

Alphabet

Search Wars: Bing plugin comes to ChatGPT, new AI ad solutions for Google

Maintain Rating: BUY | PO: 128.00 USD | Price: 122.56 USD

Bing plugin comes to ChatGPT enabling Web access

Microsoft announced that ChatGPT will be enabled with a Bing plugin, available to Plus subscribers today and, importantly, coming to free users soon. According to Engadget, ChatGPT will be able to supplement its own models for information, leveraging Bing for more up-to-date answers and to cite the Web. While we think this is an important upgrade to ChatGPT that expands its use case, we still see strong distribution advantages for Google, especially on mobile.

Google increases AI capabilities for advertisers

At Marketing Live, Google announced AI tools to allow advertisers to essentially synthesize a unique text or display ad, in real time, based on the user's query and advertiser data supplied to Google. The tool will reportedly be free for advertisers and should increase relevance/conversions (with AI tools like Performance Max already boosting conversions by 18%, +5pts y/y, per the company). Google also announced several other tools for advertisers utilizing Generative AI for campaign creation and management across Google properties, and provided more demos of ad integration in LLM based search results, addressing an overhang. [See more of our takeaways from Google Marketing Live here.](#)

Data update: Mobile in focus since ChatGPT mobile launch

For app downloads through 5/22, Google DL growth is up 4% m/m (1pt decel vs. 5/1) vs. Bing's +24%, and the gap between Google and Bing is 2.4x. ChatGPT iOS app downloads since launch on 5/18 have reached 711k (over 5 days), but have started declining on a d/d basis (-23% d/d). The app is expected to be released on Android and in Intl. markets soon, and we expect app traffic to be closely watched by the Street.

Google's three pillars are still upright; Maintain Buy

Bing integration in ChatGPT may close Google's data advantage, but we still see three important advantages for Google (data, distribution, and AI-based ad technology). With Google continuing to utilize AI to improve its ad products, we reiterate our view that AI can be incrementally positive for Google's market position. Maintain Buy on Google.

Estimates (Dec) (US\$)	2021A	2022A	2023E	2024E	2025E
EPS	6.56	5.78	7.19	8.16	9.17
GAAP EPS	5.61	4.56	5.54	6.40	7.18
EPS Change (YoY)	74.0%	-11.9%	24.4%	13.5%	12.4%
Consensus EPS (Bloomberg)			5.76	6.84	8.30
DPS	0	0	0	0	0
EPS (GOOG - US\$)	6.56	5.78	7.19	8.16	9.17
DPS (GOOG - US\$)	0	0	0	0	0
Valuation (Dec)					
P/E	18.7x	21.2x	17.0x	15.0x	13.4x
GAAP P/E	21.8x	26.9x	22.1x	19.2x	17.1x
Dividend Yield	0%	0%	0%	0%	0%
EV / EBITDA*	15.3x	14.8x	13.4x	11.9x	10.7x
Free Cash Flow Yield*	4.2%	3.7%	4.5%	5.5%	6.5%

* For full definitions of *IQmethod*SM measures, see page 8.

24 May 2023

Equity

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Stock Data

Price (NAS / NAS)	122.56 USD / 123.29 USD
Price Objective	128.00 USD / 128.00 USD
Date Established	26-Apr-2023 / 26-Apr-2023
Investment Opinion	B-1-9 / B-1-9
52-Week Range	83.34 USD - 126.43 USD
Market Value (mn)	1,613,742 USD
Average Daily Value	4300.26 USD
Shares Outstanding (mn)	13,167.0 / 13,167.0
BofA Ticker / Exchange	GOOGL / NAS
BofA Ticker / Exchange	GOOG / NAS
Bloomberg / Reuters	GOOGL US / GOOGL.OQ
ROE (2023E)	34.3%
Net Dbt to Eqty (Dec-2022A)	3.0%

ESGMeter™ High

ESGMeter is not indicative of a company's future stock price performance and is not an investment recommendation or rating. ESGMeter is independent of BofA Global Research's equity investment rating, volatility risk rating, income rating, and price objective for that company. For full details, refer to ["BofA ESGMeter Methodology"](#).

AI: Artificial Intelligence

ML: Machine Learning

LLM: Large Language Models

DL: Downloads

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Refer to important disclosures on page 9 to 12. Analyst Certification on page 7. Price Objective Basis/Risk on page 7.

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Timestamp: 24 May 2023 01:28AM EDT

iQprofileSM Alphabet

iQmethodSM – Bus Performance*

(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Return on Capital Employed	31.9%	26.8%	29.9%	30.7%	31.0%
Return on Equity	36.4%	29.1%	34.3%	34.9%	34.9%
Operating Margin	44.4%	40.3%	43.1%	42.5%	41.6%
Free Cash Flow	67,112	60,010	72,234	88,998	105,457

iQmethodSM – Quality of Earnings*

(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Cash Realization Ratio	1.0x	1.2x	1.1x	1.2x	1.3x
Asset Replacement Ratio	2.0x	2.0x	2.3x	1.9x	1.8x
Tax Rate	16.2%	15.9%	18.0%	17.9%	17.9%
Net Debt-to-Equity Ratio	-2.8%	3.0%	1.4%	-1.0%	-5.3%
Interest Cover	NA	26.8x	NA	NA	NA

Income Statement Data (Dec)

(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Sales	212,071	233,881	250,681	280,587	312,776
% Change	41.0%	10.3%	7.2%	11.9%	11.5%
Gross Profit	146,698	156,633	168,094	186,033	203,679
% Change	49.0%	6.8%	7.3%	10.7%	9.5%
EBITDA	106,316	109,931	121,940	137,090	151,819
% Change	55.4%	3.4%	10.9%	12.4%	10.7%
Net Interest & Other Income	(3,356)	(22,876)	(22,164)	(22,661)	(24,911)
Net Income (Adjusted)	88,918	76,051	91,306	101,062	110,451
% Change	71.7%	-14.5%	20.1%	10.7%	9.3%

Free Cash Flow Data (Dec)

(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Net Income from Cont Operations (GAAP)	76,033	59,972	70,370	79,342	86,517
Depreciation & Amortization	12,226	15,727	13,964	17,814	21,554
Change in Working Capital	(1,523)	(2,235)	(2,051)	(612)	5,522
Deferred Taxation Charge	NA	NA	NA	NA	NA
Other Adjustments, Net	4,916	18,031	21,781	26,896	29,816
Capital Expenditure	(24,540)	(31,485)	(31,830)	(34,442)	(37,952)
Free Cash Flow	67,112	60,010	72,234	88,998	105,457
% Change	54.5%	-10.6%	20.4%	23.2%	18.5%

Balance Sheet Data (Dec)

(US\$ Millions)	2021A	2022A	2023E	2024E	2025E
Cash & Equivalents	20,945	21,879	24,757	31,546	45,994
Trade Receivables	39,304	40,258	46,394	53,344	57,376
Other Current Assets	127,894	102,658	100,468	101,538	102,943
Property, Plant & Equipment	97,599	112,668	132,716	149,895	166,876
Other Non-Current Assets	73,526	87,801	90,546	91,346	92,146
Total Assets	359,268	365,264	394,882	427,669	465,336
Short-Term Debt	0	0	0	0	0
Other Current Liabilities	64,254	69,300	79,168	85,492	95,369
Long-Term Debt	13,594	29,449	28,719	28,519	28,319
Other Non-Current Liabilities	14,968	10,371	10,874	10,874	10,874
Total Liabilities	92,816	109,120	118,761	124,885	134,562
Total Equity	266,452	256,144	276,121	302,784	330,774
Total Equity & Liabilities	359,268	365,264	394,882	427,669	465,336

* For full definitions of iQmethodSM measures, see page 8.

Company Sector

Internet/e-Commerce

Company Description

Alphabet is a global technology company focused around key areas, such as search, advertising, operating systems and platforms, enterprise and hardware products. The company generates revenue primarily by delivering online advertising and by selling apps and contents on Google Play as well as hardware products. The company provides its products and services in more than 100 languages and in 190 countries, regions, and territories.

Investment Rationale

We see Alphabet as well positioned long term with leading search technology, Android, and YouTube. Alphabet is an advertising industry leader, and the company should generate incremental revenue growth from increasing mobile usage, video usage, Google Play activity, and connected device activity (including autos). We believe that Alphabet should trade at a premium to a media peer group given technology leadership, high margins, and cash flow for buybacks.

Stock Data

Average Daily Volume	35,344,764
Shares / Common - Dual Listed	1.00

Quarterly Earnings Estimates

	2022	2023
Q1	1.51A	1.68A
Q2	1.51A	1.80E
Q3	1.39A	1.79E
Q4	1.37A	1.92E

Data update

Seeing little impact on Google search from ChatGPT/Bing activity

For Web traffic, Similarweb daily traffic data through 5/21 continues to indicate that Google traffic remains stable, while Bing has slowed, and ChatGPT traffic seems to be moderating in the 45mn-65mn range. Interestingly, we did not see an increase in web traffic from the ChatGPT app launch on 5/18. For downloads, Bing global downloads remain elevated at approx. 155k-160k per day vs. 100k prior to the late-April rally, though Google global DLs are stable at +4% m/m (vs. +5% on 5/1), suggesting Bing activity is incremental. In the US, Google m/m downloads decelerated from its peak during Google I/O with DLs now flat m/m. As for the ChatGPT launch on mobile, revised Sensor Tower data indicates ChatGPT was cumulatively downloaded 711k times over the past 5 days, a revision from data on 5/21 suggesting DLs reached 711k in 3 days.

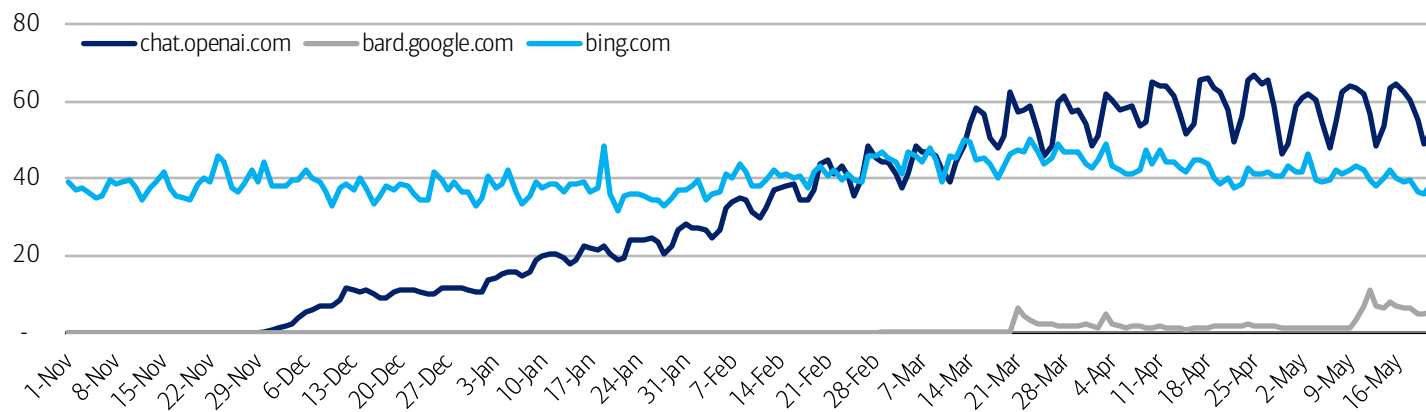
Web Traffic

ChatGPT Web traffic remains above Bing, a small fraction of Google

As of 5/21, on a 7-day moving average, visits to ChatGPT were 58.2mn (-3% m/m) vs. Bing's 38.8mn (-6% m/m). Bard traffic of 6.2mn is up 300% m/m, with increased interest following I/O (+5.1mn incremental visits per day following 5/10) but declining w/w. Bard visits remain well below ChatGPT.

Exhibit 1: Daily web traffic (mn)

Bard's daily web traffic is up 300% m/m and seeing 5.1mn incremental visits per day following Google I/O



Source: Similarweb, BofA Global Research

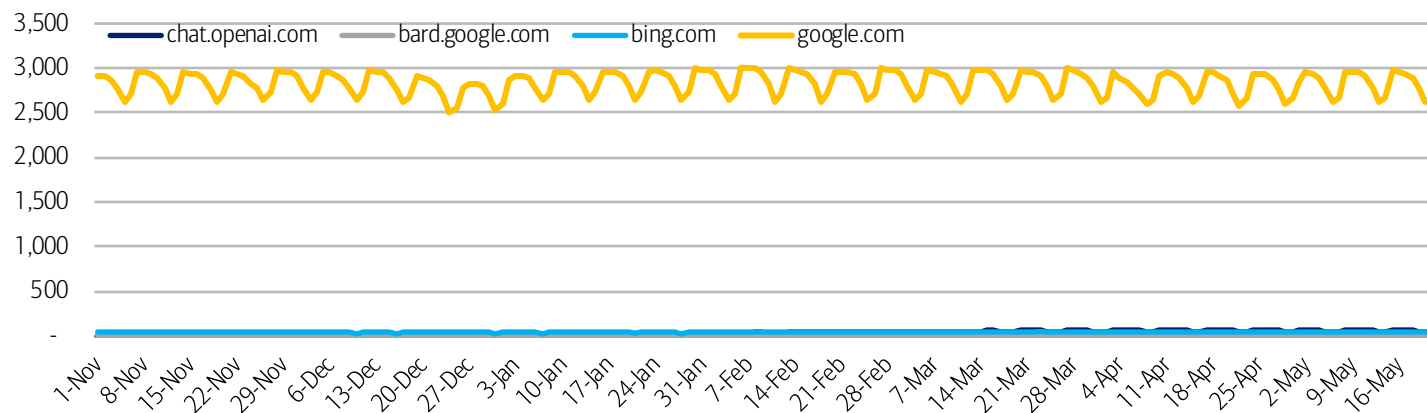
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Google Web Traffic remains stable

Daily visits to Google are stable. As of 5/21, Google Web traffic of 2.84bn (+1% m/m) was 73x more than Bing and 49x more than ChatGPT. Increased ChatGPT activity and stable Google trends suggest limited impact from impressive ChatGPT ramp in usage.

Exhibit 2: Daily web traffic (mn)

As of 5/21, Google Web traffic of 2.84bn was 73x more than Bing and 49x more than ChatGPT



Source: Similarweb, BofA Global Research

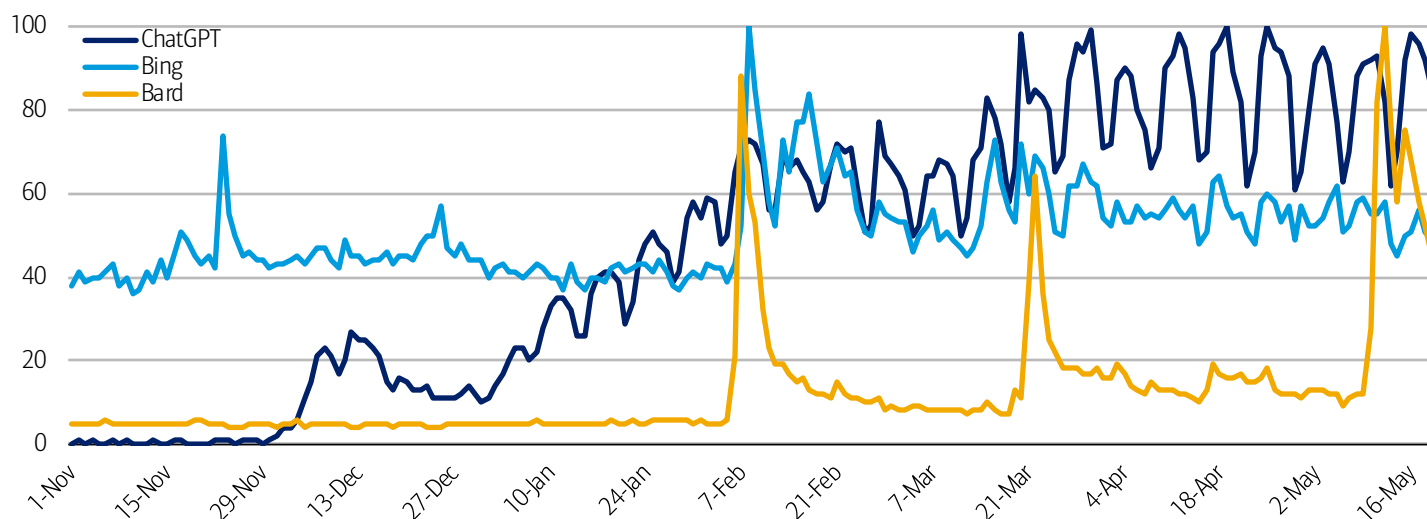
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Search interest for ChatGPT still elevated

Search interest for “ChatGPT” is volatile but elevated vs. early-2023. Data through 5/19 suggests ChatGPT interest is up just 1% m/m (MTD) despite the app launch. Interest for Bing is down 4% m/m while Bard is now 45% of its 5/12 peak following Google I/O.

Exhibit 3: Keyword search interest

Bard interest is up 176% m/m, but only 45% of its 5/12 peak following Google I/O



Source: Google Trends, BofA Global Research

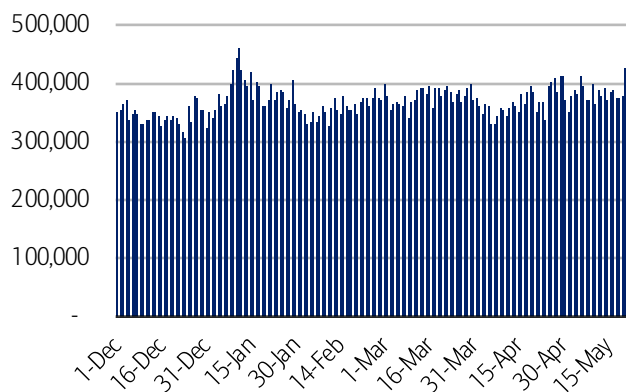
BofA GLOBAL RESEARCH

Downloads**Global: Google remains steady, suggesting Bing/ChatGPT DLs are incremental**

Per Sensor Tower, Bing m/m growth on 5/22 decel'd to +24% from +131% on 5/7 as Bing downloads moderated from late-April/early-May rally. While d/d trends accelerated on ChatGPT's app launch, Bing downloads appear to be stabilizing in the 155k-160k range. Google activity is relatively stable vs. 5/1 at +4% m/m (1pt decel) though US downloads are now flat m/m. Sensor Tower indicates Google global downloads on 5/22 of 393.2k were 2.4x more than Bing's 164.4k and 3.2x more than ChatGPT's downloads of 123.6k. ChatGPT downloads are just US and only on iOS.

Exhibit 4: Google global daily app downloads

As of 5/22, Google downloads of 393.2k are up 4% m/m



Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

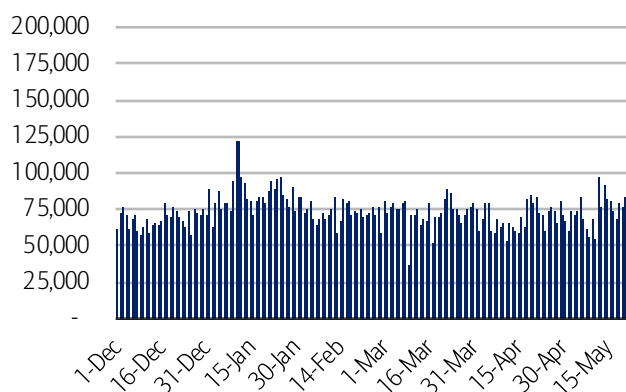
On a daily basis, Google download growth appears relatively stable despite increased Bing and ChatGPT activity.

US: Google I/O tailwinds fading, ChatGPT launches in US

Bing US downloads of 19.5k are up 44% m/m, though a decrease from its recent 5/7 peak of 40.5k. As of 5/22, Google downloads reached 77.5k in the US. ChatGPT downloads in the US on 5/22 reached 123.6k, which is 1.6x more than Google, but are decelerating on a d/d basis (-23% d/d on 5/22 vs. -4% d/d prior).

Exhibit 6: Google US daily app downloads

As of 5/22, Google US downloads of 77.5k are flat m/m



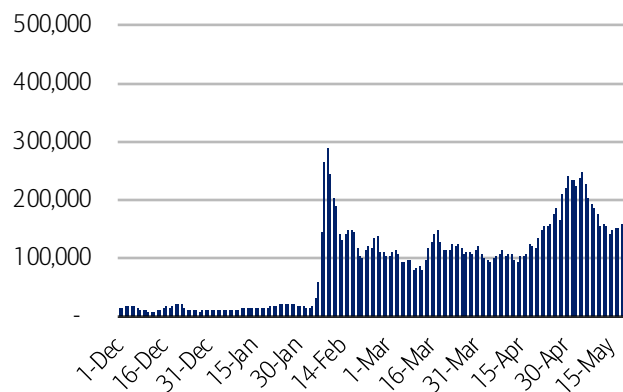
Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

Per Sensor Tower, ChatGPT was cumulatively downloaded 711k times over the first 5 days, with downloads peaking on 5/20 at 167.2k. This is a downward revision from Sensor Tower's Sunday data. On a d/d basis, US trends suggest Google activity remains relatively stable despite increased Bing activity, and benefited from ChatGPT's launch (Google downloads in the US were up 17% d/d on 5/19).

Exhibit 5: Bing global daily app downloads

As of 5/22, Bing downloads of 164.4k are up 24% m/m

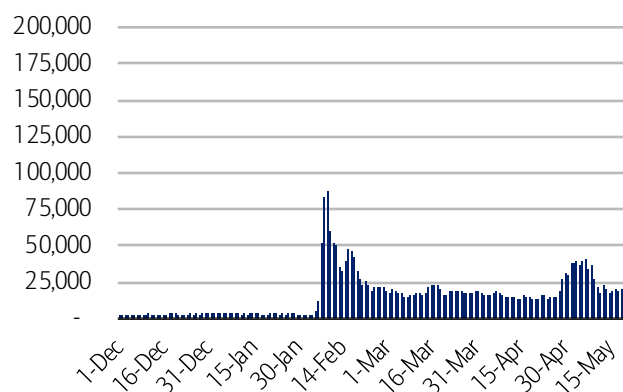


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 7: Bing US daily app downloads

As of 5/22, Bing US downloads of 19.5k are up 44% m/m

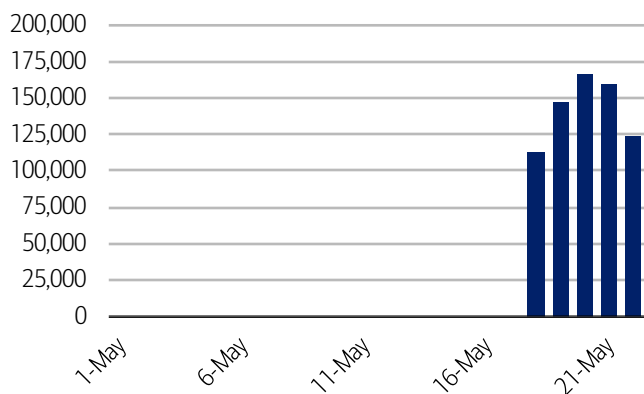


Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 8: ChatGPT US daily app downloads

ChatGPT downloads over first 5 days in US



Source: Sensor Tower, BofA Global Research

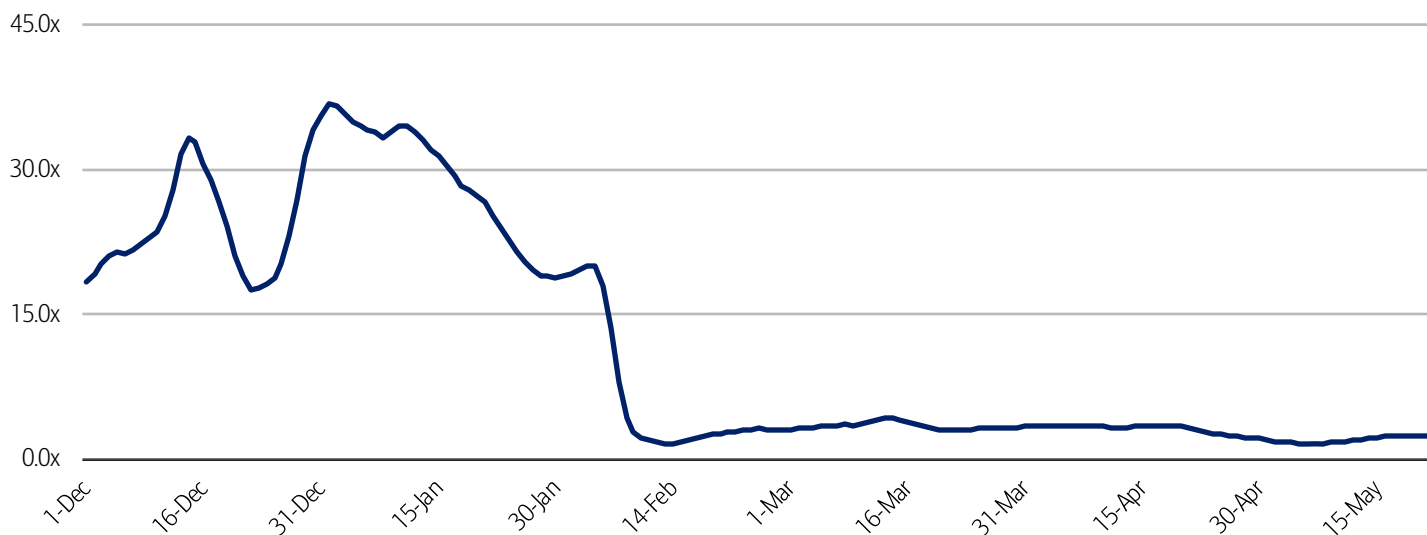
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Google vs. Bing Download ratio

Google was downloaded 2.4x more than Bing on 5/22, below the 3.0x-4.5x range in March and early-April, but a recovery from 1.5x earlier in the month. Globally, Google was downloaded 3.2x more than ChatGPT on 5/22, but only 0.6x in the US (ChatGPT is currently only available to iOS users in the US). With >50% of search queries on mobile devices, we think download share will be an important metric now that Chat functionalities are beginning to be introduced on mobile.

Exhibit 9: Google vs. Bing download ratio, global

As of 5/22, Google was downloaded 2.4x more than Bing and 3.2x more than ChatGPT on a global basis



Source: Sensor Tower, BofA Global Research

BofA GLOBAL RESEARCH

Price objective basis & risk

Alphabet (GOOGL / GOOG)

Our price objective of \$128/\$128 is based on 18x 2024E core Google GAAP EPS plus cash. Alphabet has traded at an average multiple of 23x GAAP P/E over the last ten years and we think our multiple is reasonable vs. history given expectations for slower, but still 10%+ revenue growth in future years.

Risks for the stock are 1) uncertain macro backdrop may impact cloud and network business growth and margins, 2) LLM integration in search may take longer than expected or negatively impact search, 3) query share loss to Bing, 4) concerns related new regulatory framework in the European Digital Markets Act (DMA) and Department of Justice's recent lawsuit challenging Google's ad exchange business, or 5) loss of Samsung and Apple search distribution deals.

Analyst Certification

I, Justin Post, 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.

US - Internet Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
BUY	ACV Auctions	ACVA	ACVA US	Nat Schindler
	Alphabet	GOOGL	GOOGL US	Justin Post
	Alphabet	GOOG	GOOG US	Justin Post
	Amazon.com	AMZN	AMZN US	Justin Post
	AppLovin	APP	APP US	Omar Dessouky, CFA
	Arhaus, Inc	ARHS	ARHS US	Curtis Nagle, CFA
	Bumble, Inc.	BMBL	BMBL US	Nat Schindler
	Chewy Inc	CHWY	CHWY US	Nat Schindler
	Digital Turbine, Inc	APPS	APPS US	Omar Dessouky, CFA
	DoorDash	DASH	DASH US	Michael McGovern
	Duolingo	DUOL	DUOL US	Nat Schindler
	Expedia	EXPE	EXPE US	Justin Post
	Fiverr	FVRR	FVRR US	Nat Schindler
	Intact Financial	YIFC	IFC CN	Grace Carter, CFA
	LendingTree	TREE	TREE US	Nat Schindler
	Match Group	MTCH	MTCH US	Nat Schindler
	Meta Platforms Inc	META	META US	Justin Post
	NerdWallet Inc	NRDS	NRDS US	Nat Schindler
	Peloton	PTON	PTON US	Justin Post
	RH	RH	RH US	Curtis Nagle, CFA
	Roblox Corp. Class A	RBLX	RBLX US	Omar Dessouky, CFA
	Shutterstock	SSTK	SSTK US	Nat Schindler
	Squarespace Inc	SQSP	SQSP US	Nat Schindler
	Take-Two Interactive	TTWO	TTWO US	Omar Dessouky, CFA
	Tempur Sealy International Inc.	TPX	TPX US	Curtis Nagle, CFA
	TripAdvisor	TRIP	TRIP US	Nat Schindler
	Uber	UBER	UBER US	Justin Post
	Udemy Inc	UDMY	UDMY US	Nat Schindler
	Wayfair	W	W US	Curtis Nagle, CFA
	Wix.com	WIX	WIX US	Nat Schindler
	Xometry	XMTR	XMTR US	Nat Schindler
	Zillow	ZG	ZG US	Curtis Nagle, CFA
	Zillow	Z	Z US	Curtis Nagle, CFA
NEUTRAL	1stDibs.com	DIBS	DIBS US	Curtis Nagle, CFA
	Airbnb	ABNB	ABNB US	Justin Post
	Beachbody	BODY	BODY US	Joanna Zhao



US - Internet Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
	Booking Holdings Inc	BKNG	BKNG US	Justin Post
	Carvana Co	CVNA	CVNA US	Nat Schindler
	eBay	EBAY	EBAY US	Curtis Nagle, CFA
	Electronic Arts	EA	EA US	Omar Dessouky, CFA
	Etsy, Inc.	ETSY	ETSY US	Curtis Nagle, CFA
	LegalZoom	LZ	LZ US	Nat Schindler
	Overstock.com Inc	OSTK	OSTK US	Curtis Nagle, CFA
	Pinterest	PINS	PINS US	Justin Post
	Snap	SNAP	SNAP US	Justin Post
	Upwork Inc	UPWK	UPWK US	Nat Schindler
	Viant	DSP	DSP US	Nat Schindler

UNDERPERFORM

	AdTheorent	ADTH	ADTH US	Nat Schindler
	Cardlytics	CDLX	CDLX US	Nat Schindler
	Lyft, Inc.	LYFT	LYFT US	Michael McGovern
	Opendoor Technologies	OPEN	OPEN US	Curtis Nagle, CFA
	PLAYSTUDIOS, Inc. Class A	MYPs	MYPs US	Omar Dessouky, CFA
	Playtika	PLTK	PLTK US	Omar Dessouky, CFA
	Purple Innovation	PRPL	PRPL US	Curtis Nagle, CFA
	Redfin Corp	RDFN	RDFN US	Curtis Nagle, CFA
	System1	SST	SST US	Nat Schindler
	The RealReal	REAL	REAL US	Michael McGovern
	Trivago NV	TRVG	TRVG US	Nat Schindler
	Upstart	UPST	UPST US	Nat Schindler
	Wish	WISH	WISH US	Michael McGovern

iQmethodSM Measures Definitions

Business Performance

Return On Capital Employed

Return On Equity

Operating Margin

Earnings Growth

Free Cash Flow

Numerator

NOPAT = (EBIT + Interest Income) × (1 – Tax Rate) + Goodwill Amortization

Net Income

Operating Profit

Expected 5 Year CAGR From Latest Actual

Cash Flow From Operations – Total Capex

Denominator

Total Assets – Current Liabilities + ST Debt + Accumulated Goodwill

Amortization

Shareholders' Equity

Sales

N/A

N/A

Quality of Earnings

Cash Realization Ratio

Asset Replacement Ratio

Tax Rate

Net Debt-To-Equity Ratio

Interest Cover

Numerator

Cash Flow From Operations

Capex

Tax Charge

Net Debt = Total Debt – Cash & Equivalents

EBIT

Denominator

Net Income

Depreciation

Pre-Tax Income

Total Equity

Interest Expense

Valuation Toolkit

Price / Earnings Ratio

Price / Book Value

Dividend Yield

Free Cash Flow Yield

Enterprise Value / Sales

Numerator

Current Share Price

Current Share Price

Annualised Declared Cash Dividend

Cash Flow From Operations – Total Capex

EV = Current Share Price × Current Shares + Minority Equity + Net Debt +

Other LT Liabilities

Enterprise Value

Denominator

Diluted Earnings Per Share (Basis As Specified)

Shareholders' Equity / Current Basic Shares

Current Share Price

Market Cap = Current Share Price × Current Basic Shares

Sales

Basic EBIT + Depreciation + Amortization

iQmethodSM 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 valuations. 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.

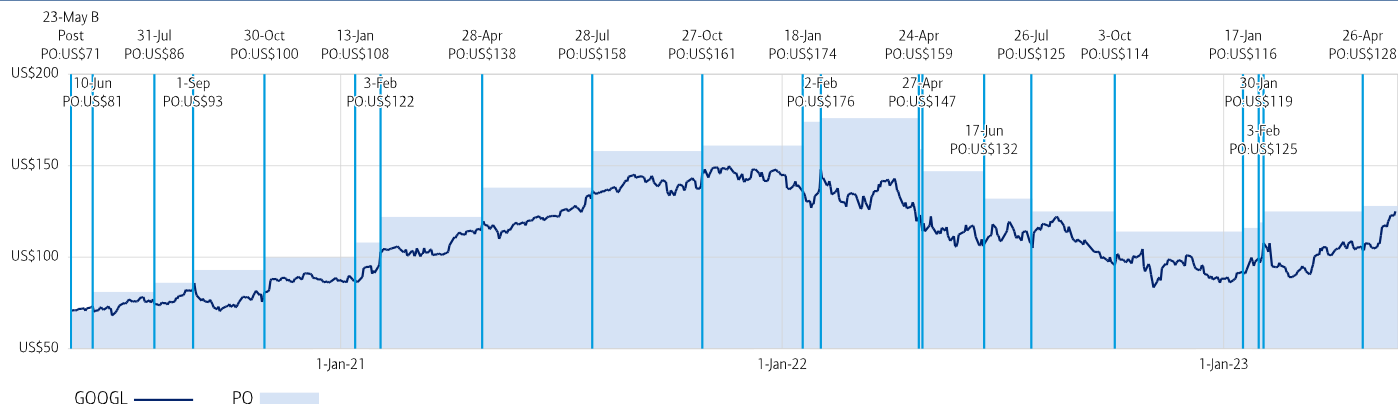
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Disclosures

Important Disclosures

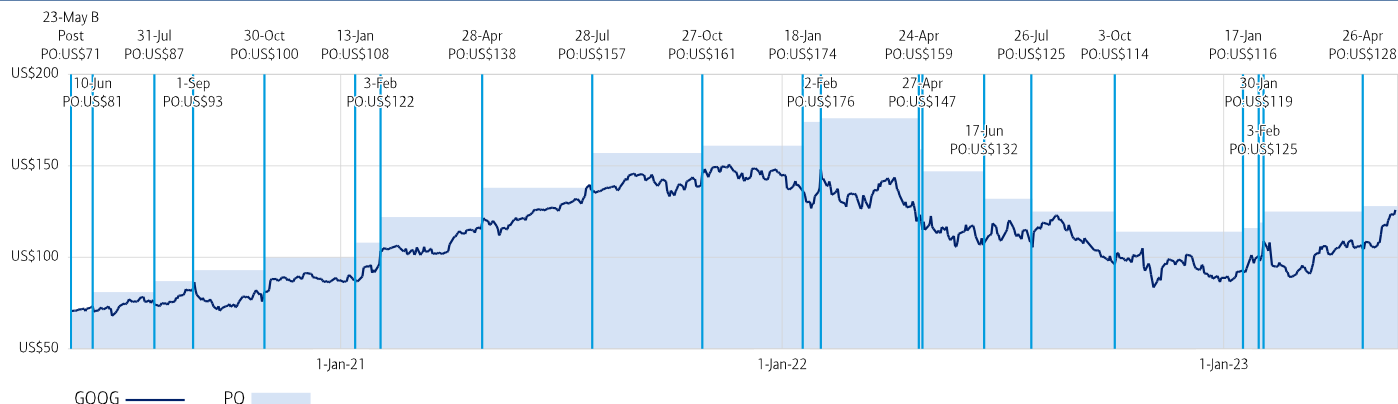
Alphabet A (GOOGL) Price Chart



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.

Alphabet C (GOOG) Price Chart



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

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Equity Investment Rating Distribution: Technology Group (as of 31 Mar 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	229	53.88%	Buy	107	46.72%
Hold	105	24.71%	Hold	50	47.62%
Sell	91	21.41%	Sell	29	31.87%

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

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	1869	53.01%	Buy	1030	55.11%
Hold	827	23.45%	Hold	476	57.56%
Sell	830	23.54%	Sell	389	46.87%

^{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.



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Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster ^{R2}
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

^{R2} Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

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