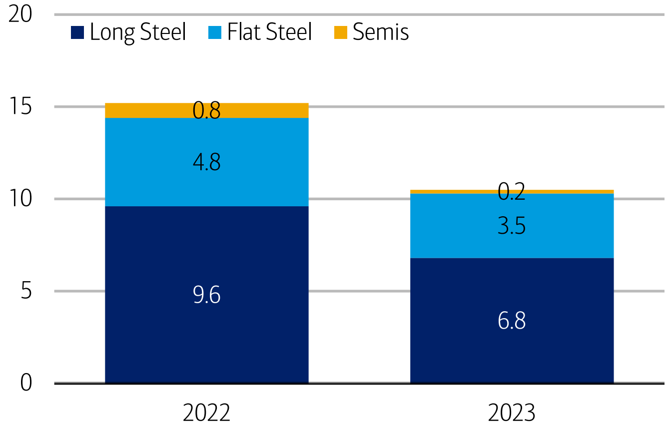


Source: TSPA, Company data

BofA GLOBAL RESEARCH

Exports dropped 31% YoY as more steel stayed in Türkiye again driven by reconstruction related demand. Imports increased c. 16% YoY with tonnes flowing in to balance a fairly tight local market.

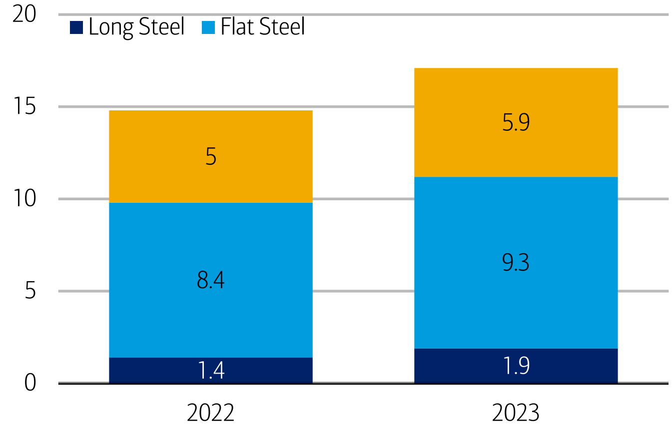
Exhibit 21: Türkiye Steel Exports (Mt)
Exports dropped 31% YoY to c. 10.5 Mt



Source: TSPA, Company data

BofA GLOBAL RESEARCH

Exhibit 22: Türkiye Steel Imports (Mt)
Imports increased 16% YoY to 17 Mt



Source: TSPA, Company data

BofA GLOBAL RESEARCH

Asset description: Erdemir in brief

Erdemir (EREGL) is a Turkish listed steel producer. It has two key assets – Eregli plant (in Northern Türkiye) and Iskenderun plant (Southern Türkiye, near the Syrian border). It (normally) produces c. 9Mtpa of liquid steel, (mostly) converting this into hot and cold rolled coils and selling to third parties. The Erdemir plants are two of only three integrated steel facilities operating in Türkiye.

In 2023, Eregli plant produced 3.9Mt of steel (2.2Mt Hot and 1.6Mt Cold), while Iskenderun 3.5Mt (0.6Mt long and 2.8Mt hot). Erdemir defines "Hot" as HRC + plate and "Cold" as Cold-rolled coil (CRC), tin plate and galvanized steel. We note that production in 2023 was impacted by the February earthquake, with Iskenderun plant being in affected area, leading to a loss of approximately 3 months of production (c0.6Mt). Iskenderun produces HRC and some long-products (billets and wire-rod. No rebar). For 2024, group targets a return to c8.3-8.4Mt of normalised sales volumes for the group.

Exhibit 23: Map of Erdemir assets

Erdemir plant at Iskenderun is located in Southern Türkiye – an area impacted by 2023 earthquake

Source: BofA Global Research

BofA GLOBAL RESEARCH

Near term investments

In the near-term both plants should see a benefit from previously announced investments in operational improvements. Key ones include:

- 2nd blast furnace in Eregli.
- 4th and 5th Coke Battery in Eregli.
- New Sinter Factory project in Eregli.
- New 3rd blast furnace construction to replace the current one in Iskenderun
- 3rd Coke Battery modernisation, New Sinter Factory and Vacuum degassing plant in Iskenderun

Key steel production assets

At the Eregli site in Northern Türkiye, the group has two blast furnaces having capacity of c. 4 Mtpa of crude steel and 5 Mtpa of finished product capacity.

At the Iskenderun site in Southern Türkiye, the group has four furnaces with a capacity of c. 5.6 Mtpa of hot metal. This site can produce flat products and some long products and also ships some slab to Eregli for further processing.

Iron ore: Increasing production

In addition, a previously announced development of a new pelletising plant ($550m total cost, with a capacity of 3Mt per annum) should allow the company to improve its supply of ore from 15-20% to 40-45% according to the company.

Total capex for 2024 is expected by Erdemir to be around $1bn (similar to levels of 2023 - $977m), marking a peak capex year. Investment expenditures should decrease from this level as most of the presently planned programs would be complete. The company does not provide any estimate for expected cost savings or EBITDA from these investment programmes.

Erdemir is (mainly) a flat steel producer

Erdemir is an integrated producer of flat steel, the only one in Türkiye. While Türkiye is "long" long products (rebar) it is slightly short flat steel meaning that Erdemir has a privileged position in terms of a naturally tight home market. Erdemir's typical mix is about 90% flat steel vs. c. 10% long. A normal capacity utilization is c. 90%. 2023 was an exceptional year and this utilization figure dipped to c. 75% but has now recovered.

US$ functional currency = Weak TRY is beneficial

Globally, steel production costs are largely US$ denominated (iron ore, coal, other energy). Typically the main local cost is labour. While Erdemir reports in TRY for its statutory accounts it uses the US$ as its functional currency and reports both currencies in its accounts. Revenues that are US$ denominated translate into higher TRY revenues when converted at a weaker exchange rate. The main local cost which could be exposed to high cost inflation is labour but there is a degree of natural offset here i.e. TRY costs against US$ priced (natural) revenues.

Energy: c. 50% self-generated

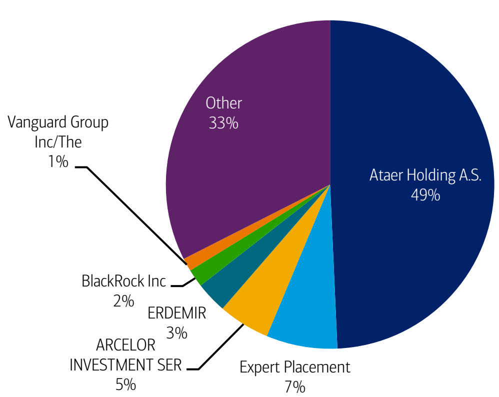
The company generates c. 50% of its electricity requirements from off-gas from the blast furnaces. Beyond this it purchases natural gas from the local utility and purchases electricity on the local spot market.

Brief company history

In the 1950s, Türkiye's industrial production capacity underwent a paradigm shift. The number of dam constructions increased and the rate of urbanisation accelerated. This led to an increase in demand for flat steel, which foreign currency reserves struggled to meet. In 1960, Erdemir was founded, with first production achieved in 1965.

In 1996, the company underwent modernisation, expanding the capacity of plants and completing Erdemir port (one of the largest in Türkiye). Erdemir has made several acquisitions, including flagship Isdemir. The company is owned by Oyak, the Turkish military's pension fund. The company typically pays a sizeable dividend.

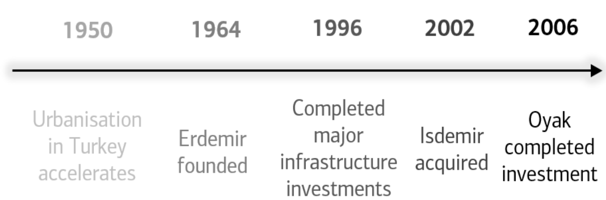
Exhibit 24: Ownership summary
Ataer Holding, "Oyak", is the Turkish military pension fund



Source: Bloomberg

BofA GLOBAL RESEARCH

Exhibit 25: Corporate history summary
The flagship acquisition of Isdemir was completed in 2002



Source: BofA Global Research

BofA GLOBAL RESEARCH

Appendix: European steel view

Link to original note: European steel. Cheap but downgrades abound. Originally published 20 November 2023, lead author P. Mann.

Spreads under pressure. Spread = Price – Raw materials

The European Steel spread (a key profitability driver) has come under pressure on rising raw material prices (particularly coking coal) and lower steel prices YTD. We incorporate latest raw material price forecasts (see our Metals Strategist Year Ahead report). We update our steel prices, leaving spreads largely unchanged. We continue to only expect a recovery in prices and spreads to occur when the macro environment improves, and we model trough spreads in 1Q24, in line with BofA Strategists expectations for trough PMIs. While we think the sector exhibits value (P/B & EV/EBITDA multiples are low relative to history), we think the sector is in an earnings downgrade cycle and we are now below consensus for most companies. Cheap equity + earnings downgrade = Value trap / too early to turn more positive.

Exhibit 26: Quarterly steel price, spread, raw material forecasts. HRC = Hot Rolled Coil

We model spreads (steel price less raw material costs) troughing in 1Q24

Quarterly		**1Q 23**	**2Q 23**	**3Q 23**	**4Q 23**	**1Q 24**	**2Q 24**	**3Q 24**	**4Q 24**	**1Q 25**	**2Q 25**	**3Q 25**	**4Q 25**
EUR HRC	**EUR/t**	**776**	**775**	**650**	**636**	**670**	**650**	**590**	**620**	**660**	**640**	**650**	**650**
Old	EUR/t	776	775	650	600	550	590	570	660	650	650	650	650
Chg	%	*0%*	*0%*	*0%*	*6%*	*22%*	*10%*	*4%*	*-6%*	*2%*	*-2%*	*0%*	*0%*
Spread	**EUR/t**	**400**	**479**	**328**	**298**	**245**	**301**	**296**	**346**	**396**	**405**	**405**	**400**
Old	EUR/t	400	479	328	261	246	302	298	389	398	399	400	401
Chg	%	*0%*	*0%*	*0%*	*14%*	*0%*	*0%*	*-1%*	*-11%*	*0%*	*1%*	*1%*	*0%*
US HRC	**USD/metric t**	**947**	**1172**	**871**	**911**	**1130**	**1020**	**882**	**805**	**799**	**799**	**799**	**799**
Was		947	1172	871	816	926	898	843	794	772	772	772	772
Chg	%	*0%*	*0%*	*0%*	*12%*	*22%*	*13%*	*5%*	*1%*	*4%*	*4%*	*4%*	*4%*
US Plate	**USD/metric t**	**1599**	**1694**	**1669**	**1465**	**1268**	**1102**	**1047**	**992**	**1047**	**1047**	**1047**	**1047**
Was		1679	1768	1761	1466	1323	1213	1102	1047	965	965	965	965
Chg	%	*-5%*	*-4%*	*-5%*	*0%*	*-4%*	*-9%*	*-5%*	*-5%*	*9%*	*9%*	*9%*	*9%*

Key Raw Materials		**1Q 23**	**2Q 23**	**3Q 23**	**4Q 23**	**1Q 24**	**2Q 24**	**3Q 24**	**4Q 24**	**1Q 25**	**2Q 25**	**3Q 25**	**4Q 25**
Iron ore	**USD/t**	**126**	**111**	**114**	**110**	**150**	**130**	**120**	**100**	**90**	**90**	**90**	**90**
Was		126	111	114	110	110	100	90	90	90	90	90	90
Chg	%	*0%*	*0%*	*0%*	*0%*	*36%*	*30%*	*33%*	*11%*	*0%*	*0%*	*0%*	*0%*
Coking Coal	**USD/t**	**344**	**243**	**264**	**310**	**360**	**280**	**210**	**230**	**240**	**190**	**210**	**220**
Was		344	243	264	310	249	249	249	249	218	218	218	218
Chg	%	*0%*	*0%*	*0%*	*0%*	*44%*	*12%*	*-16%*	*-8%*	*10%*	*-13%*	*-4%*	*1%*

Source: BofA Global Research, Platts

BofA GLOBAL RESEARCH

Lacklustre demand and macro weighing on steel

We continue to expect a weak backdrop for carbon steel prices on weak real demand (flat YoY with only higher EU autos production a relative bright spot), high exports out of China and a weak macro backdrop. Upside risks not in our base case: Increased tariffs on China steel, cuts to European production (as was the case in 2H22). **Stainless Steel:** European Prices have been weak year to date. While a tentative price improvement has occurred, prices are still low relative to history. Until macro improves, we continue to expect weakness in EU stainless steel prices, while the US remains much more stable.

Valuations low: Macro uncertainty, falling spreads

Most steel companies are trading at or near trough valuations, in our view. Despite attractive valuations, in our view, we think we need to get closer to the trough of the economic cycle and/or greater certainty on the economic outlook before becoming more bullish on the sector.

Appendix: Global steel view

Link to original note: "Steel tariffs are bullish regional premia", published 20 February 2024

US steel prices have outperformed again. Why?

Steel prices increased globally in 4Q23. The rally was remarkable in the US, where hot-rolled coil (HRC) prices rose by nearly 60% between September and December, topping US$1,200/t. Indeed, while US HRC prices have often outperformed those in Europe and China, that divergence has become increasingly visible in the past three years. Why? We believe protectionist measures (i.e. trade restrictions) and public infrastructure spending have played a pivotal role. With governments looking to rebuild and fortify domestic supply chains, there is a key message in this: siloing markets gives producers pricing power, and consumers have to pay more. Of course, this is what trade protectionism is designed to do. Consumers should be diligent in protecting against upside risk every time prices pull back.

Trade policies do matter. What if Trump wins?

Back in March 2018, the Trump administration imposed a 25% tariff on steel imports under Section 232, citing national security concerns (steel is used in critical infrastructure such as power plants and bridges). This boosted US producers' pricing power, and HRC has since been trading at a premium of up to 80% to quotations in Europe. Domestically, US steel prices averaged just under US$600/t before Trump fired the first restriction salvo; since then, they have averaged US$930/t, a 55% premium. While trade barriers have been relaxed somewhat since Biden took office, a second Trump administration could reverse some of those measures. There have been discussions around a potential minimum tariff on steel imports should Trump be re-elected.

Spending from the infrastructure bill saved the day

Even then, US steel prices have not just been supported by trade restrictions, but also by Biden's infrastructure bill (the Bipartisan Infrastructure Law), enacted in 2021. Indeed, while tighter monetary policy hit rates-sensitive residential construction, non-residential building activity has held up, growing uninterrupted for three years now. Steel demand in the US should also remain robust on growing renewables and EVs.

Rising protectionism will be an issue for China

Beyond the US, protectionist measures have also become more of a focus in other countries, with Chinese steel pushing into domestic markets. For instance, several producers in Brazil were forced to cut production or temporarily idle plants last year. The Brazilian steel industry has been urging the government to raise import tariffs to 25%, from 9.6-12.8%, a request that was partially accommodated earlier this month. Rising protectionism is an issue for Chinese steelmakers, and could force them to slow activity, unless domestic demand picks up.

Model summary

Exhibit 27: Model summary
These are our published estimate based on our house steel & raw material price forecasts and TRY forecasts

ASSUMPTIONS	**2021A**	**2022A**	**2023A**	**2024E**	**2025E**	**2026E**
EUR HRC (EUR/t) - Input	979	904	710	661	650	666
EUR HRC (US$/t)	1139	938	767	714	715	746
Turkish HRC - Reference Platts US$/t - PLSR1043	948	842	707	661	650	666
Premium / Discount to European HRC	-3%	-7%	-1%	0%	0%	0%
HRC price Erdemir (US$/t) - lagged - Estimated	851	880	706	668	645	664
HRC disclosed selling price Erdemir (US$/t) - Flat	894	976	811			
Simple Average Selling Price - ASP (US$/t) - Estimated	931	993	863	797	742	743
ASP Premium / Discount to implied realized	9%	13%	22%	19%	15%	12%
Simple Average Selling Price - ASP (US$/t) - Model	931	993	863	797	742	743
Simple Implied EBITDA/t - Model	366	210	109	133	148	161
Total Steel Sales (kt)	8245	7769	7203	8425	8450	8450
Hard Coking Coal	218	370	278	257	215	205
Iron ore, CFR China	160	120	114	119	90	90
USD/TRY (avg)	8.9	16.6	23.8	36.0	44.5	45.6
USD/EUR	1.16	1.03	1.08	1.08	1.10	1.12
			-16%			
Revenue	**68,295**	**127,783**	**147,900**	**241,649**	**279,006**	**286,435**
Domestic sales	51,423	102,954	124,641			
Export sales	14,038	18,516	15,903			
Other revenues (*)	2,871	6,506	7,602			
Sales returns (-)	34	-59	-123			
Sales discounts (-)	-71	-134	-123			
Cost of Sales (-)	-42,711	-102,244	-133,658	-207,291	-231,093	-232,633
Gross Profit	**25,584**	**25,539**	**14,242**	**34,358**	**47,913**	**53,803**
GP Margin	*37%*	*20%*	*10%*	*14%*	*17%*	*19%*
Marketing, Sales and Distribution Expenses (-)	-380	-742	-1,178	-1,833	-2,323	-2,441
General Administrative Expenses (-)	-673	-1,537	-2,673	-4,160	-5,271	-5,538
Research and Development Expenses (-)	-48	-100	-190	-296	-375	-394
Other Operating Income	675	947	4,592	7,146	9,054	9,513
Other Operating Expenses (-)	-219	-538	-1,458	-2,269	-2,875	-3,020
OPERATING PROFIT	**24,842**	**23,570**	**13,335**	**32,946**	**46,124**	**51,923**
Operating Margin	*36%*	*18%*	*9%*	*14%*	*17%*	*18%*
Operating Cost as % of Sales	*-1%*	*-2%*	*-1%*	*-3%*	*-3%*	*-3%*
Other expenses		82	-107			
Finance Income	749	1,503	3,297	1,170	1,673	1,819
Finance Expense (-)	-1,704	-3,043	-7,687	-9,317	-11,510	-11,807
PROFIT BEFORE TAX	**23,887**	**22,112**	**8,837**	**24,799**	**36,287**	**41,935**
Tax Expense	**-7,838**	**-3,459**	**-4,508**	**-7,440**	**-10,886**	**-12,581**
Current Corporate Tax Expense	-6,173	-7,779	-4,761	-7,440	-10,886	-12,581
Deferred Tax Expense	-1,665	4,320	253	0	0	0
Effective Tax rate	*33%*	*16%*	*51%*	*30%*	*30%*	*30%*
PROFIT FOR THE PERIOD	**16,049**	**18,653**	**4,329**	**17,359**	**25,401**	**29,355**
Non-Controlling Interests	551	648	296	1,042	1,524	1,761
Equity Holders of the Parent	15,498	18,005	4,033	16,317	23,877	27,594
Non-Controlling Interests%	*3%*	*3%*	*7%*	*6%*	*6%*	*6%*
Net Profit Margin	*23%*	*15%*	*3%*	*7%*	*9%*	*10%*
Check	*97*	*0*	*0*	*0*	*0*	*0*
Distributable profit (reported)	48,759	18,653	4,329	17,359	25,401	29,355
EPS (TRY 1 Nominal value per share)	4.4279	5.1443	1.1523	4.6621	6.8220	7.8839
Number of shares outstanding ('Mil)	3,500	3,500	3,500	3,500	3,500	3,500
Adjustments for EBITDA		(54)	(3,467)			
EBITDA	26,894	27,010	15,240	40,395	55,812	62,238
DPS declared in respect of FY	4.45	-	0.50	1.17	1.71	1.97
Payout ratio on EPS	100%	0%	43%	25%	25%	25%

Source: BofA Global Research estimates

BofA GLOBAL RESEARCH

Price objective basis & risk

Erdemir (ERELF)

Our PO TRY47 is calculated based on 5.1x 2024E EBITDA, inline with the group's historic average trading multiple. Our price objective explicitly assumes c. TRY12 bn (out of a total of c. TRY 16 bn) of VAT receivables are monetized (c. $380 mn at spot TRY).

We prefer a target multiple approach due largely to the high sensitivity of the business to especially steel, iron ore and coking coal prices, which may lead to a high margin of error on the DCF-based valuation. Our estimates and PO are mainly sensitive to the key parameters such as steel prices, and raw material (iron ore, coking coal) prices.

Upside risks to our price objective are an increase of import duties on steel imports to Türkiye, stronger than expected local demand for steel.

Downside risks are an increase in cost of raw material, unexpected changes in macroeconomic environment that could lead to weaker domestic demand and ultimately lower steel demand & prices.

Analyst Certification

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

EEMEA - Materials Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	Kazatomprom	XWREF	KAP LI	Jason Fairclough
	Kazatomprom	XCWGF	KAP KZ	Jason Fairclough
	Northam Platinum Holdings	NPTLF	NPH SJ	Cameron Needham
NEUTRAL				
	Anglo Platinum	AGPPF	AMS SJ	Cameron Needham
	AngloGold Ashanti	AULGF	ANG SJ	Cameron Needham
	AngloGold Ashanti	AU	AU US	Cameron Needham
	Erdemir	ERELF	EREGL TI	Jason Fairclough
	Gold Fields	GFI	GFI US	Cameron Needham
	Gold Fields	GFIOF	GFI SJ	Cameron Needham
UNDERPERFORM				
	Exxaro Resources	EXXAF	EXX SJ	Cameron Needham
	Harmony	HGMCF	HAR SJ	Cameron Needham
	Harmony	HMY	HMY US	Cameron Needham
	Impala Platinum	IMPUF	IMP SJ	Cameron Needham
	Impala Platinum	IMPUY	IMPUY US	Cameron Needham
	KGHM Polska Miedz	KGHPF	KGH PW	Jason Fairclough
	Kumba Iron Ore	KUMBF	KIO SJ	Cameron Needham
	Maaden	XSDRF	MAADEN AB	Jason Fairclough
	Sibanye-Stillwater	SBYSF	SSW SJ	Cameron Needham
	Sibanye-Stillwater	SBSW	SBSW US	Cameron Needham

*iQ*method[SM] Measures Definitions

Business Performance	Numerator	Denominator
Return On Capital Employed	NOPAT = (EBIT + Interest Income) × (1 − Tax Rate) + Goodwill Amortization	Total Assets − Current Liabilities + ST Debt + Accumulated Goodwill Amortization
Return On Equity	Net Income	Shareholders' Equity
Operating Margin	Operating Profit	Sales
Earnings Growth	Expected 5 Year CAGR From Latest Actual	N/A
Free Cash Flow	Cash Flow From Operations − Total Capex	N/A

Quality of Earnings	Numerator	Denominator
Cash Realization Ratio	Cash Flow From Operations	Net Income
Asset Replacement Ratio	Capex	Depreciation
Tax Rate	Tax Charge	Pre-Tax Income
Net Debt-To-Equity Ratio	Net Debt = Total Debt − Cash & Equivalents	Total Equity
Interest Cover	EBIT	Interest Expense

Valuation Toolkit	Numerator	Denominator
Price / Earnings Ratio	Current Share Price	Diluted Earnings Per Share (Basis As Specified)
Price / Book Value	Current Share Price	Shareholders' Equity / Current Basic Shares
Dividend Yield	Annualised Declared Cash Dividend	Current Share Price
Free Cash Flow Yield	Cash Flow From Operations − Total Capex	Market Cap = Current Share Price × Current Basic Shares
Enterprise Value / Sales	EV = Current Share Price × Current Shares + Minority Equity + Net Debt + Other LT Liabilities	Sales
EV / EBITDA	Enterprise Value	Basic EBIT + Depreciation + Amortization

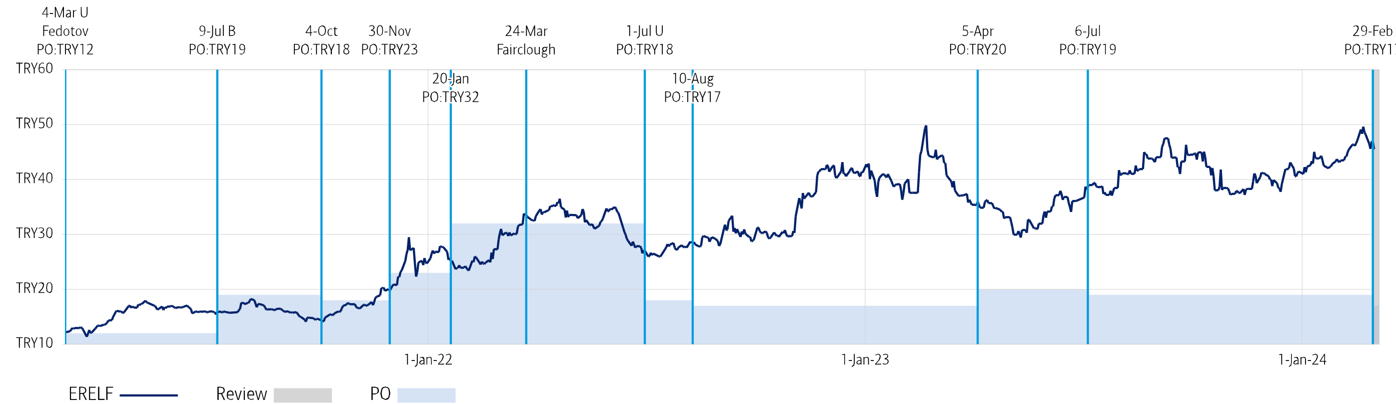
iQmethod[SM] is the set of BofA Global Research standard measures that serve to maintain global consistency under three broad headings: Business Performance, Quality of Earnings, and validations. The key features of iQmethod are: A consistently structured, detailed, and transparent methodology. Guidelines to maximize the effectiveness of the comparative valuation process, and to identify some common pitfalls.

iQdatabase® is our real-time global research database that is sourced directly from our equity analysts' earnings models and includes forecasted as well as historical data for income statements, balance sheets, and cash flow statements for companies covered by BofA Global Research.

Disclosures

Important Disclosures

Erdemir (ERELF) Price Chart



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

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

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

Coverage Universe	Count	Percent	Inv. Banking Relationships [R1]	Count	Percent
Buy	14	43.75%	Buy	9	64.29%
Hold	12	37.50%	Hold	7	58.33%
Sell	6	18.75%	Sell	3	50.00%

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

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

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

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

Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster[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.
The issuer is or was, within the last 12 months, an investment banking client of BofAS and/or one or more of its affiliates: Erdemir.
BofAS or an affiliate has received compensation from the issuer for non-investment banking services or products within the past 12 months: Erdemir.
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: Erdemir.
In the US, retail sales and/or distribution of this report may be made only in states where these securities are exempt from registration or have been qualified for sale: Erdemir.
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: Erdemir.
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: Erdemir.
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.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 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 (HKSFC); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Canadian Investment Regulatory Organization; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; BofAS Japan: BofA Securities Japan Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; BofAS India: BofA Securities India Limited, regulated by the Securities and Exchange Board of India (SEBI); Merrill Lynch (Israel): Merrill Lynch 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 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 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:

Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel's knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Securities in connection with the legal proceedings or matters relevant to such proceedings.
This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofAS any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.
Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.
The information herein (other than disclosure information relating to BofA Securities and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Securities is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Securities. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information to them. BofA Securities is not responsible for such terms and privacy policies and expressly disclaims any liability for them.
All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Securities is under no obligation to update this information and BofA Securities ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Securities will not update any fact, circumstance or opinion contained herein.
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.