

Global Pulp, Paper & Forest Products

Pulp Year Ahead 2024: Should be decent as global demand offsets China and capacity

Industry Overview

Pulp forecast increases on better 1H

We raise our global pulp price forecasts heading into 2024. Our new China hardwood (bleached eucalyptus; HW, BHK, BEK) net price forecast is \$627/MT for 2024 up from our prior \$580/MT. Meanwhile, our new China softwood (SW, BSK) net price forecast is \$730/MT, up from our prior \$706/MT. In Europe, our new prices are up +\$70/MT and +\$65/MT to \$997/MT and \$1,226/MT, respectively. It was a pretty "sporty" end to the year as China restocking drove prices much higher. As we enter 2024, momentum has faded but several things should keep pulp prices at acceptable levels for most producers, even if they partially pull back.

Don't expect a collapse, despite capacity

We see prices declining moderately to \$575-600/MT through 3Q on the combination of China's weakness (destocking's conclusion coupled with still-weak paper and board demand), seasonality (as late-winter, early-spring maintenance outages lead to more production into 3Q) and new capacity. Pulp industry followers frequently forecast wipeouts (big declines) when new capacity starts up, like Suzano's Cerrado project carrying 2.6mnMT, and after a large price upswing has occurred. In our past research ([see here for our last reforecast](#)) we stated that the declines would be moderate. Among other points, incumbent producers bringing on capacity have proven adept at managing production to demand to prevent flooding the market. Moreover, global growth should be improving, and supply-chain tension in competing fiber prices, specifically recovered paper (RCP; old corrugated cartons [OCC], etc.), should prevent big drops.

Capacity factors to watch...

At present we forecast about 3mnMT of capacity to come on during 2024 versus 2023, with another 1.9mnMT in 2025. As mentioned earlier, the key here is the Cerrado mill, but there is also capacity coming from UPM Paso de los Toros (annualized 2.1mnMT) which started in 2023 but is coming up learning curve and 350kMT from the CMPC Guaiba expansion. While not of the same scale, the retirement of capacity in North America at Georgia Pacific-Perry, WestRock-North Charleston, Pactiv-Canton, International Paper-Pensacola and -Riegelwood will help.

...as well as ROW demand and other indicators

Rest of the world (ROW) demand will need to increase as China restocking has slowed. Through November 2023, North American demand declined 7.3% but we expect 3% growth in 2024. In Europe, demand dropped 16% but we expect 3-3.5% growth in 2024. The stretching of supply chains (and any strains showing in Baltic and other transport indices) will be indicators as to the degree pulp holds up, as will recent increases in RCP – OCC prices are up \$38/ton in the US in the last six months, as an example. Red Sea shipping constraints have not had much impact on pulp based on our trade contacts' views, but we expect this will be inflationary over time. We'll keep monitoring.

>> 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 14 to 15.

12647914

Timestamp: 18 January 2024 06:19PM EST

18 January 2024

Equity
Global
Paper/Forest Products

George L. Staphos
Research Analyst
BofAS
+1 646 855 4495
george.l.staphos@bofa.com

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

Patrick Mann, CFA >>
Research Analyst
MLI (UK)
+44 20 7995 8960
patrick.mann@bofa.com

Joffrey Bellicha Meller >>
Research Analyst
MLI (UK)
+44 20 7995 7497
joffrey.bellichameller@bofa.com

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

Cashen Keeler
Research Analyst
BofAS
+1 646 855 4256
cashen.keeler@bofa.com

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

Lucas Hudson
Research Analyst
BofAS
+1 917 861 6981
lucas.hudson@bofa.com

Exhibit 1: Summary of 2024 BofA pulp price forecast changes (US\$/MT)

We boost our 2024 average China hardwood prices by ~\$50/MT

	New	Old	Change
China hardwood	627	580	8.2%
China softwood	730	706	3.4%
Europe hardwood	997	927	7.5%
Europe softwood	1,226	1,161	5.5%

Source: BofA Global Research estimates, Fastmarkets FOEX

BofA GLOBAL RESEARCH

BHK: Bleached Hardwood Kraft

BSK: Bleached Softwood Kraft

Raising China HW to \$627/MT in 2024E

We are baking into our pulp price forecasts some weakness in 1H24 as we have seen the end of the restocking tailwind and should see some weakness close to the Lunar New Year (LNY). On top of that, we would be reaching the startup of the Cerrado project in June, which could have at least psychological effects in the market. However, we expect the drop in prices to be quick and prices should not drop lower than \$575/MT.

Exhibit 2: Summary of BofA pulp price forecasts (Period averages, US\$/MT)

We summarize our new global pulp forecasts

		2022A	1Q23A	2Q23A	3Q23A	4Q23A	2023A	1Q24E	2Q24E	3Q24E	4Q24E	2024E	LT (2025E)
Hardwood	China - New	792	756	518	532	620	607	648	600	592	669	627	600
	China - Old	792	756	518	532	604	603	614	584	551	571	580	600
	% change	0.0%	0.0%	0.0%	0.0%	2.7%	0.7%	5.5%	2.9%	7.5%	17.2%	8.2%	0.0%
	Europe - New	1,286	1,337	1,097	835	908	1,044	1,020	976	942	1,048	997	1,000
	Europe - Old	1,286	1,337	1,097	835	848	1,029	930	941	888	950	927	1,100
	% change	0.0%	0.0%	0.0%	0.0%	7.1%	1.5%	9.7%	3.7%	6.0%	10.3%	7.5%	-9.1%
Softwood	China - New	933	899	707	665	754	756	728	699	709	785	730	700
	China - Old	933	899	707	665	725	749	734	709	676	706	706	700
	% change	0.0%	0.0%	0.0%	0.0%	3.9%	0.9%	-0.8%	-1.4%	4.9%	11.3%	3.4%	0.0%
	Europe - New	1,404	1,399	1,307	1,175	1,191	1,268	1,258	1,216	1,182	1,248	1,226	1,150
	Europe - Old	1,404	1,399	1,307	1,175	1,161	1,260	1,161	1,161	1,161	1,161	1,161	1,161
	% change	0.0%	0.0%	0.0%	0.0%	2.6%	0.6%	8.3%	4.7%	1.7%	7.5%	5.5%	-1.0%
Dissolving Pulp	China - New	1,029	984	901	903	877	916	926	931	868	947	918	810
	China - Old	1,029	984	901	870	895	912	895	895	895	895	895	895
	% change	0.0%	0.0%	0.0%	3.8%	-2.0%	0.4%	3.4%	4.0%	-3.0%	5.8%	2.6%	-9.5%

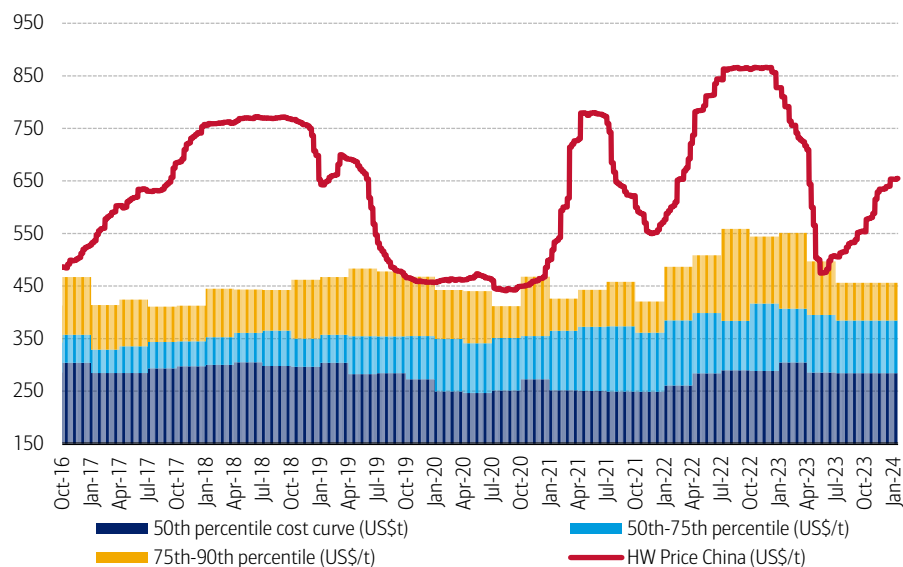
Source: BofA Global Research estimates, Fastmarkets FOEX

BofA GLOBAL RESEARCH

As we saw in 2023, when prices drop much lower than \$550/MT, we see swift capacity adjustments from market pulp data (i.e. Suzano cutting 4% of output to match demand) and Chinese integrated producers (woodchip imports down 21% ytd in November as these high-cost operations switch to market purchases). These factors, coupled with higher costs, led to a 2023-bottom below \$500/MT but which was unsustainable. In turn, this helped explain the quick rebound from these levels during 3Q23. We expect these forces to help shape the 2024 pulp market and support our higher pulp price forecast.

Exhibit 3: China hardwood pulp prices vs cost curve supports (US\$/t)

Prices bounced back fast from the 90th percentile of the RISI cash cost curve



Source: BofA Global Research, Fastmarkets RISI, Fastmarkets FOEX

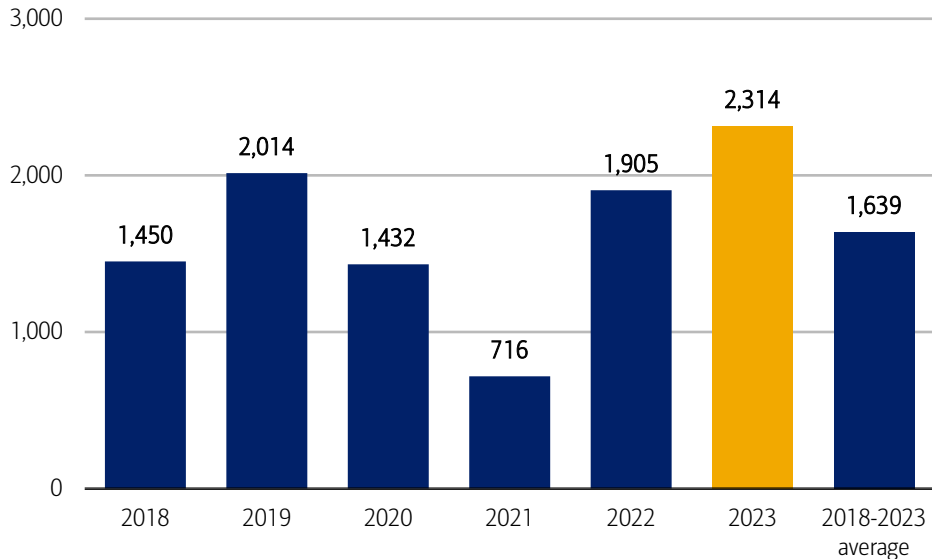
BofA GLOBAL RESEARCH

Disruptions have been significant in 2023

These supply adjustments coupled with significant supply disruptions over the past year, led by a confluence of factors including weather-related issues (wildfires and droughts), labor strikes, fiber unavailability and/or higher costs, and economic downtime. In fact, RISI estimates ~2.3mnMT of unplanned supply disruptions in 2023 (Exhibit 4).

Exhibit 4: Market pulp unplanned downtime (kMT)

RISI estimates 2.3Mt of supply disruptions in 2023, for its highest level since the series started in 2018



Source: BofA Global Research, Fastmarkets RISI

BofA GLOBAL RESEARCH

On top of that, permanent closures also continue to take place, e.g. Arauco indefinitely suspending its 160kMT/yr USK (Unbleached Softwood Kraft) Licancel mill, International Paper shutting down Riegelwood and Pensacola back in October for a close to ~500kMT hit to pulp supply (~300kMT of fluff and ~200kMT of southern bleached softwood [SBSK], [see our report for more details](#)). All in, Hawkins Wright estimates ~3mnMT worth of market pulp mill closures since 2022, versus a ~820kMT of capacity permanently shut down though 2018 and 2020.

Exhibit 5: List of permanent/indefinite market pulp mill closures (kMT)

Hawkins Wright estimates ~3mnMT worth of market pulp mill closures since 2022, versus a ~820kMT of capacity permanently shut down though 2018 and 2020

Year	Company	Mill/line	Country	Market capacity	Grade	Date of closure
TOTAL 2014-23				(4,555)		
Total 2022-23				(2,975)		
2023	GP	Foley	US	(450)	DWP/Fluff	4Q23
	International Paper	Riegelwood	US	(300)	SBSK/Fluff	4Q23
	International Paper	Pensacola	US	(165)	Fluff	3Q23
	Paper Excellence	Espanola	Canada	(160)	NBSK	3Q23
	Arauco	Licancel	Chile	(160)	UKP	3Q23
	West Rock	Tacoma	US	(60)	UKP	3Q23
	Stora Enso	Sunila	Finland	(375)	NBSK	2Q23
	Canfor	Prince George	Canada	(155)	UKP/NBSK	1Q23
	ND Paper	Old Town	US	(180)	UKP	1Q23
	Canfor	Taylor	Canada	(230)	BCTMP (SW)	1Q23
2022	Resolute Forest Products	Calhoun	US	(170)	BSKP/NBHK	1Q22
	West Rock	Panama City	US	(295)	Fluff	2Q22
	West Fraser	Hinton	Canada	(125)	BSKP	4Q22
	Cosmo	Cosmopolis	US	(150)	DWP	4Q22
Total 2018-20				(820)		
2020	Paper Excellence	Mackenzie	Canada	(240)	NBSK	2Q20
	Paper Excellence	Pictou	Canada	(280)	NBSK	1Q20
2019	Fortress	Thurso	Canada	(180)	DWP	4Q19
	SNIAE	Torrelavega	Spain	(60)	DWP	4Q19
2018	Domtar	Plymouth	US	(60)	BSKP/Fluff	2018
Total 2018-20				(760)		
2015	Expera Specialty Paper	Old Town	US	(200)	BHKP	4Q15
	Verso Corporation	Wickliffe, KY	US	(50)	BHKP	4Q15
	Verso Corporation	Jay, ME	US	(90)	BHKP	4Q15
2014	ENCE	Huelva	Spain	(420)	BEKP	4Q14

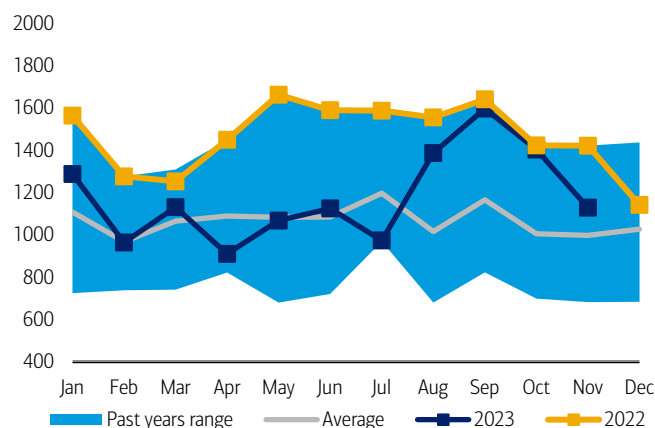
Source: Hawkins Wright, BofA Global Research estimates

BofA GLOBAL RESEARCH

Furthermore, the 21% YTD drop of wood chip imports into China as of Nov imply a reduction of ~1.6Mt of pulp production from integrated players or 1.7Mt on an annualized basis (Exhibit 7). Imported wood chip prices in Asia are currently trading at ~\$188/t (Exhibit 8) which implies that wood costs alone for pulp producers in Asia amount to close to ~\$420/t.

Exhibit 6: Chinese hardwood chip imports (kMT)

Wood chip imports into China are down 21% YTD as of Nov ...



Source: BofA Global Research, China NBS

BofA GLOBAL RESEARCH

Exhibit 7: Estimated Chinese hardwood chip imports effect on its domestic integrated pulp production (kMT)

... implying a reduction of 1.6kMT of pulp production from integrated players or 1.7kMT on an annualized basis

Integrated pulp production delta y/y (Kt)	
2022 YTD woodchip imports (Kt)	16,435
2023 YTD woodchip imports (Kt)	12,985
Woodchip imports delta (Kt)	3,450
Pulp yield	45%
Delta integrated pulp produced (Kt)	1,552
Annualized woodchip imports delta (Kt)	3,763
Pulp yield	45%
Annualized delta integrated pulp produced (Kt)	1,693

Source: BofA Global Research estimates, China NBS

BofA GLOBAL RESEARCH

Assuming wood costs account for around ~74% of Asian high-cost pulp producer costs, total pulp cash costs on a per ton basis should be close to ~\$565/t. RISI currently estimates the production cost of higher cost integrated pulp capacity in China ranges between \$530-550/t. As China has picked up its woodchip imports, we could expect woodchip prices to move up over the near term. While current prices above \$600/t incentivize integrated producers to restart, we see limited downside prices much below such levels could trigger the integrated producers to return to market pulp.

Exhibit 8: Average imported hardwood chip prices in China (US\$/MT)

Imported wood chip prices in Asia are currently trading at ~\$190/MT which implies that wood costs alone for pulp producers in Asia amount close to ~\$420/MT



Source: BofA Global Research, China NBS

BofA GLOBAL RESEARCH

Pulp Project-er #9, October 2023

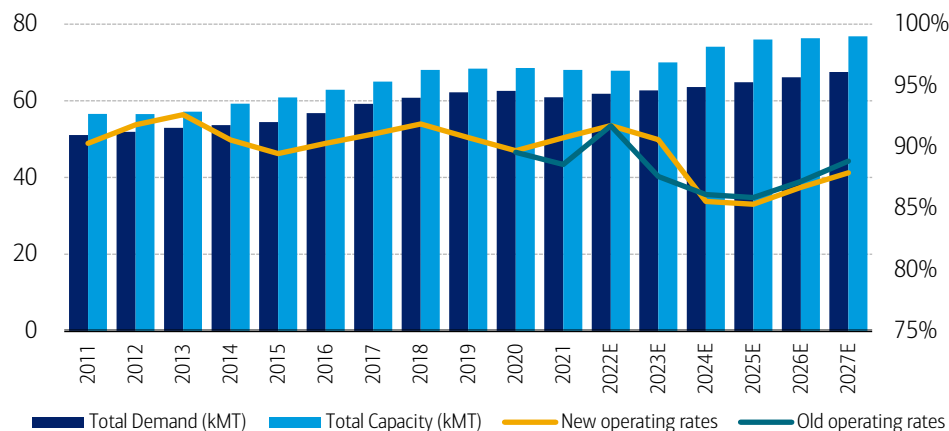
China saves the day in 2023; Demand to grow 1.4% in 24E

We expect pulp shipments growth to decelerate into 2023E and close the year expanding by ~1.4% y/y, or 880kMT, as China growing at double digits this year should more than offset steep declines for all other regions except LatAm and other Asia/Africa. For 2024, we expect a 1% y/y drop in China as woodchip imports normalize and domestic integrated pulp production rebounds, yet other key regions such as Europe and North America should post a 3-3.5% recovery after a sharp drop this year.

Exhibit 10 shows our global supply/demand (SD) model for pulp following our latest **Pulp Project-er**, project-by-project analysis of supply ([see the report for complete details](#)). Overall, operating rates looked to be about 90-91% in 2023, with a drop to 85% in 2024 as supply comes online, primarily from Suzano's 2.550mnMT/yr Cerrado project starting up in June 2024, coupled with the ramp-up of Arauco's 1.560mnMT/yr MAPA, UPM's 2.1mnMT/yr Paso de los Toros, and CMPC's Guaiba expansion of 350kMT/yr (although we believe most of this extra Guaiba volumes should be offset by increased maintenance downtime at other lines), all of which started up in 2023. Supply disruptions should also normalize from a very elevated level in 2023 above 2mnMT.

Exhibit 9: BofA – Global market pulp supply/demand (mnMT) and operating rates (%; LHS) summary

Operating rates look to be 90.6% this year, dropping to 85% in 2024 as supply comes online...



Source: BofA Global Research estimates, Fastmarkets RISI, Hawkins Wright, PPPC, Brian McClay & Associates

BofA GLOBAL RESEARCH

Exhibit 10: BofA – Global market pulp supply/demand model (kMT)

... primarily from Suzano's 2.550kMT/yr Cerrado project starting up in June 2024, coupled with the ramp-up of Arauco's MAPA and UPM's Paso de los Toros

BofA Market Pulp Supply Demand Model	2017	2018	2019	2020	2021	2022E	2023E	2024E	2025E	2026E
Total Demand (kMT)	59,212	60,801	62,206	62,604	60,947	61,838	62,717	63,608	64,861	66,162
% change y/y	4.3%	2.7%	2.3%	0.6%	-2.6%	1.5%	1.4%	1.4%	2.0%	2.0%
USA	6,832	6,818	6,964	7,222	6,768	6,903	6,282	6,471	6,438	6,406
Canada	600	636	727	915	1,048	1,069	973	1,002	997	992
West Europe	12,921	13,106	12,634	11,378	11,868	12,105	10,290	10,650	10,596	10,543
East Europe and CIS	3,564	3,744	3,801	3,678	3,942	3,883	3,417	3,519	3,555	3,590
Latin America	3,701	3,631	3,324	3,547	3,553	3,695	3,769	3,882	4,037	4,199
China	20,568	21,414	22,959	24,850	23,232	23,000	27,255	26,982	27,926	28,904
Japan	1,901	1,930	2,002	1,834	1,772	1,949	1,715	1,801	1,783	1,765
Asia/Africa	6,814	7,061	7,580	7,243	6,754	7,125	7,268	7,486	7,711	7,942
Nordic Countries	1,925	2,070	1,856	1,558	1,652	1,685	1,432	1,482	1,475	1,468
Oceania	386	391	359	379	358	422	317	333	343	353
Total Capacity (kMT)	65,035	68,070	68,404	68,554	68,069	67,878	70,014	74,618	76,520	76,815
Net Additional Capacity	2,140	3,035	334	150	(485)	998	2,298	3,037	1,903	295
Net Hardwood additional capacity						1,150	2,327	2,338	1,903	295
Net Softwood additional capacity						(153)	(30)	699	0	0
Delta of unplanned downtime			(564)	582	716	(1,189)	(162)	1,567	0	0
Unplanned Closures/downtime		(1,450)	(2,014)	(1,432)	(716)	(1,905)	(2,067)	(500)	(500)	(500)
Producer Inventories (kMT)	4,751	6,484	6,362	5,244	6,060	6,485	7,186	6,986	6,986	6,986
Producer Inventories (days of supply)	29	39	37	31	36	38	42	40	39	39
Inventory consumption		1,733	(122)	(1,118)	816	425	701	(200)	0	0
Operating rates (%)	91.0%	91.9%	90.8%	89.7%	90.7%	91.7%	90.6%	85.0%	84.8%	86.1%

Source: BofA Global Research estimates, Fastmarkets RISI, Hawkins Wright, PPPC, Brian McClay & Associates

BofA GLOBAL RESEARCH

Project-er update suggests potential oversupply in 2024

Fine tuning in estimates marks our *Project-er* supply work this time around

Along with the demand adjustment above, we refined our supply forecasts (details are in the **Pulp Project-er** section that follows).

- The delay of Arauco's 1.56mnMT/yr BHK MAPA project to 1Q23, based on Arauco's reports. With the slower speed of ramp up we remove 683kMT from the project from 2023;
- UPM started up Paso de los Toros in April and has been ramping up the project. We expect it to have added 1,024kMT of capacity in 2023, 79kMT above our previous estimate;
- Suzano announced they anticipated the startup of the Cerrado project to June 2024 vs a previous guidance of 2H24. We were already assuming volumes since July, so we maintain our estimates for conservatism;
- We are adding China's Shandong Huatai Paper 700kMT/yr BHK pulp line for its flagship mill in Dongying city at Shandong province. We assume that 400kMT/yr of capacity will be market pulp;
- We add to our model recent closures of mills, including Stora Enso's Sunila, IP Pensacola, GP Foley, Arauco's Licancel, Westrock Tacoma mill. Together they combine for ~1mnMT/yr of capacity, between BSK, UKP and fluff. We also include ND Paper Old Town, which we assume will be closed until 2H24, removing ~350kMT of production between 2023 and 2024 and Mondi integrating around 200kMT of UKP volumes from its Hinton mill, recently acquired from West Fraser in 2027.

Compared to our prior model, our total capacity forecasts decline by ~3.5mnMT in 2023 and by ~1.4mnMT in 2024 – primarily driven by a ~2,067kMT hit from unplanned downtime this year vs our previous forecast of 500kMT, coupled with some indefinite capacity closures and project delays as we detail further below.

Exhibit 11: BofA – Old vs New supply/demand model (kMT)

We are updating our capacity forecasts following the project delays and unplanned closures

		2021A	2022E	2023E	2024E	2025E	2026E
Total Demand	New	60,947	61,838	62,717	63,608	64,861	66,162
	Old	60,468	63,162	64,342	65,495	66,693	67,936
	Change	0.8%	-2.1%	-2.5%	-2.9%	-2.7%	-2.6%
Total Capacity (after unplanned downtime)	New	68,069	67,878	70,014	74,618	76,520	76,815
	Old	69,199	69,082	73,459	76,057	77,669	77,924
	Change	-1.6%	-1.7%	-4.7%	-1.9%	-1.5%	-1.4%
Net additional capacity	New	(485)	998	2,298	3,037	1,903	295
	Old	(51)	998	3,047	2,598	1,613	255
	Change	851.0%	0.0%	-24.6%	16.9%	18.0%	15.7%
Capacity utilization (%)	New	90.7%	91.7%	90.6%	85.0%	84.8%	86.1%
	Old	88.6%	91.7%	87.6%	86.1%	85.9%	87.2%
	Change	220 bps	0 bps	300 bps	-110 bps	-110 bps	-110 bps

Source: BofA Global Research estimates, PPPC, Fastmarkets RISI, Hawkins Wright, Brian McClay & Associates

BofA GLOBAL RESEARCH

Exhibit 12 illustrates that between 2022-26E roughly 8.3mnMT of accumulated potential pulp production was removed from our model estimates, most of this in 2023-24 given the abovementioned higher unplanned downtime and some project delays/closures.

Exhibit 12: BofA market pulp supply model – Summary of global capacity changes (kMT)

Between 2022-26E roughly 8.3mnMT of potential pulp production was removed from our model

	2022E	2023E	2024E	2025E	2026E	Accumulated 2022-26
Total pulp capacity - NEW	67,878	70,014	74,618	76,520	76,815	
Total pulp capacity - OLD	69,082	73,459	76,057	77,669	77,924	
Change on capacity forecasts	(1,204)	(3,446)	(1,439)	(1,149)	(1,109)	(8,347)

Source: BofA Global Research estimates, PPPC, Fastmarkets RISI, Hawkins Wright, Brian McClay & Associates

BofA GLOBAL RESEARCH

Exhibit 13 below summarizes the key changes to our supply assumptions by mill/project.

Exhibit 13: Summary of key capacity changes by mill/project (kMT)

Our supply forecast adjustments yield a ~1.4mnMT fewer of capacity in 2023 and ~1.24mnMT in 2024 including fluff and unbleached kraft pulp (UKP)

		2023E			2024E			2025E		
Company	Mill	New	Old	chg	New	Old	chg	New	Old	chg
Bleached Hardwood Kraft (BHK)										
Arauco	Arauco (Horcones) - MAPA	878	1,560	(683)	1,560	1,560	-	1,560	1,560	-
Huatai Paper (Dongying)	Shandong	-	-	-	70	-	70	360	-	360
UPM	Paso de Los Toros/Durazno	1,024	945	79	1,890	1,890	-	2,100	2,100	-
Total - BHK		1,901	2,505	(604)	3,520	3,450	70	4,020	3,660	360
Bleached Softwood Kraft (BSK)										
Canfor Pulp	Prince George (Pulp & Paper) Mill	-	9	(9)	-	9	(9)	-	9	(9)
Metsä Fibre	Kemi Mill	453	497	(43)	1,080	1,080	-	1,080	1,080	-
Stora Enso	Sunila Mill	278	370	(93)	-	370	(370)	-	370	(370)
Total - BSK		731	876	(145)	1,080	1,459	(379)	1,080	1,459	(379)
Fluff										
Daio	Mishima	17	30	(13)	50	90	(40)	50	90	(40)
GP Cellulose	Foley Cellulose Mill (Perry Mill)	115	230	(115)	-	230	(230)	-	230	(230)
International Paper	Pensacola Mill	86	172	(86)	-	172	(172)	-	172	(172)
Total - Fluff		218	432	(214)	50	492	(442)	50	492	(442)
Unbleached Kraft Pulp (UKP)										
Canfor Pulp	Prince George (Pulp & Paper) Mill	-	136	(136)	-	136	(136)	-	136	(136)
Arauco	Licancel Mill	75	150	(75)	-	150	(150)	-	150	(150)
Nine Dragons (ND Paper)	Old Town Mill	69	275	(206)	138	275	(138)	275	275	-
WestRock	Tacoma Mill	62	67	(6)	-	67	(67)	-	67	(67)
Total - UKP		205	628	(422)	138	628	(490)	275	628	(353)
Total - all fibers		3,055	4,441	(1,386)	4,788	6,030	(1,242)	5,425	6,240	(815)

Source: BofA Global Research estimates, PPPC, Fastmarkets RISI, Hawkins Wright, Brian McClay & Associates

BofA GLOBAL RESEARCH

Appendix

Exhibit 14: BofA – Pulp price forecasts detailed by month/quarter (US\$/MT)

We increase our forecasts for China hardwood net pricing to US\$627/MT in 2024 and US\$600/MT in 2025

	China (net)				Europe (list)			
	BHKP	change	NBSK	change	BHKP	change	NBSK	change
Average 2021	654	194	853	268	1,008	328	1,196	353
Average 1Q22	639	(14)	850	(2)	1,150	142	1,291	95
Average 2Q22	805	166	985	135	1,245	96	1,381	90
Average 3Q22	862	57	975	(9)	1,368	122	1,480	99
Average 4Q22	860	(2)	922	(53)	1,380	12	1,463	(17)
Average 2022	792	138	933	81	1,286	278	1,404	208
Jan-23	801	(50)	886	(14)	1,380	(0)	1,419	(19)
Feb-23	754	(47)	899	13	1,337	(43)	1,397	(22)
Mar-23	722	(32)	909	9	1,285	(52)	1,376	(21)
Average 1Q23	756	(36)	899	(34)	1,337	52	1,399	(5)
Apr-23	578	(144)	759	(149)	1,221	(64)	1,353	(22)
May-23	482	(97)	698	(61)	1,087	(134)	1,309	(45)
Jun-23	500	19	671	(27)	984	(103)	1,258	(50)
Average 2Q23	518	(238)	707	(192)	1,097	(241)	1,307	(92)
Jul-23	512	12	652	(20)	886	(98)	1,207	(51)
Aug-23	530	18	659	7	818	(68)	1,170	(37)
Sep-23	550	20	681	22	805	(13)	1,149	(21)
Average 3Q23	532	14	665	(42)	835	(262)	1,175	(132)
Oct-23	581	31	740	60	847	41	1,161	12
Nov-23	628	47	764	23	910	63	1,190	29
Dec-23	644	16	756	(7)	983	74	1,231	41
Average 4Q23	620	88	754	89	908	73	1,191	16
Average 2023	607	(185)	756	(177)	1,044	(242)	1,268	(136)
Jan-24	654	34	734	(19)	1,017	109	1,249	58
Feb-24	649	(5)	729	(5)	1,020	2	1,260	10
Mar-24	639	(10)	719	(10)	1,024	4	1,264	4
Average 1Q24	648	41	728	(28)	1,020	(24)	1,258	(10)
Apr-24	620	(19)	710	(9)	1,004	(20)	1,244	(20)
May-24	595	(25)	695	(15)	970	(34)	1,210	(34)
Jun-24	585	(10)	690	(5)	955	(16)	1,195	(16)
Average 2Q24	600	(47)	699	(29)	976	(44)	1,216	(41)
Jul-24	585	0	695	5	935	(20)	1,175	(20)
Aug-24	575	(10)	695	0	919	(16)	1,159	(16)
Sep-24	615	40	735	40	971	53	1,211	53
Average 3Q24	592	(8)	709	10	942	(35)	1,182	(35)
Oct-24	645	30	765	30	1,018	47	1,218	7
Nov-24	675	30	795	30	1,055	37	1,255	37
Dec-24	685	10	795	0	1,071	16	1,271	16
Average 4Q24	669	77	785	77	1,048	106	1,248	66
Average 2024	627	20	730	(26)	997	(48)	1,226	(42)
2025 - LT	600	(7)	700	(56)	1,000	(44)	1,150	(118)

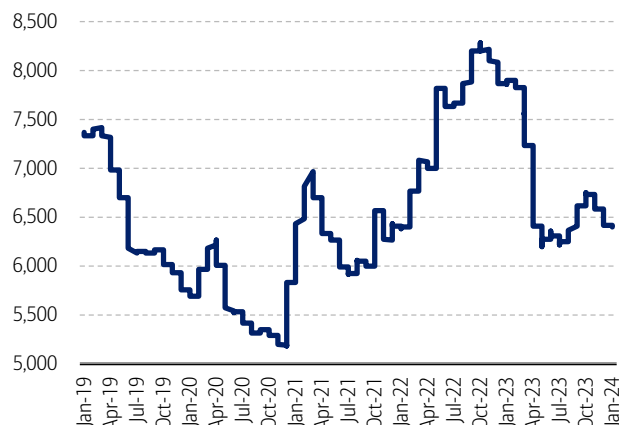
Source: BofA Global Research estimates, Fastmarkets FOEX

BofA GLOBAL RESEARCH

China paper prices and margins

Exhibit 15: Tissue – average prices in China (RMB/t)

China tissue prices currently at RMB 6,400/t

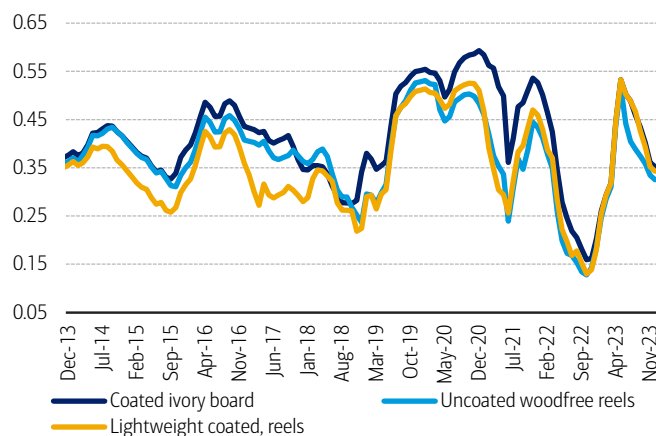


Source: BofA Global Research, SCl

BofA GLOBAL RESEARCH

Exhibit 17: Margin indicator for graphic paper and paperboard

Declining China paper margins should mean pulp purchases and prices decelerate in China

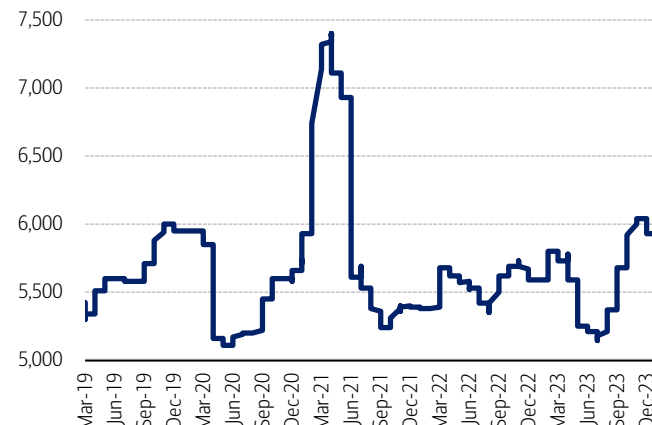


Source: BofA Global Research, FOEX, Fastmarkets RISI, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 16: Coated paper – average price (RMB/t)

China coated paper prices fell 1.8% m/m in early Jan to RMB 5,930/t

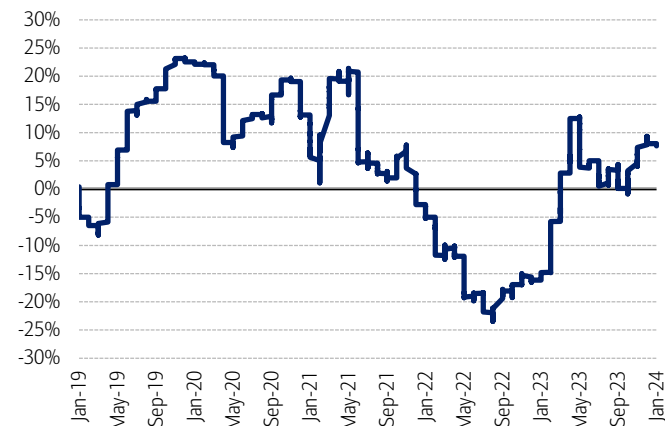


Source: BofA Global Research, SCl

BofA GLOBAL RESEARCH

Exhibit 18: China coated paper gross profit rate (%)

Coated paper margins were improving by the end of 2023



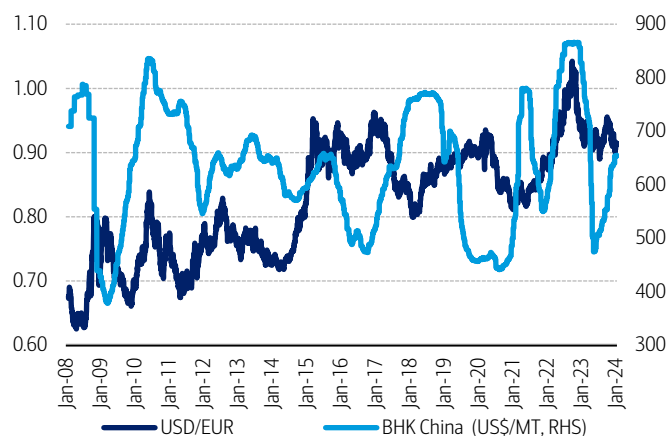
Source: BofA Global Research, SCl

BofA GLOBAL RESEARCH

Macro and inventories trends

Exhibit 19: USD/EUR vs. BHK China

BHK China prices are rising while USD/EUR is dropping

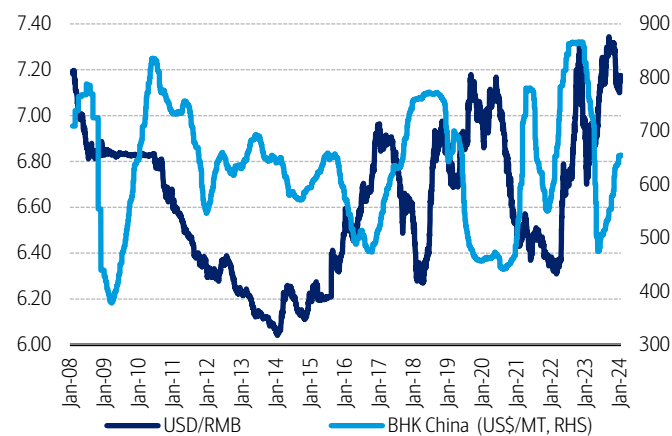


Source: BofA Global Research, FOEX, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 20: USD/RMB vs. BHK China

BHK China prices are rising with USD/RMB



Source: BofA Global Research, FOEX, Bloomberg

BofA GLOBAL RESEARCH

Exhibit 21: China net pulp prices (US\$/MT) vs. Brent oil prices (US\$/bbl)

The correlation between China HW and Brent is at 62%

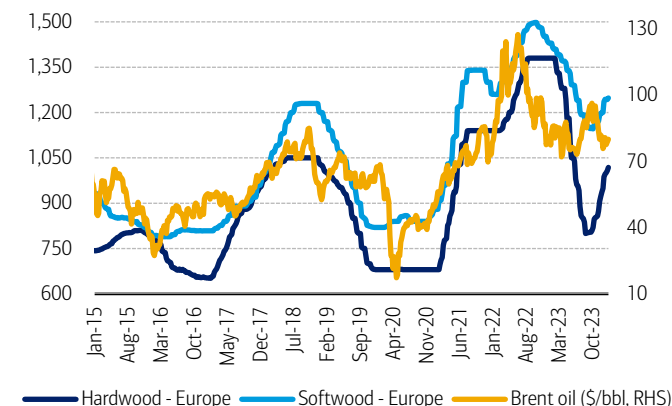


Source: Bloomberg, FOEX

BofA GLOBAL RESEARCH

Exhibit 22: Europe net pulp prices (US\$/MT) vs. Brent oil prices (US\$/bbl)

The correlation between Europe HW and Brent is at 78%



Source: Bloomberg, FOEX

BofA GLOBAL RESEARCH

Exhibit 23: Summary table for World Pulp Statistics – Shipments (Kt)

PPPC reported global pulp shipments up 8.3% y/y to 4,722Kt in November

	Nov-23	m/m %	y/y %	2023 ytd	ytd (%)
Total shipments	4,722	5.4%	8.3%	49,632	1.7%
Softwood pulp	1,984	4.6%	4.6%	20,656	0.2%
Hardwood pulp	2,583	6.7%	11.7%	27,231	4.5%
Others	155	-4.9%	1.3%	1,745	-18.6%
By region					
North America	604	-4.1%	-8.4%	6,715	-7.2%
Europe - Total	1,035	2.0%	-8.2%	11,477	-15.3%
LatAm	326	1.0%	2.7%	3,723	3.0%
China	1,944	12.7%	35.5%	18,718	25.3%
Japan	148	-1.3%	-23.2%	1,742	-15.7%
Other Asia & Africa	637	4.4%	8.3%	6,954	-0.3%
Oceania	28	-5.9%	-31.2%	304	-24.3%

Source: BofA Global Research, PPPC

BofA GLOBAL RESEARCH

Exhibit 24: Summary table for World Pulp Statistics – Inventories

Producer inventories down one day m/m in Nov to 40 days of supply

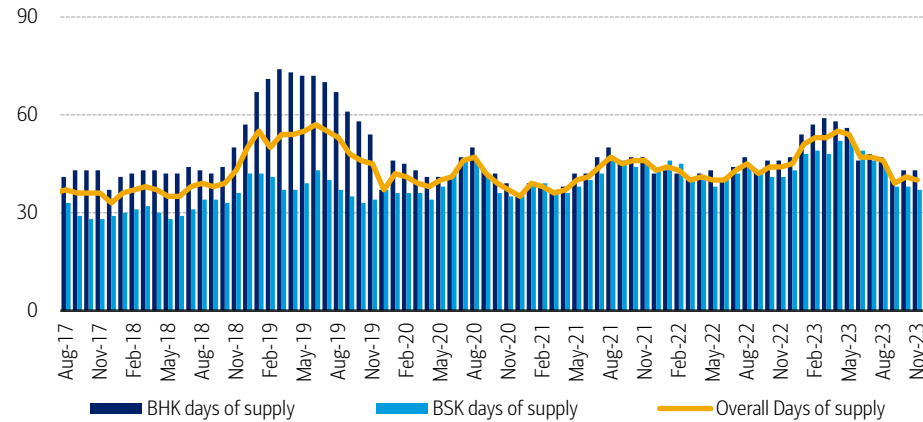
	Nov-23	m/m	y/y
Days of supply	40	-1	-4
Softwood pulp	37	-1	-4
Hardwood pulp	43	0	-3
Shipment-to-capacity (operating rates %)	92%	+700bp	+400bp

Source: BofA Global Research, PPPC

BofA GLOBAL RESEARCH

Exhibit 25: Pulp – producer inventory levels (standard days of supply)

Producer inventories dropped 1 day m/m in Nov to 40 days of supply

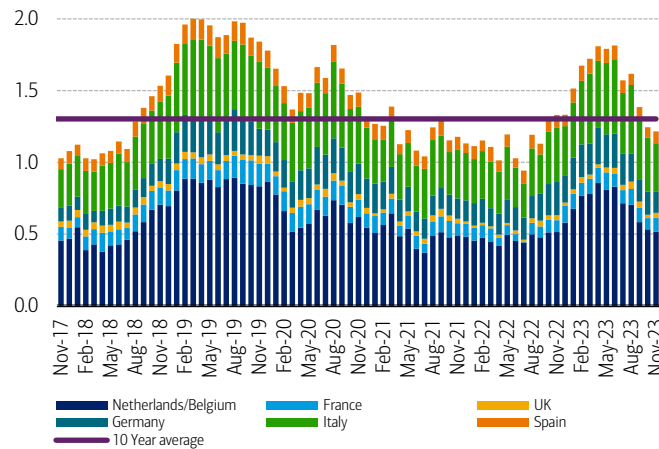


Source: BofA Global Research, PPPC (World-20 report)

BofA GLOBAL RESEARCH

Exhibit 26: Stocks of pulp in European ports

Inventories of woodpulp at European ports down 8.6% y/y and 2.3% m/m in November to 1,216kMT

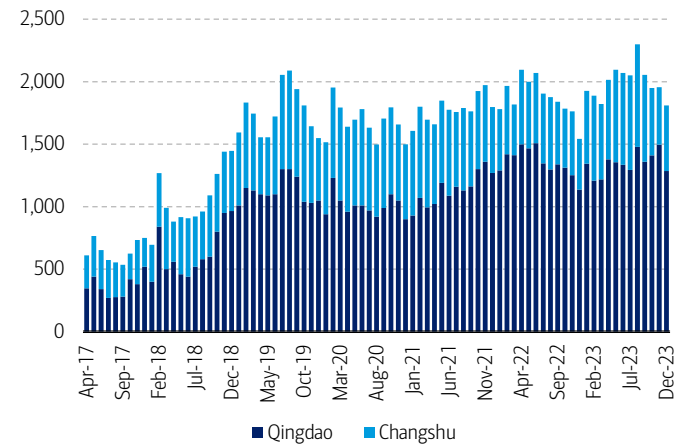


Source: BofA Global Research, Europulp

BofA GLOBAL RESEARCH

Exhibit 27: Stocks of pulp in China ports (Kt)

Inventories at China's two main ports dropped 7.5% m/m in December



Source: BofA Global Research, RISI

BofA GLOBAL RESEARCH

Exhibit 28: Utipulp – European pulp consumption and consumer inventories (kMT)

European consumer pulp inventories rose 0.8% m/m in December to 747.2kMT

Softwood - Europe	Dec-23	Nov-23	m/m (%)	Dec-22	y/y (%)
Consumption (Kt)	229.7	252.1	-8.9%	250.9	-8.5%
Inventories (Kt)	215.6	219.9	-1.9%	226.3	-4.7%
Inventories (in days of supply)	26	26	0.0%	23	13.0%
Hardwood - Europe	Dec-23	Nov-23	m/m (%)	Dec-22	y/y (%)
Consumption (Kt)	478.2	523.5	-8.7%	442.9	8.0%
Inventories (Kt)	486.7	472.9	2.9%	432.3	12.6%
Inventories (in days of supply)	30	30	0.0%	22	36.4%
Total kraft pulp	Dec-23	Nov-23	m/m (%)	Dec-22	y/y (%)
Consumption (Kt)	757.3	824.4	-8.1%	733.8	3.2%
Inventories (Kt)	747.2	740.9	0.8%	711.8	5.0%
Inventories (in days of supply)	29	29	0.0%	23	26.1%

Source: BofA Global Research, Utipulp

BofA GLOBAL RESEARCH

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

Refer to [BofA Global Research policies relating to conflicts of interest](#).

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

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

BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF). BofA Securities Europe SA ("BofASE") with registered address at 51, rue La Boétie, 75008 Paris is registered under no 842 602 690 RCS Paris. In accordance with the provisions of French Code Monétaire et Financier (Monetary and Financial Code), BofASE is an établissement de crédit et d'investissement (credit and investment institution) that is authorised and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers. BofASE's share capital can be found at www.bofam.com/BofASEdisclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI; BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSF); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Canadian Investment Regulatory Organization; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; BofAS Japan: BofA Securities Japan Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; BofAS India: BofA Securities India Limited, regulated by the Securities and Exchange Board of India (SEBI); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Brazil): Merrill Lynch S.A. Corretora de Títulos e Valores Mobiliários, regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofASE (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by BofAS Japan, a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofAS India; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the [Electronic Communications Disclaimers](#) for further information.

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

General Investment Related Disclosures:

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

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



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

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

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 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.

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.