

Internet/e-Commerce

BofA Internet Advertising Indicator shows slight improvement in Feb

Industry Overview

BofA Internet Advertising Indicator improves to 0.15

The BofA Internet Advertising Indicator is a proprietary macro tool (using macro, consumer, and corporate factors) designed to identify inflection points and momentum in digital advertising revenue growth. In Feb'24, the indicator saw a marginal improvement and increased to 0.15 (vs 0.14 in Jan and 0.13 in Dec). The uptick was driven by improvement in consumer & macro factors, offset by decline in corporate.

Macro & consumer improved while corporate declined

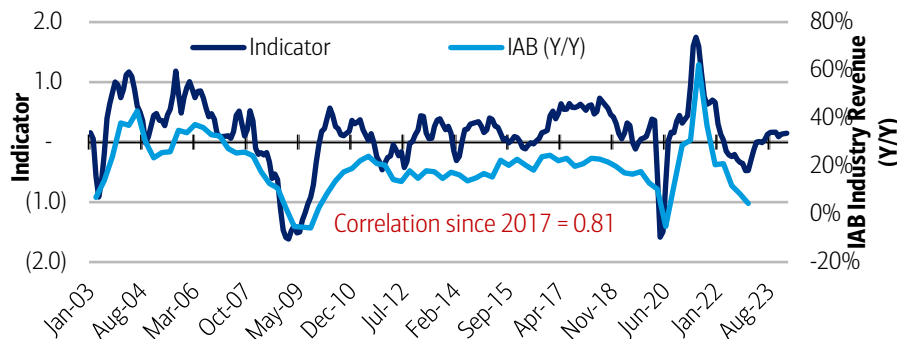
For macro, Fed's Weekly Economic Index reading increased 0.09pts m/m to 2.37 (positive), PMI increased 0.1pts m/m (positive) and avg. cash balance decreased 0.6pts m/m to 4.2% (positive), overall net positive. For consumer, BAC aggregated credit and debit card retail spend data, total indexed retail card spending per household increased 0.6% m/m (positive) and number of jobless claims was up 0.6% m/m to 1,906K (negative), overall net positive. For corporate, the number of US Business formation applications declined 14K m/m to 436K, net negative.

Feb data suggests improving digital ad market

Feb IAI reading suggests stable y/y growth for the basket. In 1Q'24, we project Meta's ex-FX ad revenue growth to accelerate 4pts to 25% y/y in 1Q driven by ramping Reels & messaging monetization & AI integrations improving advertiser ROI. We estimate Google Properties to grow 12% y/y (1pt q/q deceleration in y/y growth) which could be conservative given acceleration in competitor outlooks. For smaller platforms, we project stronger acceleration in y/y growth in 1Q, 4pts for Pinterest (comps and 3P deals benefit) and 9pts for Snap driven by easier comps and Snapchat+ ramp. Meta and Pinterest remain our top stocks for sector strength, though we think Google has positive near-term catalyst path from here.

Exhibit 1: BofA Internet Advertising Indicator vs. IAB industry revenue growth (y/y)

The BofA Internet Advertising Indicator improved to 0.15 in February.



Source: Interactive Advertising Bureau, BofA Predictive Analytics, BofA Global Research

The BofA Internet Advertising Indicator is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purpose, without the prior written consent of BofA Global Research. This indicator was not created to act as a benchmark.

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IAI: BofA Internet Advertising Indicator
IAB: Interactive Advertising Bureau
BAC: Bank of America
AI: Artificial Intelligence
ML: Machine Learning
FMS: Fund manager survey
PMI: Purchasing Managers' Index

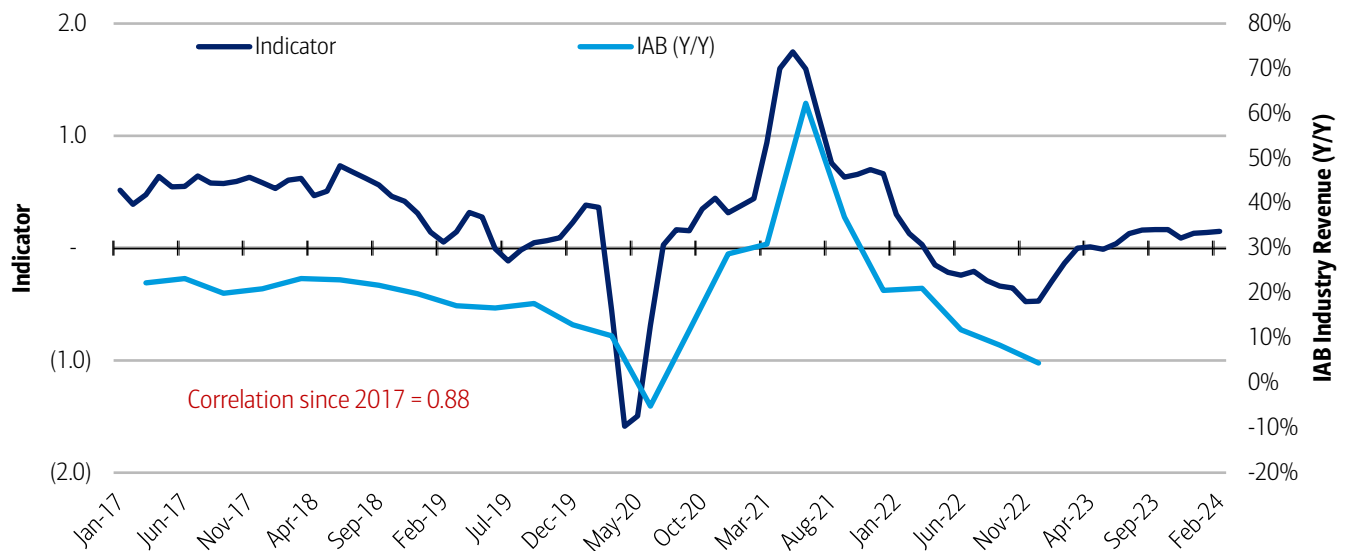
BofA's Internet Advertising Indicator

IAI continues to show marginal m/m improvement in February

The BofA Internet Advertising Indicator (IAI) is a 2-month rolling average of six, equally weighted inputs that we found to have a high correlation with Internet advertising revenues in aggregate (0.81 correlation with Interactive Advertising Bureau revenues since 2003 and 0.88 since 2017). In Feb'24, the indicator saw a marginal improvement and increased to 0.15 (vs 0.14 in Jan and 0.13 in Dec). The uptick in Feb was driven by improvement in consumer and macro factors, offset by a decline in corporate category.

Exhibit 2: BofA Internet Advertising Indicator vs. IAB industry revenue growth (y/y), from 1Q'17

In Feb, the indicator increased to 0.15 driven by improvement in the consumer & macro category offset by decline in corporate.



Source: Interactive Advertising Bureau, BofA Predictive Analytics, BofA Global Research

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BofA GLOBAL RESEARCH

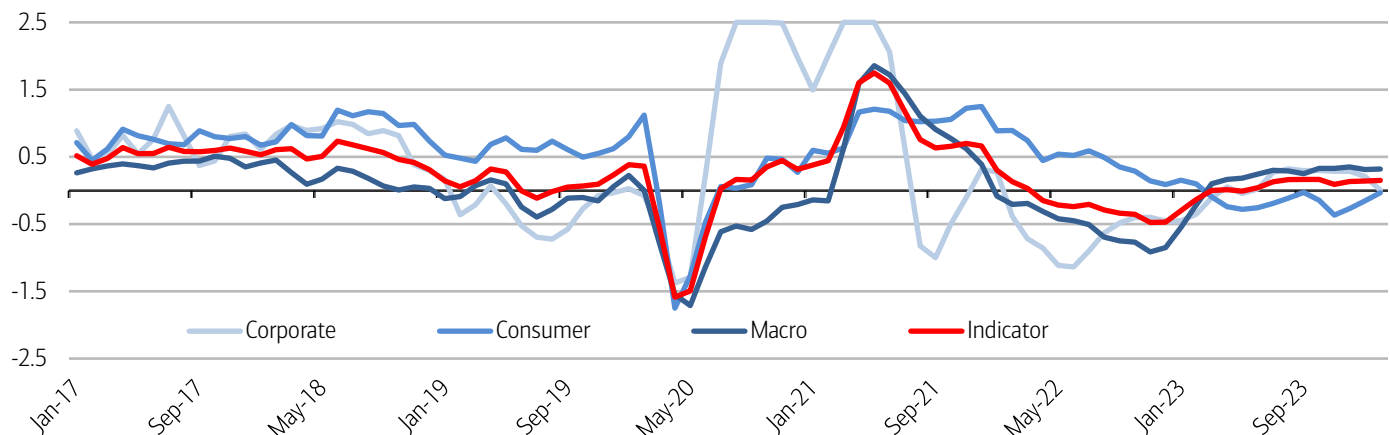
Macro & Consumer improved while corporate declined

In Feb, the Internet Advertising Indicator increased to 0.15 (vs 0.14 in Jan) driven by improvement in consumer & macro factors offset by decline in corporate category.

- Macro (3 factors):** In Feb, Fed's Weekly Economic Index reading increased 0.09pts m/m to 2.37 vs 2.28 in Jan (positive), PMI increased 0.1pts to 52.4 from 52.3 (positive), and avg. cash balance decreased to 4.2% from 4.8% in Jan (positive). Overall, the impact from macro factors was **net positive**.
- Consumer (2 factors):** According to BAC card data, total indexed retail card spending per household increased 0.6% m/m in February (positive) and number of jobless claims increased 0.6% m/m (up 11K m/m) to 1,906K (negative). Overall, the impact from consumer factors was **net positive**.
- Corporate (1 factor):** In February, the number of US Business Formation Applications declined 14K m/m to 436K. Overall, the impact from corporate factor was **net negative**.

Exhibit 3: Indicator values, by category

In February, consumer and macro factors improved, while corporate declined.



Source: Bloomberg, BofA Predictive Analytics, BofA Global Research

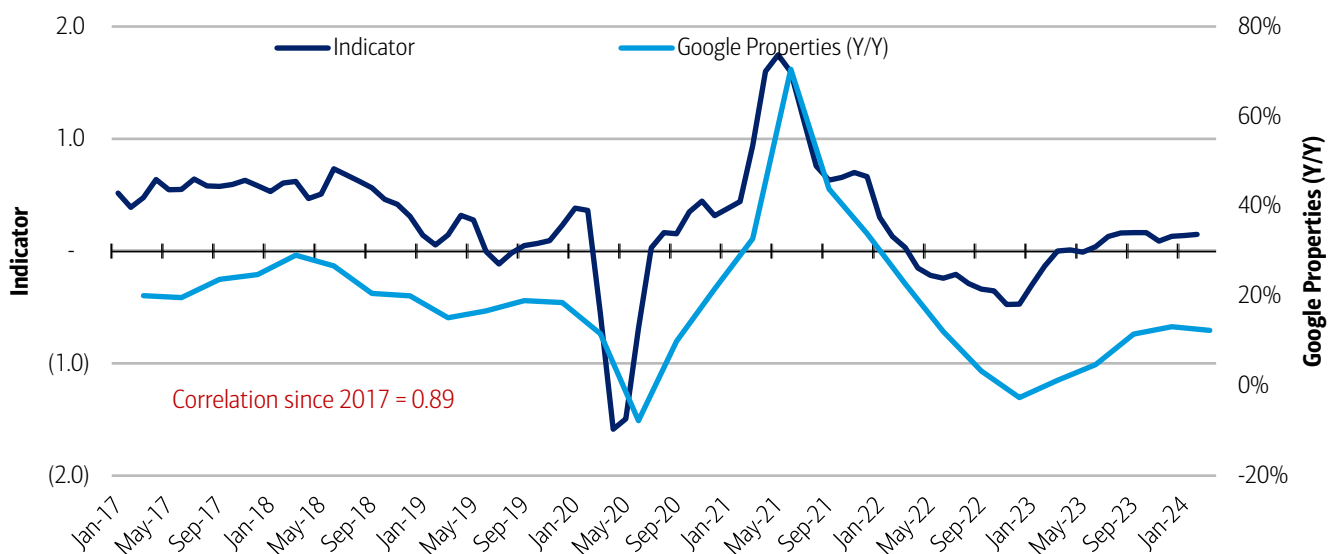
BofA GLOBAL RESEARCH

Google Properties (Search & YouTube)

According to our back-tested analysis, the BofA Internet Advertising Indicator has a 0.89 correlation since 2017 with global Google Properties Revenues, which includes Search and YouTube. Using data prior to 2017 had a lower 0.48 correlation, reflecting outsized growth of search, acquisitions, and bigger impact of Google's own product changes. February IAI data suggests stable growth for the sector. In 1Q'24, we estimate Google Properties revenue to grow 12% y/y (1pt deceleration vs 4Q'23) driven by potential AI tailwinds (increasing Performance Max adoption), offset by slightly tougher comps. For 1Q'24, we project Search growth to decelerate 1pt to 12% y/y and YouTube growth to accelerate 1pts to 17% y/y, and we think our Search estimate could be conservative given our IAI data and acceleration in competitor outlooks.

Exhibit 4: Internet Advertising Indicator vs. Google Properties revenue growth (y/y)

We project 1Q'24 Google properties revenue growth to decelerate 1pts to 12% y/y.



Source: Company reports, BofA Predictive Analytics, BofA Global Research

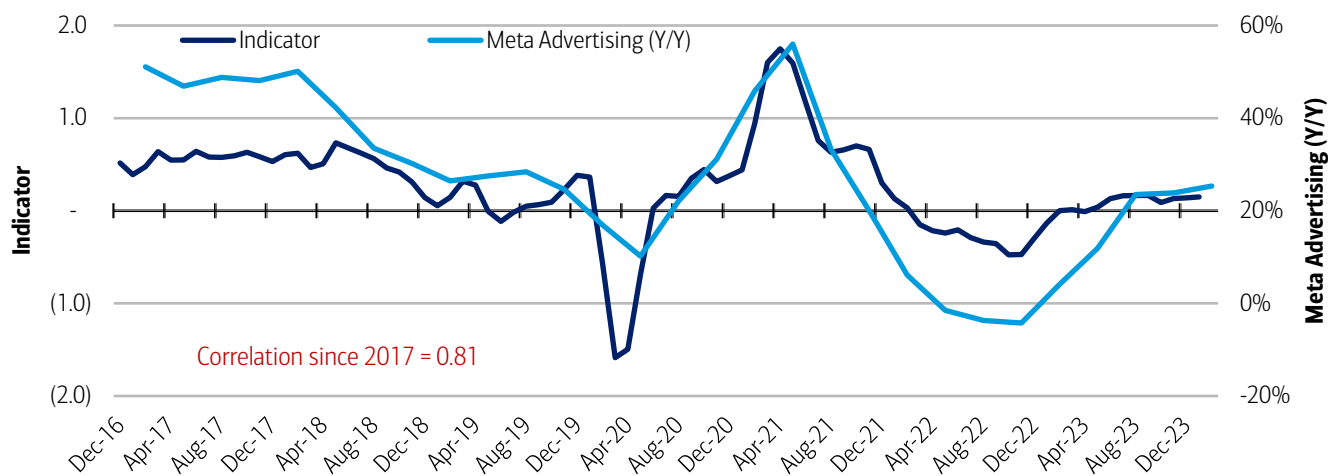
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Meta Advertising

The IAI has 0.81 correlation to Meta Advertising revenue since 2017. Using data prior to 2017 had a lower 0.29 correlation (since 2011) with rapid mobile advertiser adoption on Facebook likely skewing early correlations. We estimate Meta's ad revenue growth to accelerate 4pts ex-FX to 25% y/y in 1Q driven by ramping Reels and messaging monetization and AI integrations improving advertiser ROI & driving incremental ad spend on the platform. We view our Indicator rating consistent with our Meta estimates.

Exhibit 5: BofA's Internet Advertising Indicator vs. Meta advertising revenue growth (y/y)

We project 1Q Meta advertising revenue to grow 25% y/y (1pt acceleration vs 4Q'23).



Source: Company reports, BofA Predictive Analytics, BofA Global Research

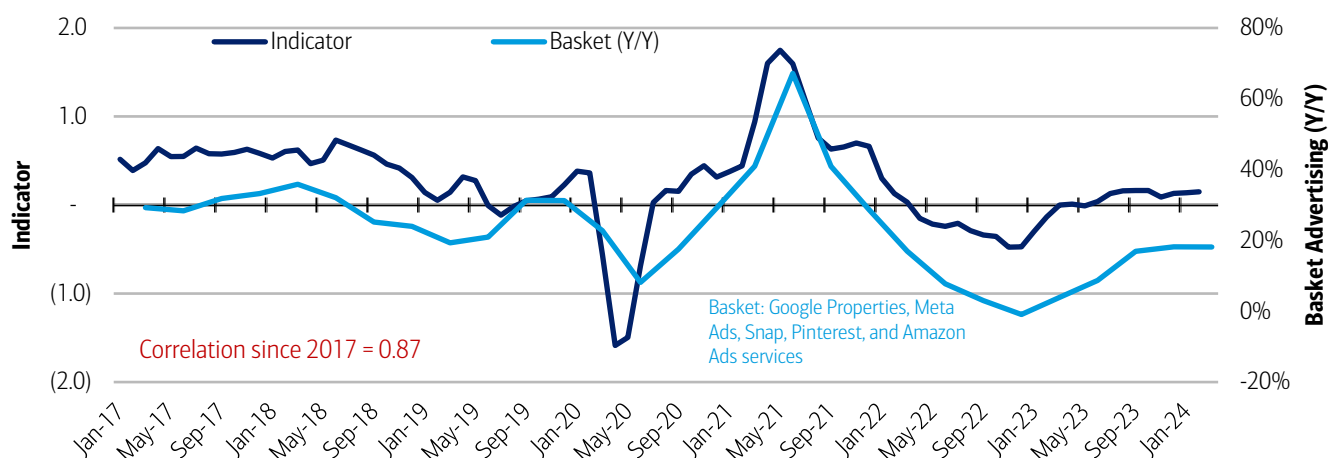
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Basket of Online Media (Revenue weighted)

The IAI has a correlation of 0.87 since 2017 with global ad revenue from a basket of Online media companies under coverage (**Google Properties, Meta Advertising, Snap, Pinterest, and Amazon advertising services**). We estimate US ad revenue from these companies represent approx. 85% of the total US Online advertising market. February IAI reading suggests improving growth trend for the basket. For 1Q'24, we project 4pts acceleration for Pinterest (3P deals benefit), and 9pts acceleration for Snap (driven by 7pts easier comp and Snapchat+ subscription service aiding growth).

Exhibit 6: BofA's Internet Advertising Indicator vs Basket of major advertisers' revenue growth (y/y)

Feb IAI reading suggests stable growth trend for the basket.



Source: Company reports, BofA Predictive Analytics, BofA Global Research

We measure respective segment revenues from time of earliest disclosure; Google Properties (1Q'03), Meta Ads (1Q'10), Snap (1Q'15), Pinterest (1Q'17), and Amazon advertising (3Q'19).

BofA GLOBAL RESEARCH

Components of the Indicator Advertising Indicator

We worked with our Predictive Analytics team to analyze over 50 data series to create a proprietary indicator for the digital advertising revenue growth of major US Online media. We tested each variable with different lag periods to determine the best fit and identified six variables that are not only intuitive drivers of advertising activity, but also have high correlation with industry revenue growth reported by IAB over the past 20 years. The selected variables are published weekly or monthly and can be broadly classified into three categories: **US consumer health and activity** (BAC total retail card spend per household, US Continuing Jobless Claims), **US corporate sentiment** (US Business Applications), and **US/global economic outlook** (Global Services PMI, Weekly Economic Index, and FMS average cash balance as % of AUM).

The BofA Internet Advertising Indicator is constructed by taking an equal-weighted average of the 2-month moving average z-scores of the six input variables. Our back-test analysis indicates that these six variables in aggregate have a strong correlation with IAB revenue growth, and we believe the IAI readings can be an effective proxy to gauge concurrent industry growth. As a best practice, we believe the IAI should be viewed in context of several quarters, and general directionality, rather than focusing solely on monthly readings that can fluctuate.

Exhibit 7: Components of the BofA Digital Advertising Indicator

The Digital Advertising Indicator is comprised of six components

Component	Source	Measure of:	Inclusion date
BAC Total Retail Card Spend per Household (y/y %)	BAC Internal Data	US retail spend	Jan-06
US Continuing Jobless Claims*	US Dept. of Labor, Bloomberg	US labor market health	Jan-03
US Business Applications	US Census Bureau, Bloomberg	US corporate sentiment	Jul-05
New York Fed Weekly Economic Index (WEI)	FRB New York, Bloomberg	US real economic activity	Jul-08
Global Services Purchasing Managers' Index	S&P Global, Bloomberg	Global business services outlook	Jan-03
BofA Global FMS average cash balance (% of AUM)*	BofA Global Research	Global investor risk appetite	Jan-03

Source: BofA Global Research

*Inversely correlated with IAB industry revenue growth

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US consumer health and activity

BAC aggregated credit and debit card retail spend is based on aggregated and anonymized transaction data that is used to track US Retail Sales. Readers should be aware that although the BAC datasets utilized in our analysis represent a significant number of data points, they nevertheless present a degree of selection bias, including but not limited to income levels and geographies. In addition, the data are limited to debit and credit cards and does not include other payment methods such as cash or checks. BAC data used in this report include spending from active US households (HHs) only. Spending from corporate cards is excluded. For more information on the methodology, disclaimers and limitations regarding BAC US aggregated credit and debit card data please see latest [BofA on USA](#).

US Continuing Jobless Claims tracks the total number of US residents who have filed jobless claims with the appropriate government labor office in a given week, typically to receive unemployment benefits. It reflects a good approximation of the current number of insured unemployed workers filing for unemployment insurance benefits, thereby providing confirming evidence of the direction of the U.S. economy.

US corporate sentiment

US Business Formation Applications (BFS) provide high frequency information on new business applications and formations in the US. BFS data cover Employer Identification Number (EIN) applications made in the US, including those associated with



starting a new employer business. Business Application contains 4 filtered series of EIN applications, viz. Business Applications (BA), High-Propensity Business Applications (HBA), Business Applications with Planned Wages (WBA), and Business Applications from Corporations (CBA), measuring selected groupings based on a variety of factors.

The BofA Internet Advertising Indicator takes an additional 2-month moving average from BFS, which, according to our back-test, increases Indicator correlation with IAB revenue growth and smooths volatility.

US/global economic outlook

New York Fed Weekly Economic Index (WEI) is an index of ten indicators of real economic activity, scaled to align with the four-quarter GDP growth rate. It represents the common component of series covering consumer behavior, the labor market, and production.

Global Services Purchasing Managers' Index (PMI) is a survey-based diffusion index covering financial services, consumer services, and all other business services, providing a timely insight into business conditions. It is widely used to anticipate changing economic trends in official data such as GDP, or sometimes as an alternative gauge of economic performance and business conditions to official data. It is calculated by weighting together individual country indices using national services GDP weights (annual value added) for over 40 countries, accounting for 89% of global gross domestic product (GDP).

BofA Global Fund Manager Survey (FMS) average cash balance gauges investor risk appetite by capturing the average cash holdings of the participants in the survey. Higher cash balances reflect low risk appetite, and by extension, lower propensity to spend, and vice-versa. See latest [Global Fund Manager Survey](#).

Disclaimers, Risks, and Limitations

Risks and limitations of the Internet Advertising Indicator

The composition of our indicator is subject to review and may change in the future. We may monitor the continued relevance, availability, and timing of each variable and evaluate the inclusion of additional data series and reserve the right to modify the Indicator, though do not intend to make frequent changes. Equal weighting of variables could overlook potential disproportionate impact from certain variables. Changes in these inputs may significantly impact the Indicator.

The Indicator may inform our ratings and views on the Internet advertising industry, though should not be solely relied on for investment decisions. It is not intended to be indicative of actual or future performance.

Limitations and disclosures of the revenue Basket

Our Basket of industry revenues is comprised of a sum of ad revenue from five companies under coverage, including Google Properties, Meta Advertising, Snap, Pinterest, and Amazon advertising segment. We estimate the combined ad revenues currently represent approximately 85% of the Online ad market in the United States.

The Basket is a sum of the advertising revenues from BofA Global Research's internal models for each company, an incorporates segment revenue starting when disclosures are available, up to 2003. Data used in the Indicator is available from Google Properties starting 1Q'03, Meta Advertising in 1Q'10, Snap in 1Q'15, Pinterest in 1Q'17, and Amazon advertising in 3Q'19. As such, the Basket may not be an accurate representation of aggregate revenues from all companies since 2003, or before a respective company began reporting segment revenues.

BAC credit and debit card data disclaimer and methodology

Bank of America ("BAC") transaction data is used to inform views expressed in this report and should be considered in the context of other economic indicators and publicly available information. In certain instances, the data may provide directional and/or predictive value. The data used are not comprehensive; they are based on aggregated and anonymized selections of BAC data and may reflect a degree of selection bias and limitations on the data available.

Readers should be aware that although the BAC datasets utilized in our analysis represent a significant number of data points, they nevertheless present a degree of selection bias, including but not limited to income levels and geographies. In addition, the data is limited to debit and credit cards and does not include other payment methods such as cash or checks. BAC data used in this report include spending from active US households (HHs) only. Spending from corporate cards is excluded.

Additional information about the methodology used to aggregate the data is available upon request.



Exhibit 8: Stocks mentioned

Prices and ratings for stocks mentioned in this report

BofA Ticker	Bloomberg ticker	Company name	Price	Rating
GOOGL	GOOGL US	Alphabet A	US\$ 149.96	B-1-9
GOOG	GOOG US	Alphabet C	US\$ 150.82	B-1-9
AMZN	AMZN US	Amazon.com	US\$ 174.42	B-1-9
META	META US	Meta Platforms	US\$ 484.1	C-1-7
PINS	PINS US	Pinterest	US\$ 34.19	C-1-9
SNAP	SNAP US	Snap Inc	US\$ 11.19	C-2-9

Source: BofA Global Research

BofA GLOBAL RESEARCH

Price objective basis & risk

Alphabet (GOOGL / GOOG)

Our price objective of \$173/\$173 is based on 21x 2025E core Google GAAP EPS plus cash. Alphabet has traded at an average multiple of 22x GAAP P/E over the last ten years and we think our multiple is reasonable vs history given expectations for double-digit revenue growth, Cloud margin expansion, and opportunity to capitalize on strong AI assets.

Risks for the stock are 1) loss of search traffic to AI tools from competitors, 2) LLM integration in search may take longer than expected or negatively impact search revenues, 3) revenue pressure from compliance with the EU Digital Markets Act (DMA), 4) adverse judge ruling on the ongoing Department of Justice (DOJ) search distribution trial, 5) potential for increasing Capex and lower FCF-given AI focus.

Amazon.com (AMZN)

Our PO of \$204 is based on our SOTP analysis that values the 1P retail business at 1.1x 2025E Revenue (including subscription/Prime membership fees), 3P retail business at 2.6x 2025E Revenue, AWS at 8.0x 2025 Sales, and the advertising business at 5.0x 2025 Sales. For 2025E, our 8.0x AWS multiple is relatively below our SaaS comps at 8.9x, our 1.1x GMV multiple is a slight discount to our retail comps at 1.2x, and our 5.0x advertising multiple is a slight discount to our digital advertising comps at 5.2x. We think some conglomerate discount is warranted with elevated regulatory/antitrust risk, but long-term we believe that in-line to discount multiples are warranted given growth rates in-excess of peers.

Our PO of \$204 for Amazon implies 3.0x P/Sales, a multiple toward the high end of Amazon's historical range of 1.0-3.5x. With improving margins long-term, we expect the revenue multiple should trend upward over time.

Downside risks to our price objective are increasing competition from offline and local retailers, AWS client cost optimization impact on revenues and margins, and regulatory pressure on the 3P marketplace. The stock has been subject to heavy volatility in the past, based on margin trends, and this volatility could increase due to economic uncertainty.

Meta Platforms Inc (META)

Our \$510 price objective is based on 21x 2025E GAAP EPS, plus net cash. On a total company basis, including Metaverse investments, our valuation is largely in line with S&P 500 (over the past five years Meta has had a 2pt average premium to S&P). We think accelerating revenue growth and conservative expense management can lead to 3-year EPS growth above the S&P 500.

Downside risks are decline in user activity from competition, privacy or data issues impact revenue generation, potential for Street to assign a negative value to Metaverse (Reality Labs) given significant investments, and new regulations that impact monetization.

Pinterest (PINS)

Our \$42 price objective is based on 6.0x 2024E EV/Revenue, within Pinterest's historical EV/Revenue valuation range and below its 8x 10-year average. Our valuation reflects a premium to peer group multiples given early stage of monetization and 30%+ margin opportunity.

Risks to our PO are: 1) US user growth below peers, 2) seemingly high ad loads, could limit 3rd party partner benefits, 3) heavy competition for both general usage and shopping activity, 4) high cost of AI infrastructure, and 5) multiple compression given high SBC expense.

Snap (SNAP)

Our \$16 price objective is based on 4.5x 2025E EV/Revenue, within Snap's historical EV/Revenue valuation range. Our valuation reflects a modest discount to mid-cap Online media peer group multiples given lower relative growth, high revenue volatility and lower FCF including SBC expense.

Risks to our PO are 1) deceleration in user growth that would raise concerns on long-term revenue opportunity, 2) pressure on usage due to competing services, 3) valuation that has less earnings based support than peers and 4) high SBC expense that could lower valuation multiples.

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				
	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
	DoorDash	DASH	DASH US	Michael McGovern
	DoubleVerify Holdings, Inc.	DV	DV US	Omar Dessouky, CFA
	Electronic Arts	EA	EA US	Omar Dessouky, CFA
	Integral Ad Science Holding Corp.	IAS	IAS US	Omar Dessouky, CFA
	LegalZoom	LZ	LZ US	Michael McGovern
	Match Group	MTCH	MTCH US	Curtis Nagle, CFA
	Meta Platforms Inc	META	META US	Justin Post
	Pinterest	PINS	PINS US	Justin Post
	RH	RH	RH US	Curtis Nagle, CFA
	Roblox Corp. Class A	RBLX	RBLX US	Omar Dessouky, CFA
	Squarespace, Inc.	SQSP	SQSP US	Michael McGovern
	Uber	UBER	UBER US	Justin Post
	Udemy Inc	UDMY	UDMY US	Curtis Nagle, CFA
	Vivid Seats	SEAT	SEAT US	Curtis Nagle, CFA
	Wayfair	W	W US	Curtis Nagle, CFA
	Wix.com	WIX	WIX US	Michael McGovern
NEUTRAL				
	ACV Auctions	ACVA	ACVA US	Curtis Nagle, CFA
	Airbnb	ABNB	ABNB US	Justin Post
	Beyond Inc	BYON	BYON US	Curtis Nagle, CFA
	Booking Holdings Inc	BKNG	BKNG US	Justin Post
	Bumble	BMBL	BMBL US	Curtis Nagle, CFA
	Digital Turbine, Inc	APPS	APPS US	Omar Dessouky, CFA
	Duolingo	DUOL	DUOL US	Curtis Nagle, CFA
	eBay	EBAY	EBAY US	Justin Post
	Etsy, Inc.	ETSY	ETSY US	Curtis Nagle, CFA
	Expedia	EXPE	EXPE US	Justin Post
	Instacart	CART	CART US	Justin Post
	Magnite, Inc.	MGNI	MGNI US	Omar Dessouky, CFA
	Snap	SNAP	SNAP US	Justin Post
	Take-Two Interactive	TTWO	TTWO US	Omar Dessouky, CFA
	Zillow	ZG	ZG US	Curtis Nagle, CFA
	Zillow	Z	Z US	Curtis Nagle, CFA
UNDERPERFORM				
	Chewy Inc	CHWY	CHWY US	Curtis Nagle, CFA
	Lyft, Inc.	LYFT	LYFT US	Michael McGovern
	Opendoor Technologies	OPEN	OPEN US	Curtis Nagle, CFA
	Peloton	PTON	PTON US	Curtis Nagle, CFA
	Playtika	PLTK	PLTK US	Omar Dessouky, CFA
	Redfin Corp	RDFN	RDFN US	Curtis Nagle, CFA
	Shutterstock	SSTK	SSTK US	Curtis Nagle, CFA

Disclosures

Important Disclosures

Equity Investment Rating Distribution: Media & Entertainment Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	35	53.85%	Buy	15	42.86%
Hold	15	23.08%	Hold	8	53.33%
Sell	15	23.08%	Sell	7	46.67%

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.

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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.

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.

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BofAS or an affiliate has received compensation from the issuer for non-investment banking services or products within the past 12 months: Alphabet, Amazon.com, Meta Platforms, Pinterest, Snap Inc.

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BofAS or an affiliate has received compensation for investment banking services from this issuer within the past 12 months: Alphabet, Amazon.com, Meta Platforms, Snap Inc.

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