

Sea Limited

Recent checks from Indo & Brazil; Shopee well placed despite high competition

Reiterate Rating: NEUTRAL | PO: 45.00 USD | Price: 34.82 USD

Indo checks: Competition intense + Indo merchant's view

Our recent checks from Indonesia post TikTok's return do indicate an increased competitive intensity (may change post-trial period for TikTok-Tokopedia). We also found Shopee gaining ground on live streaming. Takeaways from an Indo merchant/ affiliate we hosted: 1) Post the integration, TikTok Shops is like a new platform & merchants need to develop new API's to connect to it; 2) While competition has increased post TikTok's re-entry, it is not irrational. TikTok is not subsidizing as much as earlier and Shopee's aggression versus 4Q has come down a bit. Perhaps platforms are also preparing for post-Ramadan season and therefore not being very aggressive right now; 3) Post TikTok's re-entry, the competitor marketplaces are utilizing celebrity influencers to attract users on their platforms and to get more merchants try their live streaming services; 4) Many of the earlier TikTok Shop users are still using TikTok to promote products but have made website/e-com pages and are landing the transactions there by redirecting. Maintain Neutral rating.

Recent checks/latest updates on Shopee's Brazil business

1) Shopee has been making good progression towards batched deliveries, higher last mile deliveries & while it was a bumpy transition – the results so far are good. Overall traffic for Shopee is up 50% from lows, MAU's are 10% higher & while frequency is not the highest, but it appears to be far more sustainable & less promotional; 2) Shopee complaints are down very sharply and in context of heavier traffic & user growth this bodes well for them. The complaint numbers are down sequentially around 20%; 3) In terms of logistics. Shopee has been expanding aggressively and now has 1.4K+ pickup & drop off locations, 9 cross-docking facilities, 100+ last mile locations & these are far superior to any cross-border players; 4) Shopee is also accelerating the growth pedal on its affiliate program in Brazil and now have 2mn affiliates/micro & macro influencers. They have the easiest onboarding process criteria related to activity on social media, followers etc and approvals usually happen within 2-3 days. Post our recent checks, we cut our FY24-25 EPS by 15/36% to factor higher than expected competition. We also reduce our multiples of digital/e-com biz from 5.5X/0.2X to 5.0X/0.15X to factor peer multiples and higher e-com competition. As a result, our SOTP moves to \$45.

Estimates (Dec) (US\$)	2021A	2022A	2023E	2024E	2025E
Net Income (Adjusted - mn)	(2,010)	(1,399)	196	712	1,335
EPS	(3.96)	(2.97)	0.351	1.27	2.39
EPS Change (YoY)	-16.7%	24.9%	NM	262.7%	87.6%
Dividend / Share	0	0	0	0	0
Free Cash Flow / Share	(0.759)	(3.12)	3.51	(1.51)	1.44
Valuation (Dec)					
P/E	NM	NM	99.07x	27.31x	14.56x
EV / EBITDA*	NM	NM	25.84x	14.10x	8.07x
Free Cash Flow Yield*	-2.02%	-8.70%	10.08%	-4.34%	4.15%
* For full definitions of <i>IQ</i> method ^{5M} measures, see page 9.					

>> 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 10 to 12. Analyst Certification on page 6. Price
Objective Basis/Risk on page 6.

Timestamp: 18 January 2024 09:34AM EST

18 January 2024

Equity

Key Changes		
(US\$)	Previous	Current
Price Obj.	55.00	45.00
2023E EPS	1.15	0.35
2024E EPS	1.98	1.27
2025E EPS	2.81	2.39

Sachin Salgaonkar >> Research Analyst BofAS India +91 22 6632 8667 sachin salgaonkar@bofa.com

Robert E. Ford Aguilar, CFA Research Analyst BofAS robert.e.ford@bofa.com

Sukriti Bansal >> Research Analyst Merrill Lynch (Singapore) sukriti.bansal@bofa.com

Shalav Saket >> Research Analyst BofAS India shalav.saket@bofa.com

Stock Data

Price	34.82 USD
Price Objective	45.00 USD
Date Established	18-Jan-2024
Investment Opinion	C-2-9
52-Week Range	34.35 USD-88.84 USD
Mrkt Val / Shares Out (mn)	19,434 USD / 558.1
Average Daily Value (mn)	322.88 USD
Free Float	11.0%
BofA Ticker / Exchange	SE / NYS
Bloomberg / Reuters	SE US / SE.N
ROE (2023E)	3.4%
Net Dbt to Eqty (Dec-2022A)	-27.12%

Glossary on page 5

iQprofile[™]Sea Limited

Key Income Statement Data (Dec)	2021A	2022A	2023E	2024E	2025E
(US\$ Millions)					
Sales	9,955	12,450	13,022	15,488	18,306
Gross Profit	3,764	4,989	5,827	6,984	8,328
Sell General & Admin Expense	(4,803)	(5,025)	(4,558)	(5,304)	(5,789)
Operating Profit	(1,583)	(1,133)	162	657	1,486
Net Interest & Other Income	(132)	(322)	262	291	294
Associates	0	0	0	0	0
Pretax Income	(1,715)	(1,454)	424	949	1,780
Tax (expense) / Benefit	(333)	(168)	(210)	(237)	(445)
Net Income (Adjusted)	(2,010)	(1,399)	196	712	1,335
Average Fully Diluted Shares Outstanding	518	542	558	558	558
Key Cash Flow Statement Data					
Net Income	(2,053)	(1,611)	196	712	1,335
Depreciation & Amortization	278	454	449	462	470
Change in Working Capital	(787)	(1,083)	(161)	(1,607)	(938)
Deferred Taxation Charge	NA	NA	NA	NA	NA
Other Adjustments, Net	2,771	1,185	2,010	231	518
Cash Flow from Operations	209	(1,056)	2,494	(203)	1,385
Capital Expenditure	(602)	(635)	(535)	(641)	(579)
(Acquisition) / Disposal of Investments	(500)	0	0	0	0
Other Cash Inflow / (Outflow)	(2,665)	(1,794)	(172)	232	235
Cash Flow from Investing	(3,767)	(2,429)	(707)	(409)	(344)
Shares Issue / (Repurchase)	3,498	0	0	0	0
Cost of Dividends Paid	0	0	0	0	0
Cash Flow from Financing	7,402	400	50	50	50
Free Cash Flow	(394)	(1,691)	1,959	(844)	806
Net Debt	(4,994)	(1,576)	(3,363)	(2,751)	(3,792)
Change in Net Debt	(920)	3,418	(1,788)	612	(1,041)
Key Balance Sheet Data					
Property, Plant & Equipment	1,680	2,346	1,302	1,497	1,577
Other Non-Current Assets	1,941	1,969	2,352	1,904	1,932
Trade Receivables	NA	NA	NA	NA	NA
Cash & Equivalents	9,248	6,030	7,867	7,305	8,396
Other Current Assets	5,888	6,658	5,748	7,828	9,259
Total Assets	18,756	17,003	17,269	18,534	21,165
Long-Term Debt	3,967	4,096	4,146	4,196	4,246
Other Non-Current Liabilities	188	191	1,243	1,273	2,026
Short-Term Debt	286	358	358	358	358
Other Current Liabilities	6,890	6,577	5,506	5,979	6,472 13,103
Total Liabilities	11,332 7,424	11,222 5,811	11,253 6,016	11,806 6,728	8,062
Total Equity Total Equity & Liabilities	18,756	17,033	17,269	18,534	21,165
	10,750	17,055	17,203	10,557	21,103
iQmethod SM - Bus Performance*		2.22/	2.22/		4000
Return On Capital Employed	-15.7%	-8.2%	2.2%	6.1%	10.0%
Return On Equity	-37.3%	-21.3%	3.4%	11.4%	18.3%
Operating Margin	-15.9%	-9.1%	1.2%	4.2%	8.1%
EBITDA Margin	-13.1%	-5.5%	4.7%	7.2%	10.7%
iQmethod [™] - Quality of Earnings*					
Cash Realization Ratio	NM	NM	12.7x	-0.3x	1.0x
Asset Replacement Ratio	2.2x	1.4x	1.2x	1.4x	1.2x
					25 00/
Tax Rate (Reported)	NM	NM	49.5%	25.0%	
Net Debt-to-Equity Ratio	NM -67.3%	-27.1%	-55.9%	-40.9%	-47.0%
	NM				25.0% -47.0% 32.4x

Company Sector

Internet/e-Commerce

Company Description

Sea Limited is a mobile and PC gaming platform and developer (Garena) and an e-commerce marketplace operator (Shopee) in ASEAN, Taiwan and Brazil. Its first selfdeveloped game, "Free Fire," has a global user base. Sea also runs a digital payments platform supporting the two businesses (SeaMoney). Sea Ltd is headquartered in Singapore and was founded in 2009.

Investment Rationale

We have a Neutral rating on Sea Limited. In our view, it is placed well in to ride e-com boom in SE Asia given increasingly dominant online marketplace (Shopee), while its expansion into Brazil offers further growth upside potential in LT. However, we see growth slowdown, high competition and expect lower GMV growth on e-com and continued slow down of Free Fire/overhang from lack of a $new\ game.\ TikTok\ also\ poses\ competitive\ risks\ on\ e\text{-}com$ and Shopee seeks to defend its market leadership position

Stock Data

Price to Book Value 3.3x

^{*} For full definitions of *iQ*method^{≤M} measures, see page 9.

Recent checks from Indonesia & Brazil

Key takeaways from Indo merchant/affiliate we hosted

While the merchant/affiliate's views may not be reflective of all merchants on the ground, a few key points from our call are:

- **TikTok Shop not the same post re-entry-** Post the integration, technically TikTok Shops is like a new platform & merchants need to develop new API to connect to the new platform. The tech and systems post re-launch now are different & enablers and brands cannot restart their TikTok Shops experience as easily as earlier.
- **Tiktok merchants are now local-** Merchants on TikTok now are local sellers but products they're selling maybe imported; fashion & health/beauty are the key categories being sold right now.
- **Promotions haven't been aggressive** TikTok is not subsidizing much post reentry but used to have 20-30% discounts for selected sellers earlier; Shopee has a marketing budget but only for some sellers and gives up to 50% discounts to some of these celebrity sellers. Perhaps platforms are also preparing for post-Ramadan season and therefore not being very aggressive right now.
- Free shipping is getting selective— delivery prices across Indonesian range from \$1-\$6 per kg and even up to \$10 per kg in a few remote locations while the AOV of a product sold is only \$10. Hence free shipping is not economical. Therefore, players like Shopee have been limiting minimum transaction or are more promoting Shopee Live, rather than promoting free shipping or discounts etc.
- Increasing influencer and celebrity sellers— Post Tiktok's re-entry, competitor
 marketplaces are using celebrities to attract users on their platforms— to get more
 merchants to try their live streaming services. Even some sellers tried to use
 celebrities just to engage the audience for watching the live streaming typically like
 a one-time investment & hope audience to be a loyal customer.
- Fees gradually have risen: In terms of pricing, TikTok had 1-2% revenue sharing & only Rp 2K above that. This has gradually increased. Most of the marketplaces ranged 3-5% earlier & for last 2 years the range is 5-10% (includes revenue sharing for live streaming) + service fee. Delivery fee is separate but mostly paid by end consumers and sometimes sellers are also asked to chip in some amount. For additional services, sometimes service fee/platform fee are also starting to get included as part of the transactions.
- Many TikTok Shop users are redirecting sales Many previous TikTok Shop
 users are still using TikTok to promote products but have made website/e-com
 pages and are landing the transactions there. While TikTok Shops is now open, some
 brands also have redirected/opened links to the other competitor platforms.
- Shopee Live features are also good- In terms of features on execution part, Shopee Live also has a good interface. As per the merchant, some features of campaign management on TikTok are also not as flexible as marketplaces. Shopee also has affiliate program & allow people to upload videos, talk about their products & the affiliate can get commissions on sales.

Exhibit 1: SE Asia eC market size by country

SE Asia eC market size is expected to by 14% in 2024 and 10% in 2025

e-com mkt size (US\$ mn)	2018	2019	2020	2021	2022	2023E	2024E	2025E
Indonesia	11,398	16,422	26,269	42,438	55,990	70,079	78,493	82,877
% yoy	39%	44%	60%	62%	32%	25%	12%	6%
Thailand	4,288	5,312	9,337	17,031	17,422	20,602	23,504	26,648
% yoy	12%	24%	76%	82%	2%	18%	14%	13%
Vietnam	3,820	4,740	8,287	12,106	15,006	18,154	21,638	25,591



Exhibit 1: SE Asia eC market size by country

SE Asia eC market size is expected to by 14% in 2024 and 10% in 2025

e-com mkt size (US\$ mn)	2018	2019	2020	2021	2022	2023E	2024E	2025E
% yoy	55%	24%	75%	46%	24%	21%	19%	18%
Philippines	1,027	1,693	2,981	4,614	5,621	7,336	9,269	11,395
% yoy	45%	65%	76%	55%	22%	31%	26%	23%
Malaysia	2,760	3,676	4,917	6,237	6,788	7,506	8,283	9,187
% yoy	30%	33%	34%	27%	9%	11%	10%	11%
Singapore	1,415	1,521	2,266	2,706	2,585	2,910	3,220	3,551
% yoy	22%	7%	49%	19%	-4%	13%	11%	10%
SE Asia	24,708	33,364	54,057	85,131	103,413	126,587	144,407	159,248
% yoy	22%	35%	62%	57%	21%	22%	14%	10%

Source: Euromonitor

BofA GLOBAL RESEARCH

Brazil e-commerce: Key updates from the ground

- Sellers we spoke with are using Shopee's managed network to be faster & they
 appear to be lowering costs due to inventory being built up by batching order
 volumes in neighborhoods –costs have come down with improving speeds. Shopee's
 BNPL value of credit product is much smaller when compared to MELI.
- Post Remessa Conforme, the consumer experience is deteriorating. While it was
 positioned to speed things up, now the packages are being returned in large nos. (as
 high as 20%), creating uncertainties and taking longer for delivery; The compliance
 enforcement seems to be decelerating/contracting growth rates of cross border
- Competition & live streaming: Temu is present in Mexico & Chile, but not yet in Brazil. TikTok Shops may soon be launching in Brazil. MELI has gone heavy in seller content for short form ad video
- Counterfeit is still an issue that the government would be looking to address

In our view, it is too early to call out the top 3-4 winners in the market and if Shopee would be amongst the top few players as competition remains intense. Incumbents like MELI & Amazon are well positioned, cross-border players like AliExpress, Shein are looking to gain share and threat from new entrants like Temu, TikTok also looms in.

Exhibit 2: App & Website Traffic Indicators – Brazil eCommerce broadline

App & Website Traffic Indicators – Brazil eCommerce broadline

	App & URL traffic		А	pp traffic		4Q23/4Q URL Trai		Organic	traffic	Paid tra	affic	MAU	Bounce	Frequency	Duration	
	Share	Inc/Dec	Growth	% of traffic	% chg	% of MAU	% of traffic	% chg	% of URL	% chg	% of URL	% chg	% chg	% chg	% chg	% chg
Shopee	47.1%	-0.7p.p	21.9%	93.7%	24.0%	59.4%	6.3%	-3.2%	76.5%	-8.6%	23.5%	20.3%	5.8%	-17.0p.p	15.2%	-31.7%
Shein	31.7%	-0.8p.p	20.7%	99.2%	21.7%	89.0%	0.8%	-39.7%	61.1%	-28.0%	38.9%	-51.9%	0.7%	-13.8p.p	19.9%	-39.8%
Alibaba Group	10.8%	+2.3p.p	35.2%	93.9%	41.7%	64.7%	6.1%	-20.7%	68.7%	-19.2%	31.3%	-24.0%	2.0%	-16.9p.p	32.5%	-21.3%
Wish	0.1%	-0.2p.p	-60.7%	100.0%	-60.7%	100.0%	NA	NA	NA	NA	NA	NA	-59.1%	NA	-3.9%	-35.3%

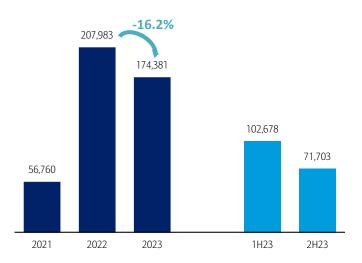
Source: SensorTower, Similarweb, BofA Global Research; Share of category traffic; Organic traffic based solely on URL accesses; Bounce based on URL traffic immediately exiting landing page; Frequency & Duration includes both App and URL.

BofA GLOBAL RESEARCH



Exhibit 3: Shopee complaints falling, displaying a good year-end momentum

Total Complaints, Reclame Aqui



Source: Reclame Aqui, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 5: Summary of affiliate programs

Shopee reached 2 million affiliates in its program

	Shopee	MELI	AliExpress	Amazon	Shein
Launch	Apr-21	Aug-23	NA	Jan-14	NA
Approval Period	3 days	15 days	NA	NA	15 days
Total	2mn	NA	NA	NA	NA
Commissions	3% or 15%	9% to 16%	0% to 9%	7% to 15%	2% or 8%
Distribution Restriction	None	WhatsApp, Telegram	None	WhatsApp, Telegram	None
Earnings Cap per Month	R\$15K	None	NA	NA	NA

Source: BofA Global Research; Shopee: 3% commission for existing Shopee clients, 15% for first time buyers; MELI & Amazon: Commissions vary across product categories; Shein: Micro influencer must be based on Brazil. Amount of new micro-influencers are limited to 3K/month. 2% is applied for customers that already made purchased at Shein, while 8% is applied for new customers

BofA GLOBAL RESEARCH

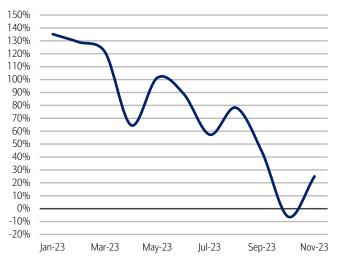
Glossary:

API: Application programming interface

MAU: Monthly active users AOV: Average order value BNPL: Buy now pay later MELI: MercadoLibre

Exhibit 4: Cross-border purchases contracted in October as authorities push aggressively for compliance

Estimated cross-border purchases in Brazil (USD) - % chg y/y

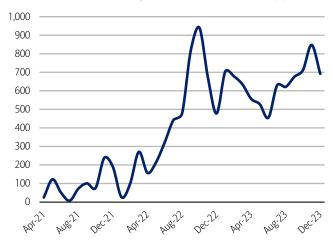


Source: Banco Central do Brasil, MCM, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 6: Shopee's affiliate program website: Brazil, traffic, mn

Traffic to Shopee's affiliate program website increased 57.4% y/y in 2023



Source: Similarweb

BofA GLOBAL RESEARCH

Price objective basis & risk

Sea Limited (SE)

Our PO of USD45 is based on a sum-of-the-parts valuation. We value Garena's gaming business at USD10 per share or $5x\ 2024E\ EV/EBITDA$, which is at a discount to global peers.

The Shopee business is valued at USD24 per share based on 0.15x 2024E EV/GMV and in our view fairly reflects Shopee's growth, dominant position but rising competition and optionality in Brazil.

We value its Digital Banking unit at 1x EV/IC given growth optionality, its SeaMoney digital payments business at 0.05x EV/TPV for 2024E, and Sea Capital PE fund at 1.2x EV/IC.

Upside risks: 1) faster-than-expected revenue growth with profitability, 2) good traction of more self-developed games

Downside risks: 1) continued higher losses, 2) higher competition in SE Asia e-commarkets, leading to slowing revenue growth

Analyst Certification

I, Sachin Salgaonkar, 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.

Special Disclosures

In accordance with the SEBI (Foreign Portfolio Investors) Regulations, 2019 and with guidelines issued by the Securities and Exchange Board of India (SEBI), foreign investors (individuals as well as institutional) that wish to transact the common stock of Indian companies must have applied to, and have been approved as per SEBI (Foreign Portfolio Investors) Regulations, 2019. Each investor who proposes to transact common stock of Indian companies will be required to obtain Foreign Portfolio Investor (FPI) registration as per SEBI (Foreign Portfolio Investors) Regulations, 2019. Certain other entities are also entitled to transact common stock of Indian companies under the Indian laws relating to investment by foreigners. BofA Securities reserves the right to refuse to provide a copy of research on common stock of Indian companies to a person not resident in India. American Depositary Receipts (ADR) representing such common stock are not subject to these Indian law restrictions and may be transacted by investors in accordance with the applicable laws of the relevant jurisdiction. Global Depository Receipts (GDR) and the Global Depository Shares (GDS) of Indian companies, Indian limited liability corporations, have not been registered under the U.S. Securities Act of 1933, as amended, and may only be transacted by persons in the United States who are Qualified Institutional Buyers (QIBs) within the meaning of Rule 144A under the Securities Act. Accordingly, no copy of any research report on Indian companies' GDRs or GDSs will be made available to persons who are not QIBs.

BofA Securities India Limited (BofAS India) is regulated by the Securities and Exchange Board of India (SEBI) and provides the following services in India: Research, Equity Sales & Trading, Futures & Options, Electronic Trading, Equity Capital Markets, Debt Capital Markets and M&A. SEBI Registration Nos. Research Analyst: INH000000503, Stock Broking: INZ000217333 (Trading and Clearing Member of NSE and BSE – Capital Markets and Equity Derivatives), Merchant



Banker: INM000011625, CIN U74140MH1975PLC018618. Registration granted by SEBI and certification from National Institute of Securities Markets (NISM) in no way guarantee performance of the intermediary or provide any assurance of returns to investors. BofAS India's registered office is at Ground Floor, A Wing, One BKC, G Block, Bandra Kurla Complex, Bandra (East), Mumbai 400 051, India, Tel: +91 22 6632 8000 and the contact details of its Compliance Officer (Shervin Purohit) are: Tel: (91-22) 6632 8853, Email: shervin.purohit@bofa.com. For specific grievances, if any, please contact the Grievance Officer (Amish Shah) and contact details are: Tel: (91-22) 6632 8000, Email: dg.rsch_in_complaint@bofa.com. Investment in securities market are subject to market risks. Read all the related documents carefully before investing.

APR - Internet, Media and Software Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY				
	Agora	API	API US	Daley Li, CFA
	AiHuiShou	RERE	RERE US	Joyce Ju
	Alibaba Group	BABA	BABA US	Joyce Ju
	Alibaba Group	BABAF	9988 HK	Joyce Ju
	Alibaba Health	ALBHF	241 HK	Miranda Zhuang, CFA
	Baidu.com	BIDU	BIDU US	Miranda Zhuang, CFA
	Baidu.com	BAIDF	9888 HK	Miranda Zhuang, CFA
	Bilibili	BILI	BILI US	Lei Zhang
	Bilibili	BLBLF	9626 HK	Lei Zhang
	CAR Group	CRSLF	CAR AU	Sriharsh Singh
	Chinasoft International	CFTLF	354 HK	Daley Li, CFA
	Cloud Music	XVWJF	9899 HK	Lei Zhang
				Ö
	Com2uS Corp	XOYAF XDBAF	078340 KS	Jeehoon Jeong, CFA
	DBAPPSecurity		688023 CH	Daley Li, CFA
	Delhivery	XDVLF	DELHIVER IN	Sachin Salgaonkar
	Dingdong	DDL	DDL US	Joyce Ju
	East Money	XEQTF	300059 CH	Michael Li
	Grab Holdings	GRAB	GRAB US	Sachin Salgaonkar
	Hello Group	МОМО	MOMO US	Lei Zhang
	Hundsun Technologies	XYTGF	600570 CH	Daley Li, CFA
	HYBE	XBGOF	352820 KS	Susie Lee
	iQIYI	IQ	IQ US	Lei Zhang
	JD Health	JDHIF	6618 HK	Miranda Zhuang, CFA
	JD.com	JD	JD US	Joyce Ju
	JD.com	JDCMF	9618 HK	Joyce Ju
	JYP Entertainment	ALNNF	035900 KS	Susie Lee
	Kingdee International Software	KGDEF	268 HK	Daley Li, CFA
	Kingsoft Corporation	KSFTF	3888 HK	Daley Li, CFA
	Kuaishou	KUASF	1024 HK	Lei Zhang
	Makemytrip Limited	MMYT	MMYT US	Sachin Salgaonkar
	Meituan	MPNGF	3690 HK	Lei Zhang
	Naver Corporation	NHNCF	035420 KS	Susie Lee
	NetEase	NETTF	9999 HK	Lei Zhang
	NetEase, Inc	NTES	NTES US	Lei Zhang
	Nine Entertainment Company	NNMTF	NEC AU	Alice Lei, CFA
	Paytm	XUXBF	PAYTM IN	Sachin Salgaonkar
	Pinduoduo Inc.	PDD	PDD US	Joyce Ju
	Plan B Media PCL	XMKTF	PLANB TB	Thitithep Nophaket
	PT Bukalapak.com	BKLPF	BUKA IJ	Sachin Salgaonkar
	PVR-Inox Ltd	PVRLF	PVRINOX IN	Sachin Salgaonkar
	REA Group	RPGRF	REA AU	Sriharsh Singh
	Tencent Holdings	TCTZF	700 HK	Miranda Zhuang, CFA
	Tencent Music	TME	TME US	Lei Zhang
	Tencent Music	XWFWF	1698 HK	Lei Zhang
	Tongcheng Travel	TNGCF	780 HK	Janet Yang
	Trip.com Group	TCOM	TCOM US	Joyce Ju
	Trip.com Group	TRPCF	9961 HK	Joyce Ju
	TUHU Car	XTCRF	9690 HK	Miranda Zhuang, CFA
	Venustech	XVCGF	002439 CH	Daley Li, CFA
	Vipshop Holdings	VIPS	VIPS US	Joyce Ju



APR - Internet, Media and Software Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
· ·	Xero Limited	XROLF	XRO AU	Sriharsh Singh
	YG Entertainment	XYEIF	122870 KS	Susie Lee
	Yonyou Network	XYNIF	600588 CH	Daley Li, CFA
	YY	YY	YY US	Lei Zhang
	Zee Entertainment Enterprises	XZETF	ZIN	Sachin Salgaonkar
	Zomato Limited	XMWRF	ZOMATO IN	Sachin Salgaonkar
MEUTDAI	Zomate Zimited	,	20111110111	Suci III Sui, Buoriniai
NEUTRAL	AfreecaTV	WNTHF	067160 KS	Susie Lee
	Autohome	ATHM	ATHM US	Miranda Zhuang, CFA
	Autohome	XXYZF	2518 HK	Miranda Zhuang, CFA
	Baozun	BZUN	BZUN US	Joyce Ju
	Coupang	CPNG	CPNG US	Susie Lee
	Glodon Company	XGCOF	002410 CH	Daley Li, CFA
	GoTo Group	GTOFF	GOTO IJ	
			HUYA US	Sachin Salgaonkar
	Huya Kalaa Cara	HUYA DAUCF	035720 KS	Lei Zhang
	Kakao Corp.			Susie Lee
	KE Holdings	BEKE	BEKE US	Miranda Zhuana, CFA
	KE Holdings	XSQRF	2423 HK	Miranda Zhuang, CFA
	Kingsoft Cloud	KC	KC US	Daley Li, CFA
	Kingsoft Cloud	KCLHF	3896 HK	Daley Li, CFA
	Krafton	XKINF	259960 KS	Susie Lee
	NCSOFT	NCSCF	036570 KS	Susie Lee
	Nykaa	XQQGF	NYKAA IN	Sachin Salgaonkar
	PB Fintech	XPFXF	POLICYBZ IN	Sachin Salgaonkar
	PropertyGuru	PGRU	PGRU US	Sachin Salgaonkar
	Sea Limited	SE	SE US	Sachin Salgaonkar
	Seek Limited	SKLTF	SEK AU	Sriharsh Singh
	Seven West Media	WANHF	SWM AU	Alice Lei, CFA
	The ONE Enterprise	XUFCF	ONEE TB	Thitithep Nophaket
	VGI Public Company Limited	XZQHF	VGI TB	Thitithep Nophaket
	Weimob	WEMXF	2013 HK	Daley Li, CFA
	WiseTech Global Limited	WTCHF	WTC AU	Ware Kuo
	XD Inc.	XDNCF	2400 HK	Lei Zhang
UNDERPERFORM				
	Altium Limited	ALMFF	ALU AU	Ware Kuo
	Appen Ltd	APPEF	APX AU	Ware Kuo
	BEC World	XBJHF	BEC TB	Thitithep Nophaket
	CJ ENM	CJHOF	035760 KS	Susie Lee
	Douyu	DOYU	DOYU US	Lei Zhang
	Indiamart Intermesh Limited	XEITF	INMART IN	Sachin Salgaonkar
	Info Edge	IFOEF	INFOE IN	Sachin Salgaonkar
	Kakao Games	XKKGF	293490 KS	Susie Lee
	Kingsoft Office	XBKOF	688111 CH	Daley Li, CFA
	Ming Yuan Cloud	XWTAF	909 HK	Daley Li, CFA
	NavInfo	XWLHF	002405 CH	Daley Li, CFA
	Netmarble	XLGHF	251270 KS	Susie Lee
	PearlAbyss Corp	XEPAF	263750 KS	Susie Lee
	Ping An Healthcare and Technology	PANHF	1833 HK	Miranda Zhuang, CFA
	Qi An Xin	XQTDF	688561 CH	Daley Li, CFA
	Technology One Limited	THNOF	TNE AU	Ware Kuo
	ThunderSoft	XSTSF	300496 CH	Daley Li, CFA
	Weibo Corporation	WB	WB US	Miranda Zhuang, CFA
	Weibo Corporation	WEIBF	9898 HK	Miranda Zhuang, CFA
	Zip Co Limited	ZIZTF	ZIP AU	Ware Kuo
RVW				
RVW	Dada Mayura	DADA	DADATIC	Lo: 7hana
	Dada Nexus	DADA	DADA US	Lei Zhang



8

IQmethod[™] Measures Definitions

Business Performance	Numerator	Denominator
Return On Capital Employed	NOPAT = (EBIT + Interest Income) \times (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 +	Sales
•	Other LT Liabilities	

EV / EBITDA Enterprise Value Basic EBIT + Depreciation + Amortization

Menethod 3*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.

Redatabase 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.

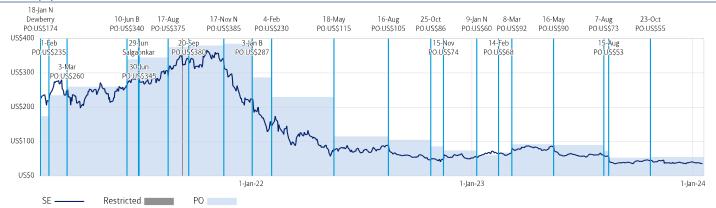
*IQ*profileSM, *IQ*methodSM are service marks of Bank of America Corporation. *IQ*database[®] is a registered service mark of Bank of America Corporation.



Disclosures

Important Disclosures

Sea Limited (SE) 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: Technology Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships R1	Count	Percent
Buy	215	53.09%	Buy	111	51.63%
Hold	97	23.95%	Hold	45	46.39%
Sell	93	22.96%	Sell	24	25.81%

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%	≤ /0%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

R2Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

INCOME RATINGS, indicators of potential cash dividends, are: 7 - same/higher (dividend considered to be secure), 8 - same/lower (dividend not considered to be secure) and 9 - pays no cash dividend. Coverage Cluster is comprised of stocks covered by a single analyst or two or more analysts sharing a common industry, sector, region or other classification(s). A stock's coverage cluster is included in the most recent BofA Global Research report referencing the stock.

Price Charts for the securities referenced in this research report are available on the Price Charts website, or call 1-800-MERRILL to have them mailed.

BofAS or one of its affiliates acts as a market maker for the equity securities recommended in the report: Sea Limited.

The issuer is or was, within the last 12 months, an investment banking client of BofAS and/or one or more of its affiliates: Sea Limited.

 $Bof AS \ or \ an \ affiliate \ has \ received \ compensation \ from \ the \ issuer \ for \ non-investment \ banking \ services \ or \ products \ within \ the \ past \ 12 \ months: Sea \ Limited.$

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: Sea Limited.

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: Sea Limited. BofAS or one of its affiliates is willing to sell to, or buy from, clients the common equity of the issuer on a principal basis: Sea Limited.

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: Sea Limited.

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



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

Other Important Disclosures

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

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

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

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

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

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

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

BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudential Regulation Authority (PRA); BofASE (France): Bof 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 (Australia): 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): Merrill Lynch (Israel): Merrill Lynch (Israel) (Israel) (Israel) (Israel): Merrill Lynch (Israel): Merrill Lynch (Israel) (Israel): Merrill Lynch (Israel): M 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 wit

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

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Securities. This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Securities clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Securities, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. Digital assets are extremely speculative, volatile and are largely unregulated. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or



financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

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

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

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

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

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

Copyright and General Information:

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

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

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

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

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

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.

