

# Baidu.com

# Update of 4Q estimates and Al developments

Reiterate Rating: BUY | PO: 168.00 USD | Price: 104.50 USD

### 4Qe update: ad affected by macro, Al revenue kicks in

We lower 4Qe Baidu Core revenue growth to 7% YoY from 9%. We expect 4Qe Baidu Core ad to grow 6.5% YoY (previous 8%), as weak macro and ecommerce seasonality impacted ad spend. We maintain 4Qe cloud at 12% YoY. Despite a bit lower ad revenue, we maintain 4Qe Baidu Core non-GAAP OP at RMB6bn (up 10% YoY and non-GAAP OPM of 22%), as we expect company to control spending. We model generative Al to contribute RMB0.6bn (2% revenue mix), including RMB0.4bn ad revenue and RMB0.2bn cloud revenue in 4Qe. Our DCF based PO is lowered to USD168/HKD165 from USD200/HKD196 because we increase discount rate to 12% from 10%. The discount rate is higher mainly because we update beta from 1 to 1.25, based on Bloomberg's data – reflecting higher stock volatility. We expect macro to remain the key factor affecting Baidu's revenues, but company can become more defensive and competitive as Al ramps up. We expect generative Al to become a meaningful contributor to Baidu's revenue, and more importantly, revenue growth in 2024. While there may be near-term volatilities from Al and chip news headlines, we reiterate BUY rating on the long-term Al upside.

## 4Q Al update: model, user milestone, product, cloud

1) Model: ERNIE 4.0 has improved performance with 32% increase in overall effectiveness over the past two months, over 4k applications were developed based on ERNIE. 2) User: ERNIE Bot's user base has surpassed 100m. On daily basis, >300mn times of search is satisfied by Generative Search. 3) Ad: Baidu is testing Al Merchant Bot and Brand Bot, which can act as sales bot to help advertisers communicate with potential customers and boost traffic conversion. We believe Merchant Bot and Brand Bot are the key Al solutions to increase advertiser wallet share for Baidu. 4) New Al product testing: Baidu is testing Web Copilot. Baidu started testing of ERNIE Al Agent, which has 5 capabilities including sense, memory, plan, action, and personality. 5) Cloud: PaddlePaddle has 10.7mn developers (vs. 8mn in August), now serving 235k companies and created 860k models. Comate SaaS has 8k enterprise customers. See Baidu's Al initiatives summary in Exhibit 1 in page 3.

Estimates (Dec) (CNY)	2021A	2022A	2023E	2024E	2025E		
Net Income (Adjusted - mn)	18,830	20,680	28,296	30,530	33,825		
EPS	29.66	21.74	63.92	70.68	79.95		
EPS Change (YoY)	-54.5%	-26.7%	194.0%	10.6%	13.1%		
Dividend / Share	0	0	0	0	0		
Free Cash Flow / Share	(2.43)	47.87	71.42	84.31	117.35		
Common EPS (CNY)	3.71	2.72	7.99	8.83	9.99		
Common Dividend / Share (CNY)	0	0	0	0	0		
Valuation (Dec)							
P/E	22.45x	33.41x	11.60x	10.62x	9.39x		
EV / EBITDA*	18.91x	13.96x	10.81x	9.25x	8.25x		
Free Cash Flow Yield*	-0.322%	6.40%	9.65%	11.42%	15.90%		
For full definitions of <i>IQmethod</i> smeasures, see page 6.							

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Refer to important disclosures on page 7 to 10. Analyst Certification on page 4. Price
Objective Basis/Risk on page 4.

Timestamp: 17 January 2024 12:24PM EST

#### 17 January 2024

#### Equity

Key Changes		
(USD)	Previous	Current
Price Obj.	US\$200.00	US\$168.00

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#### Stock Data

Price (ADR / Common)	104.50 USD / 96.80 HKD
Price Objective	168.00 USD / 165.00
	HKD
Date Established	17-Jan-2024 / 17-Jan-2024
Investment Opinion	C-1-9 / C-1-9
52-Week Range	102.76 USD-160.88 USD
Market Value (mn)	36,144 USD
Shares Outstanding (mn)	345.9 / 2,767.0
Average Daily Value (mn)	286.99 USD
Free Float	100.0%
BofA Ticker / Exchange	BIDU / NAS
BofA Ticker / Exchange	BAIDF / HKG
Bloomberg / Reuters	BIDU US / BIDU.OQ
ROE (2023E)	10.9%
Net Dbt to Eqty (Dec-2022A)	12.9%

# **iQ**profile<sup>™</sup> Baidu.com

Key Income Statement Data (Dec)	2021A	2022A	2023E	2024E	2025E
(CNY Millions)					
Sales	124,493	123,675	134,997	148,230	160,082
Gross Profit	60,179	59,740	70,232	77,264	83,637
Sell General & Admin Expense	(24,723)	(20,514)	(23,950)	(24,710)	(25,667)
Operating Profit	10,518	15,911	21,969	26,189	29,871
Net Interest & Other Income	468	(5,799)	6,542	4,859	4,865
Associates	NA	NA	NA	NA	NA
Pretax Income	10,986	10,112	28,512	31,048	34,736
Tax (expense) / Benefit	(3,187)	(2,578)	(4,727)	(5,032)	(5,629)
Net Income (Adjusted)	18,830	20,680	28,296	30,530	33,825
Average Fully Diluted Shares Outstanding	352	348	355	356	356
Key Cash Flow Statement Data					
Net Income	10,434	7,559	22,696	25,143	28,443
Depreciation & Amortization	6,355	6,944	7,560	8,301	8,805
Change in Working Capital	(18,691)	(16,758)	(2,053)	(1,088)	8,728
Deferred Taxation Charge	NA	NA	NA	NA	NA
Other Adjustments, Net	11,961	27,166	8,699	13,140	13,140
Cash Flow from Operations	10,059	24,911	36,902	45,495	59,115
Capital Expenditure	(10,896)	(8,286)	(11,838)	(15,838)	(17,838)
(Acquisition) / Disposal of Investments	(20,028)	4,954	5,053	13,352	2,083
Other Cash Inflow / (Outflow)	(520)	(612)	(422)	(770)	10,422
Cash Flow from Investing	(31,444)	(3,944)	(7,207)	(3,256)	(5,333)
Shares Issue / (Repurchase)	16,987	(498)	0	0	0
Cost of Dividends Paid	0	0	0	0	0
Cash Flow from Financing	23,396	(6,390)	(10,276)	0	0
Free Cash Flow	(837)	16,625	25,064	29,657	41,277
Net Debt	46,226	30,579	(8,216)	(60,726)	(124,772)
Change in Net Debt	5,450	(26,568)	(28,519)	(42,234)	(53,770)
Key Balance Sheet Data					
Property, Plant & Equipment	23,027	23,973	32,377	44,895	59,211
Other Non-Current Assets	143,692	154,150	151,498	148,916	141,128
Trade Receivables	9,981	11,733	14,055	16,244	17,543
Cash & Equivalents	36,850	53,156	71,399	113,633	167,403
Other Current Assets	166,484	147,961	150,260	144,260	134,260
Total Assets	380,034	390,973	419,589	467,947	519,545
Long-Term Debt	68,401	63,183	52,907	42,631	32,355
Other Non-Current Liabilities	13,193	10,355	10,355	10,355	10,355
Short-Term Debt	14,675	20,552	10,276	10,276	10,276
Other Current Liabilities	59,813	59,078	64,046	69,918	75,509
Total Liabilities	156,082	153,168	137,584	133,180	128,495
Total Equity	223,952	237,805	282,004	334,767	391,050
Total Equity & Liabilities	380,034	390,973	419,589	467,947	519,545
i <b>Q</b> method <sup>™</sup> - Bus Performance*					
Return On Capital Employed	3.8%	5.1%	7.3%	7.7%	7.6%
Return On Equity	9.1%	9.0%	10.9%	9.9%	9.3%
Operating Margin	8.4%	12.9%	16.3%	17.7%	18.7%
EBITDA Margin	13.6%	18.5%	21.9%	23.3%	24.2%
iQmethod <sup>SM</sup> - Quality of Earnings*					
Cash Realization Ratio	0.5x	1.2x	1.3x	1.5x	1.7x
Asset Replacement Ratio	1.7x	1.2x	1.6x	1.9x	2.0x
Tax Rate (Reported)	29.0%	25.5%	16.6%	16.2%	16.2%
Net Debt-to-Equity Ratio	20.6%	12.9%	-2.9%	-18.1%	-31.9%
Interest Cover	3.1x	5.5x	6.6x	7.5x	8.6x
	3.17	5.57	0.07	7.51	0.0%
Key Metrics					

# **Company Sector**

Internet/e-Commerce

#### **Company Description**

Baidu is a leading search engine and information feed application in China, providing 40+ products and services. It distributes products and services via a direct sales force, distributors and affiliate networks. In addition, Baidu also runs mobile app stores and short video apps and is developing autonomous driving and enterprise Cloud, Al and IT incl. micro-processor solutions. It has established a JV with Geely to explore new vehicle opportunities.

#### **Investment Rationale**

We expect Baidu to benefit from core ad business' recovery and intact search market leadership, cloud business' margin improvement after breakeven in 1Q23, and Al's long term upside.

Stock Data	
Shares / Common	0.13
Price to Book Value	0.9x

Key Changes		
(CNY)	Previous	Current
Price Obj.	HK\$196.00	HK\$165.00

<sup>\*</sup> For full definitions of *IQ*method<sup>SM</sup> measures, see page 6.

# Exhibit 1: Initiatives of Baidu in generative AI

A comprehensive portfolio of generative Al capabilities, applications, and monetization solutions

Category	Initiative	Description
Model	ERNIE 4.0 Foundation	Baidu announced full upgrade of ERNIE 4.0 in October, with improved performance in understanding, generation, reasoning, and memory.
	Model	In Dec 2023, ERNIE 4.0 has improved performance with 32% increase in overall effectiveness over the past two months.
		Over 4k applications were developed based on ERNIE.
		Cloud + on-device model: ERNIE partners with Huawei Magic OS
Al assistant	ERNIE Bot	ERNIE Bot has received regulatory approval on Aug 31. ERNIE Bot has got > 100mn users as of December 2023.
		ERNIE launched subscription model with a monthly rate of RMB59.9.
Al	Generative Al re-built	Baidu has rebuilt most of its popular applications around generative Al including: the New Baidu Search, Baidu Wenku, Baidu Drive, and Baidu Map.
consumer	applications	Baidu Wenku's Al function has >30mn cumulative users for its new Al function.
service	Al search	Baidu Generative Search could aggregate and summarize information and present a consolidated answer, suggest more content and searches that
		are relevant to previous requests, and enable multi-round interaction for more complex searches.
		On daily basis, >300mn times of search is satisfied by Generative Search.
	Al Agent	Baidu started testing of ERNIE AI Agent, which has 5 capabilities including sense, memory, plan, action, and personality.
	Super Assistant Web	The Web Copilot would be powerful assistant for users in: 1) quick prompt; 2) customized instruction; 3) enhanced search; 4) PDF immersed reading;
	Copilot	5) full-text cross-translation; and 6) photo ORC recognition.
Ad	Al native marketing	Qingge Platform. Advertisers could interact with the new ad system in multiple rounds of natural language conversation to create campaign
	platform	strategies that deliver high ROI in an efficient manner. Qingge has million level interaction times in Nov 2023.
	AIGC	Al ad creatives function: Qingduo. Advertisers could use it to generate creative advertising materials, which have proved to deliver higher conversion
		rates than materials created by human.
	Back-end AI ad engine	Yangji - enhance ad targeting and auction system
	Al marketing decision-	Guanxingpan that supports advertisers with data insights
	making platform	
	Al Bot/Agent products	Brand Agent, Merchant Bot - for better sales and customer services, so that it could boost traffic to leads and to transaction conversion, leading to
		higher wallet share in advertisers.
		Businesses could create and fine-tune exclusive model and Agent with their own business data & corporate knowledge, generate business'
		customized digital person to better engage with customers.
	Industry solution	eCommerce + Al: Al shopping guide, virtual hosts in live streaming ecommerce
Application	ERNIE Agent Platform	Allowing developers and enterprises to build Al plugins and Al Agents with low-threshold access and productivity tools covering variety of sectors.
platform		The platform had >30k developers' applications and launched >2k Agents.
Cloud	Qianfan Model Service	Qianfan is the one stop LLM service platform to facilitate model training, inference and services. Qianfan has >40 foundation models including ERNIE
	Platform	and mainstream third part LLMs, covering 500+ use scenarios.
		Over 10,000 enterprises are actively using ERNIE through API on a monthly basis.
		ModelBuilder has cumulatively fine-tuned 10k models. AppBuidler service and Al native App Store
	PaddlePaddle AI	PaddlePaddle platform has gathered 10.7mn developers as of December (vs. 8mn in August and 1.5mn in 2019), now serving 235k enterprises and
	developer community	created 860k models.
	SaaS	Comate SaaS has 8k enterprise customers and overall code generation adoption rate exceeds 40%, and the newly released Comate Auto Work could
		systematically handle complex R&D tasks.
		Baidu Infoflow, the enterprise communication and collaboration platform
Biz service	Baidu GBI	Baidu GBI i could quickly execute data inquiries, output business analytics, and summarize information in easy-to-understand formats.

Source: Company data, BofA Global Research

BofA GLOBAL RESEARCH



# Price objective basis & risk

#### Baidu.com (BIDU / BAIDF)

Our PO is US\$168 (HK\$165): 1) US\$158 from a DCF valuation of the existing operation which also absorbs the costs of loss-making businesses, based on a discount rate of 12%, FCF CAGR of 18% in 23-29E, and a terminal growth rate of 5%, current net cash per share of USD47, 2) US\$11 from its investments, primarily comprised of Trip.com and iQIYI.

Downside risks are: 1) Major operating or regulation events, 2) Government intervention in business or ownership, 3) Macroeconomic, 4) Competition from new online media, 5) Margin and capex risk on spending for AI, 6) geopolitical risks impacting access to tech equipment and microprocessors and investment by foreign investors, 7) AI technology usage risk, may impact stock listing or investors ability to own, 8) more stringent regulation on AI, 9) more intensified competition on AI.

Upside risks are: 1) better than expected macro recovery, 2) better development progress in Al, 3) application of Al in company's businesses to lift competitiveness and monetization, 4) monetization of Al in its cloud business.

# **Analyst Certification**

I, Miranda Zhuang, CFA, 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.

**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
	Com2uS Corp	XOYAF	078340 KS	Jeehoon Jeong, CFA
	DBAPPSecurity	XDBAF	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	MOMO	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



#### **APR - Internet, Media and Software Coverage Cluster**

Name Company	luccaturant vations	C	DafA Tieken	Dia ambawa ayan bal	Auralizat
MerFace	Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
NetBase, Inc.		•			
No. Entertainment Company   No.MIF   N.C. AJ					<u> </u>
PayTM N					
PPID					
PART Michal PCL					•
PF Bubalapat.com					
PRG-Brox Ltd					
REA Group				·	
Tencent Holdings					
Tencent Music		REA Group			
Tencent Music		Tencent Holdings	TCTZF	700 HK	Miranda Zhuang, CFA
Tongcheng Travel   TMSCF		Tencent Music	TME	TME US	Lei Zhang
Trip.com Group   TCOM		Tencent Music	XWFWF	1698 HK	Lei Zhang
Tipscom Group   TRPCF		Tongcheng Travel	TNGCF	780 HK	Janet Yang
TUHU Car		Trip.com Group	TCOM	TCOM US	Joyce Ju
TUHU Car		Trip.com Group	TRPCF	9961 HK	Joyce Ju
Venustech   XVCGF		TUHU Car	XTCRF	9690 HK	
Vipshop Holdings         VIPS         VIPS LIS         Joyce Ju           Kero Limited         XROLF         RRO AL         Shinkark Singh           VG Entertainment         XYEF         122870 KS         Susie Lee           Vonyou Network         XYNF         600588 CH         Daley L GCA           YY         YY         YY         Susie Lee           Amount of Limited         XXWRF         20MATO IN         Schaffing           NEUTRAL         WINTHE         667160 KS         Susie Lee           Altonome         ATHM         ATHM US         Miranda Zhuang, CFA           Autohome         ATHM         ATHM US         Miranda Zhuang, CFA           Autohome         XX7ZF         2518 HK         Miranda Zhuang, CFA           Bocun         GOFG Group         GOTO IJ         Saxhin Salgannikar		Venustech	XVCGF	002439 CH	
XPOLIF   X					
YG Entertainment					
Yonyou Network					<u> </u>
Y					
Zee Entertainment Enterprises   ZETF   ZIN   Sachin Salgaonkar   Zomato Limited   XJMWRF   ZOMATO IN   Sachin Salgaonkar   NEUTRAL					
NEUTRAL					
NEUTRAL					
AfreeaTV		Zomato Limited	VINIAKL	ZUMATUTN	Sacriffi Salgaurikai
Autohome	NEUTRAL				
Autohome		AfreecaTV	WNTHF	067160 KS	
Bazun		Autohome	ATHM	ATHM US	Miranda Zhuang, CFA
Coupang   CPNG   CPNG US   Susie Lee		Autohome	XXYZF	2518 HK	Miranda Zhuang, CFA
Coupang   CPNG   CPNG US   Susie Lee		Baozun	BZUN	BZUN US	Joyce Ju
Glodon Company   SCGOF   O02410 CH		Coupang	CPNG	CPNG US	
GoTo Group			XGCOF	002410 CH	Daley Li, CFA
Huya			GTOFF	GOTO II	
Kakao Corp.         DAUCF         035720 KS         Susie Lee           KE Holdings         BEKE         BEKE US         Miranda Zhuang, 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           NVSAB         XQQGF         NYKAA IN         Sachin Salgaonkar           PB Fintech         XPXFF         POLLCYBZ IN         Sachin Salgaonkar           PropertyGuru         PGRU         PGRU         Sachin Salgaonkar           PropertyGuru         PGRU         PGRU US         Sachin Salgaonkar           Sea Limited         SE         SE US         Sachin Salgaonkar           See Limited         SKT         SEK AU         Sriharsh Singh           Seven West Media         WANHF         SWM AU         Alice Lei, CFA           The ONE Enterprise         XUFCF         ONE TB         Thitithep Nophaket           Weimob         WEMXF         2013 HK         Daley Li, CFA </td <td></td> <td></td> <td>HUYA</td> <td></td> <td>9</td>			HUYA		9
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#### **APR - Internet, Media and Software Coverage Cluster**

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	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				
	Dada Nexus	DADA	DADA US	Lei Zhang

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Manethod 3<sup>ss</sup> 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.

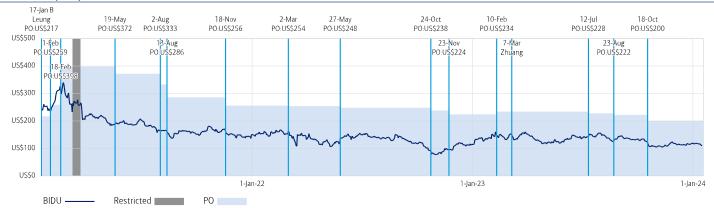
\*\*Relatabase\*\* is our real-time global research database that is sourced directly from our equity analysts' earnings models and includes forecasted as well as historical data for income statements, balance sheets, and cash flow statements for companies covered by BofA Global Research.



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# **Important Disclosures**

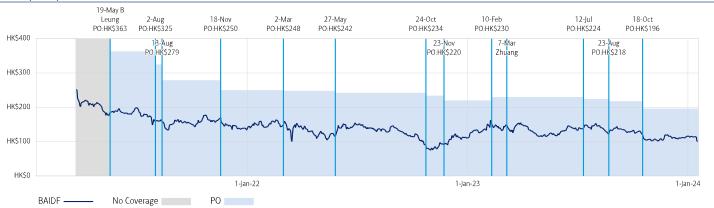
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B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

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.

#### Baidu.com (BAIDF) 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<sup>R2</sup>

 Buy
 ≥ 10%
 ≤ 70%

 Neutral
 ≥ 0%
 ≤ 30%

 Underperform
 N/A
 ≥ 20%

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.

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