

Internet/e-Commerce

2024 Online Media Year Ahead

Price Objective Change

Improving macro, AI & SFV to drive sector growth

2023 was a year of recovery for the Online media sector after significant spending cutbacks and ATT changes weighed on growth in 2022. Global ad spend grew an est. 11% to \$560bn above our initial \$528bn est. (5% y/y). In the US, with a stabilizing macro environment and resilient consumer, the digital ad market growth was above our estimates, up 11% vs our prior 4% est., to \$234bn, with 69% ad sector penetration (up 4pts vs 2022). For 2024, aided by an improving macro, increasing SFV monetization, AI driven improvements in ad targeting & measurement, and targeting execution at GOOG/META, we expect Global industry growth to accelerate 1 point to 12%.

Top sector themes for 2024

In addition to a stable Global economic outlook with 2.8% GDP growth, top 2024 themes include: 1) Ramping SFV monetization (Reels, Shorts, Spotlight), 2) AI/ML investments improve ad performance, 3) Evolution of LLM based search results (new Google search features, potential competition from Open AI, Meta, etc.), 4) New social media + eCommerce partnerships, and 5) US Elections and Olympics to provide modest boost to growth. 2024 will be an exciting year for products, including AI/ML tech (GOOG and META), short-form video monetization (META, SNAP and GOOG), DR improvements (SNAP and PINS), shopping integrations (META, PINS, SNAP), and SVOD ad ramp to capture linear TV dollars, driving US Online penetration to 74%.

Risks: Platforms changes, regulation and competition

2024 risks include: 1) Platform privacy changes with Google cookies phase out and implementation of privacy sandbox, 2) Emerging competition for digital ad spend from eCommerce platforms (Amazon, Walmart), SVODs and TikTok, 3) Saturation (slowing growth) in Online ad spend, 4) New data use limitations and other regulatory uncertainty (Antitrust litigations, DMA and DSA in Europe, etc.), and 5) Potential new capex and margin pressure with growing Gen-AI focus across the group.

Prefer Meta in large-cap and Pinterest in small-cap

For 2024, we think recession probability is most important driver for the group (driving relative & large cap vs small cap performance), but product cycles, growth/market share outlook, mgmt. discipline to grow margins, and valuations will be major drivers of stock returns. US Online media group valuation at 5.7x forward year EV/Rev is 22% below 10yr average of 7.3x with large caps at 5.8x (avg. at 6.8x), and small caps at 5.7x (avg. at 8.3x). Among large caps, we prefer Meta for the ongoing Reels monetization cycle, along with: 1) solid overall usage trends around video, 2) under-appreciated AI capabilities (that are driving usage and ad spend), and 3) ramping monetization of messaging assets. For mid-caps. we recently upgraded, and prefer, Pinterest given: 1) biggest accel. catalyst in 1H'24 with Amazon deal ramp, 2) strong expense discipline that should lead to further margin/EBITDA upside, and 3) exposure to a rebound in depressed home furnishing ad category. We are raising our POs as we roll forward our valuation basis to 2025 ests. We are raising GOOG/GOOGL PO to \$166/\$166 from \$149/\$149, Meta to \$405 from \$384, Pinterest to \$42 from \$37 and Snap to \$16 from \$11.

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Equity
United States

Justin Post
Research Analyst
BofAS
+1 415 676 3547
justin.post@bofa.com

Nitin Bansal, CFA
Research Analyst
BofAS
+1 415 676 3551
nbansal7@bofa.com

DR: Direct Response
AI: Artificial Intelligence
ML: Machine Learning
ATT: App Tracking Transparency
LLM: Large Language Model
SFV: Short form video
SVOD: Subscription video on demand
DMA: Digital Markets Act
DSA: Digital Services Act

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Internet Media 2024 Year Ahead

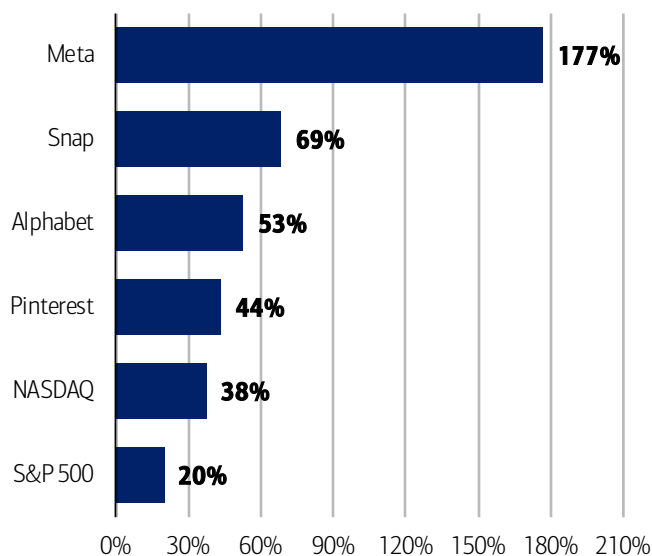
2023 was a year of recovery for the Online media after significant spending cutbacks and IDFA headwinds impacted spend in 2022. With declining inflation and an improving macroeconomic outlook advertiser sentiment steadily improved throughout the year and the Global Online ad industry, including China, grew 11% y/y, above our estimates entering the year at 5%, to reach \$560bn. In addition to more resilient consumer spending than expected (strength in eCommerce & retail vertical), AI/ML integrations and new ad conversion tracking technology drove higher ROI and incremental ad spend. Finally higher monetization of short form video and US\$ depreciation aided industry growth on a US\$ basis. Growth in most regions exceed our initial expectations: US estimated growth in '23 is now at 11% y/y (prior 4%), Western Europe 11% y/y (vs prior -1%) and Asia Pacific (ex-China) 15% y/y (prior 7%). Looking forward to 2024, we expect global online ad industry to grow 12% y/y to \$629bn, with growth aided by AI/ML integrations driving higher ROI and incremental ad spend, ramping short-form video monetization, and growing digital penetration as linear TV usage continues to decline.

Following significant underperformance in 2022, all major US ad platforms have had positive 2023 YTD returns. A key question for 2024 is if small caps can outperform large caps as outlook changes to a more accommodative fed and lower interest rates.

Meta had the largest rebound in 2023 (up 177% YTD) driven by strong cost discipline, ramping Reels and messaging monetization and growing optimism on AI/ML capabilities. Google (up 53% YTD) benefited from a recovery in the ad market, reduced threat of disruption from ChatGPT, and new product launches reaffirming AI positioning. Snap rebounded (up 69% YTD) on optimism regarding growing traction of company's DR solutions. Pinterest is up 44% YTD driven by recent acceleration in growth and optimism on further acceleration/margin expansion in 1H'24 as the Amazon deal ramps.

Exhibit 1: Stock Performance (YTD 2023)

Meta outperformed the group YTD 2023.

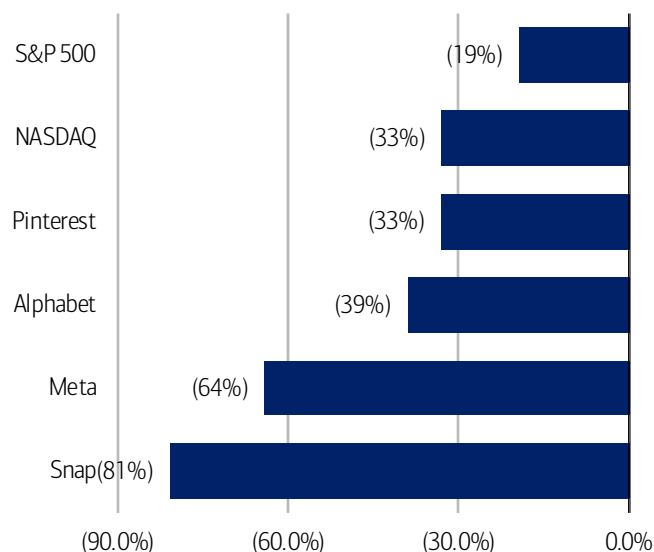


Source: BofA Global Research, Bloomberg

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Exhibit 2: Stock Performance (2022)

Pinterest outperformed the group in 2022.



Source: BofA Global Research, Bloomberg

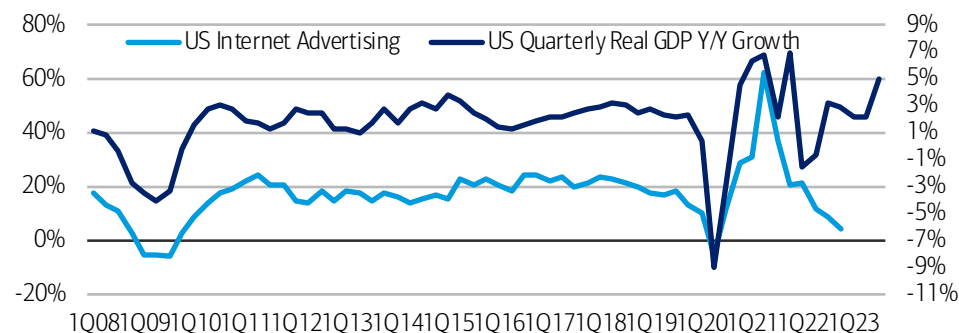
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Looking forward to 2024, our BofA economists expect a soft landing globally and worldwide GDP to grow 2.8% y/y (vs 3.0% in 2023). In the US, BofA expects gradual disinflation and a slowdown in employment with GDP growth at 1.4% (vs 2.4% in 2023), which could allow the Fed to start cutting rates by mid-year. For Eurozone, BofA expect dynamics to remain weak, while the China economy is expected to improve on the back of concerted stimulus action. Historical data suggests Online advertising industry growth and GDP have a high correlation, so we expect steady growth for the online media

industry in 2024 and, if financial conditions ease (as inflation and interest rates come down), there is also potential for stock multiple expansion. Macro risks include: tightening fiscal policy in 2023 leads to downside in GDP growth in 2024, geopolitical conflicts impact consumer/advertiser sentiment, and regulatory changes in the US/Europe impact ad targeting capabilities.

Exhibit 3: US quarterly GDP growth (y/y) vs US internet advertising

Historical correlation between US GDP growth and digital ad spend per IAB is ~81%.



Source: BofA Global Research, IAB (quarterly estimates for 2023 not provided until 2024)

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Digital spend is now the top driver of global ad market and is expected to continue take share from traditional media. For 2024, aided by increasing monetization of short form video and AI driven improved ad targeting, we expect global digital ad spending to grow 12% y/y to \$629bn. US is the biggest online ad markets and is expected to grow in line with the global market. Given current FX rates and BofA estimates, we estimate FX will be modest sector tailwind in 2024. Risks for the sector, in addition to macro risks above, include: 1) Google Cookie phase out and Android platform changes, 2) Online time spent and ad dollar saturation, and 3) New AI-driven capex cycle.

Exhibit 4: Global Internet Advertising Spend (\$mn)

We estimate 12% Global internet advertising spend in 2024, and strong Online ad growth to help drive 6% total ad growth.

Global Internet Advertising Spending by Region								
in \$ millions	2018	2019	2020	2021	2022	2023E	2024E	2025E
United States	\$105,365	\$127,730	\$146,930	\$197,977	\$213,544	\$235,994	\$263,699	\$293,531
Y/Y Change	20%	21%	15%	35%	8%	11%	12%	11%
Share	40%	41%	41%	42%	42%	42%	42%	42%
Canada	\$6,013	\$7,336	\$8,509	\$11,062	\$12,168	\$13,628	\$15,400	\$17,248
Y/Y Change	19%	22%	16%	30%	10%	12%	13%	12%
Share	2.3%	2.3%	2.4%	2.3%	2.4%	2.4%	2.4%	2.5%
Western Europe	\$54,378	\$62,630	\$68,764	\$97,873	\$97,410	\$108,498	\$121,161	\$132,501
Y/Y Change	13%	15%	10%	42%	3%	11%	12%	9%
Share	21%	20%	19%	21%	19%	19%	19%	19%
China	\$42,110	\$53,047	\$62,051	\$78,933	\$80,512	\$86,147	\$93,901	\$102,727
Y/Y Change	40%	26%	17%	27%	2%	7%	9%	9%
Share	16.1%	16.9%	17.3%	16.6%	16.0%	15.4%	14.9%	14.6%
Asia Pacific (ex-China)	\$36,401	\$42,933	\$47,226	\$55,335	\$61,422	\$70,635	\$81,937	\$94,227
Y/Y Change	18%	18%	10%	17%	11%	15%	16%	15%
Share	13.9%	13.6%	13.1%	11.7%	12.2%	12.6%	13.0%	13.4%
Central and Eastern Europe	\$5,683	\$6,655	\$7,321	\$9,151	\$8,968	\$9,327	\$9,886	\$10,381
Y/Y Change	19%	17%	10%	25%	(2%)	4%	6%	5%
Share	2.2%	2.1%	2.0%	1.9%	1.8%	1.7%	1.6%	1.5%
Other (Middle East and Latin America)	\$11,386	\$14,232	\$18,359	\$24,418	\$28,813	\$35,152	\$43,237	\$52,749
Y/Y Change	27%	25%	29%	33%	18%	22%	23%	22%
Share	4.4%	4.5%	5.1%	5.1%	5.7%	6.3%	6.9%	7.5%
Global Internet Advertising Spending	\$261,336	\$314,563	\$359,160	\$474,749	\$502,837	\$559,381	\$629,221	\$703,364
Y/Y Change	21%	20%	14%	32%	6%	11%	12%	12%
Global Total Major Media Advertising Spending	\$565,177	\$621,694	\$658,996	\$777,615	\$793,168	\$832,826	\$882,795	\$935,763
Y/Y Change	3%	10%	6%	18%	2%	5%	6%	6%
Online Share	46%	51%	55%	61%	63%	67%	71%	75%

Source: BofA Global Research, eMarketer, Magna, Denstu and Zenith

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In addition to global economic activity, there are several other drivers that that could impact Online advertising spend in 2024 including:

- **Evolution of LLM based search results:** Since the launch of ChatGPT, Internet search has experienced a rapid evolution. Bing has partnered with Open AI to power search queries, while Google has introduced a number of new products to enhance user experiences and a potential AI competition has developed from Open AI and Meta. We expect greater LLM integration into Search in 2024 and believe it can increase volumes (new use cases) and result in more relevant ads with higher click rates. This can potentially drive an increase in search monetization and benefit Google with natural advantages for mobile including distribution and a larger feedback loop.
- **Growing role of AI/ML capabilities:** With growing limitations on user data collection, major online media platforms are making massive investments in AI/ML capabilities that should drive improving content and ad targeting. AI integrations is boosting ad spend at major platforms through campaign optimization, creative enhancement, and media buyer cost savings. Pinterest is also developing an automated solution (expected launch in 2024) that will help advertisers manage and optimize their Pinterest ad campaigns with less effort.
- **Ramping Short-form video monetization:** Major online platforms including Meta, YouTube and Snap are increasingly directing users to SFV content which is driving both incremental usage and cannibalization of existing features. In 2024, we expect SFV monetization to switch from a headwind to tailwind to revenue growth as companies enable more advertising around SFV content.
- **Social commerce and industry partnerships:** As time spent on social media platforms continues to grow, social platforms are playing an increasingly important role in consumer journey from research to buying products online. The industry (including Meta, Google and Pinterest) has gone through strategy shift from trying to aggregate seller products and complete sales/bookings on platform, back to lead generation/partnership models. Industry partnerships with Amazon and likely other retailers can accelerate ad spend by reducing buyer friction and increasing advertising conversion rates. Relative to its scale, we believe Pinterest has the opportunity for biggest incremental change from increasing shopping activity on the platform.
- **US Elections and Olympics:** In 2024, Olympics in 3Q and US Presidential elections in 4Q will provide modest benefit to global digital ad spending. Major sports events such as Olympics offer advertisers unique opportunity to capitalize on heightened attention, engagement, and audience reach while political ad spending in US sees a substantial uptick during presidential election years. While traditional media such as linear TV and local television still account for dominant share of spend during the two events (given the extensive coverage by broadcasting networks), digital platforms are becoming increasingly integral to these events & seeing increasing % of budgets.

US Online Advertising Trends

Advertising dollars generally follow user engagement and data from eMarketer suggests that US adult average online time spent per day has increased from 7.0 hours in 2021 to 7.6 hours in 2023, representing roughly 62% of total media time (multiple media can be consumed at the same time). Looking ahead, time spent on digital media as a percentage of total time spent is expected to increase 1pts in 2024 to 63%.

Within digital, mobile video (7% CAGR) and social networks (5% CAGR) continue to be on the highest growth trajectory, with mobile time spent growing at 3% CAGR (21-23). Looking specifically at 2024, mobile is expected to see the biggest absolute time increase at roughly 5mins per day, with ad supported linear TV expected to see the biggest decline (down roughly 7mins per day). Total desktop usage has declined since 2016, now at 1.12 hours and is expected to decline at 4% y/y annually through 2025. All in, time spent on digital is expected to continue grow at 3% CAGR (23-25) fueled by mobile growth, while time spent on traditional media is expected to decline at 3% CAGR led by linear TV (down 4%) and Print (down 3% y/y).

Exhibit 5: Daily Average Time Spent by Media in US (Hours)

Time spent on digital media is expected to grow at 3% CAGR (2023-25).

Media Type (Hrs)	2021	2022	2023	2024	2025	CAGR	
						2021-23	2023-25
Digital	7.02	7.32	7.57	7.77	7.97	4%	3%
Mobile	3.62	3.75	3.83	3.92	3.98	3%	2%
Audio	0.67	0.68	0.70	0.72	0.72	2%	1%
Social Networks	1.10	1.17	1.22	1.23	1.27	5%	2%
Video	1.10	1.20	1.27	1.32	1.33	7%	3%
Other	0.55	0.58	0.60	0.62	0.63	4%	3%
Desktop	1.22	1.17	1.12	1.08	1.03	(4%)	(4%)
Video	0.33	0.33	0.33	0.33	0.32	0%	(3%)
Audio	0.23	0.20	0.18	0.17	0.15	(11%)	(10%)
Social Networks	0.15	0.15	0.15	0.13	0.13	0%	(6%)
Other Connected Devices	0.62	0.65	0.70	0.73	0.75	7%	4%
Traditional Media	5.00	4.88	4.62	4.70	4.30	(4%)	(3%)
TV	3.27	3.15	2.92	2.80	2.67	(6%)	(4%)
Radio	1.40	1.38	1.35	1.33	1.30	(2%)	(2%)
Print	0.30	0.28	0.28	0.27	0.27	(3%)	(3%)
Newspaper	0.17	0.15	0.15	0.13	0.13	(5%)	(6%)
Magazines	0.13	0.13	0.13	0.13	0.13	0%	0%
Other	0.05	0.07	0.07	0.07	0.07	15%	0%
Total Hours	12.02	12.20	12.18	12.23	12.27	0.7%	0.3%
<i>Digital as % of Total</i>	<i>58%</i>	<i>60%</i>	<i>62%</i>	<i>63%</i>	<i>65%</i>		

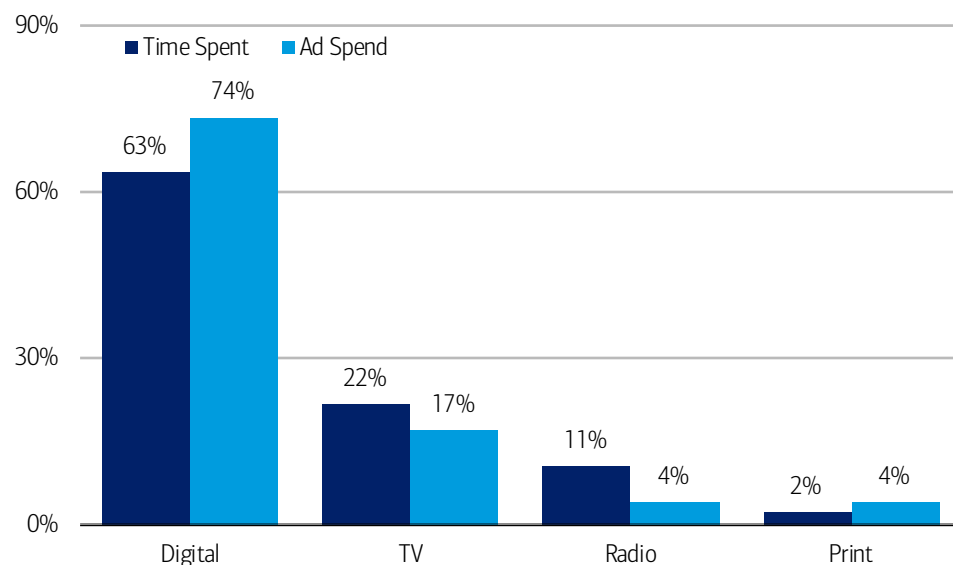
Source: eMarketer

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In 2024, we expect gap between time spent share and advertising spend share on digital media to grow, with advertising spend growth exceeding time spent growth. Digital advertising spend is expected to exceed overall digital time share by approximately 11pts (vs 7pts in 2023). We see 2 drivers of this gap. First, we believe search advertising is somewhat incremental to the total advertising industry, more of a COGS for internet traffic and less in competition for traditional brand awareness. Second, Online advertising offers superior targeting and measurement than traditional ad formats, which can result in disproportional market share for digital.

Exhibit 6: Digital Ad Spend vs Time Spent Share in US (2024E)

In 2024, digital ad spend share is expected to exceed time share by approximately 11 pts.



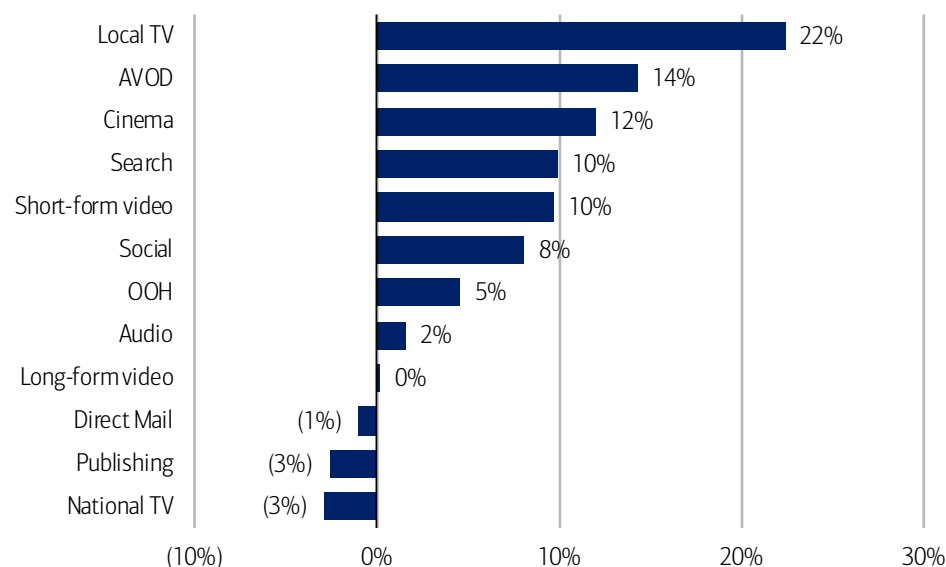
Source: BofA Global Research Estimates

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According to Magna, in 2024, local TV (up 22% y/y), AVOD (up 14% y/y) and Cinema (up 12% y/y) are expected to see highest 2024 growth in US ad spend by category. The strong growth in local TV will be fueled by political advertising, with US Presidential elections in Nov'24. The growth in AVOD category growth is fueled by growing traction of ad-supported tier from Disney+, Netflix and increasing share of CTV (at the expense of TV). For Cinema, as audience continue returning to theatres, the category is expected to see above average growth, after declining more than 80% during COVID.

Exhibit 7: Ad Spend Growth by Media in US (2024E Y/Y)

In US, Local TV and AVOD category are expected to grow at the highest rate in 2024.



Source: Magna Global Ad Forecast

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Digital expected to reach 74% of US ad spend in 2024

We estimate US Internet ad spending growth will outpace other media and reach \$264bn in 2024. We estimate digital ad spending represented approx. 69% of total US advertising industry spend in 2023 (including direct mail spend) and will increase 5pts to roughly 74% by 2024. We note that if we back out estimated US search spend at roughly \$98bn, which could be considered a cost of goods sold on the Internet, 2024 digital ad dollar share falls to 52% (vs 49% in 2023).

Exhibit 8: Online Advertising as % of Total Advertising Spend (\$ mn)

Digital is expected to reach 74% of total US ad spend by 2024.

	2021	2022	2023E	2024E	2025E
US Ad Spending for Major Media (\$ mn)	\$281,004	\$289,450	\$302,549	\$319,303	\$337,246
Direct Mail	\$38,314	\$39,080	\$39,471	\$39,471	\$39,076
Total US Ad Industry (including Direct Mail)	\$319,318	\$328,530	\$342,020	\$358,774	\$376,322
Y/Y Growth		3%	4%	5%	5%
US Digital Ad Spending (\$ mn)	\$197,977	\$213,544	\$235,994	\$263,699	\$293,531
Internet Ad Spend % of Total Ad Spend	62%	65%	69%	74%	78%
Y/Y Change		3%	4%	5%	5%
US Internet Search Spending (\$ mn)	\$76,907	\$81,551	\$88,496	\$97,807	\$107,340
Y/Y Change		6%	9%	11%	10%
US Internet Ad Spending (ex-Search)	\$121,070	\$125,049	\$147,498	\$165,891	\$186,192
Y/Y Change		3%	18%	12%	12%
Internet Ad Spend (ex-Search) % of Total Ad Spend	43%	43%	49%	52%	55%

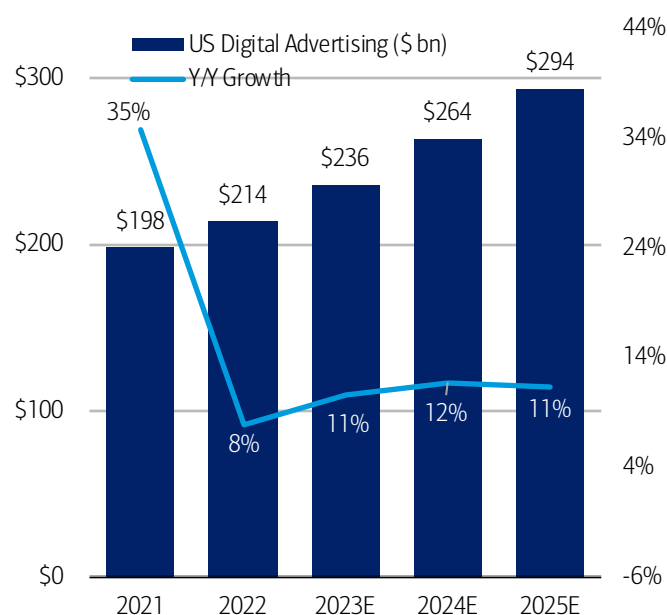
Source: BoFA Global Research, Magna, Denstu and Zenith

*Includes TV, Print, Radio, Cinema, Outdoor and Internet

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Exhibit 9: US Internet Advertising Market (\$ bn)

In 2024, US Internet ad spending is expected to grow 12% y/y.

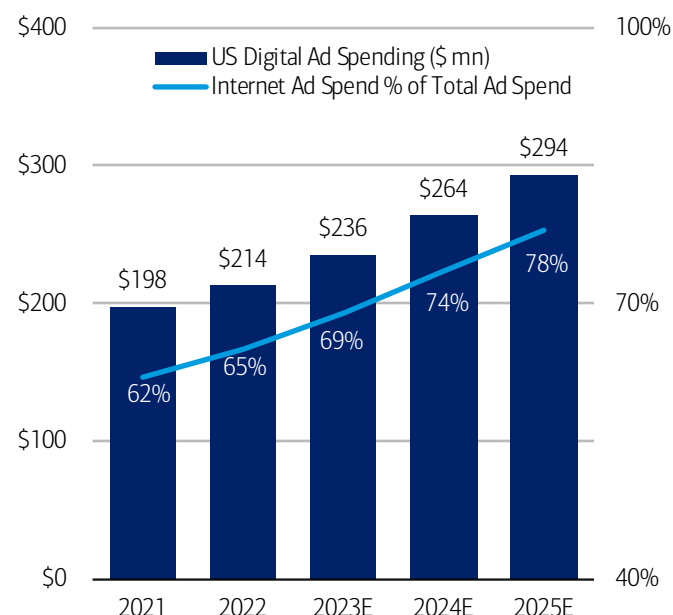


Source: BoFA Global Research Estimates

BoFA GLOBAL RESEARCH

Exhibit 10: Digital Penetration as % of Total Ad Spend in US

Digital expected to reach 74% of US ad spend in 2024.



Source: BoFA Global Research Estimates

BoFA GLOBAL RESEARCH

Company level ad spend consistent with industry estimates

We aggregated marketing spend for some of the largest Internet companies, including Google, Meta, Amazon, Uber, Wayfair, eBay, Airbnb, Booking and Expedia in 2019-2025. Average sales and marketing spend (as % of revenue) was at 19.7% in 2023 and is expected to decline 0.5pts to 19.2% in 2024 as topline growth is expected to outpace sales and marketing growth.

Our bottom-up analysis suggests 11% y/y S&M growth in 2024, which suggests that our global digital advertising forecast at 12% y/y growth is reasonable. We expect slight leverage for the group on the sales and marketing line and expect average S&M spending (as a percent of revenue) for the group to decline 0.1pts from 19.2% in 2024 to 19.1% in 2025.

Exhibit 11: Selected Internet Companies Sales and Marketing Spend as % of Revenue (\$ mn)

Our bottoms up analysis of 11% y/y growth in 2024 suggests that our global internet advertising forecast at 12% y/y growth is reasonable.

		2021	2022	2023E	2024E	2025E
Alphabet	Revenue	212,071	233,881	256,342	288,896	321,050
	S&M	22,912	26,567	27,414	29,625	32,600
	S&M as % of Rev	11%	11%	11%	10%	10%
Meta	Revenue	114,934	113,641	131,278	148,994	166,822
	S&M	13,206	14,257	11,648	12,319	13,547
	S&M as % of Rev	11%	13%	9%	8%	8%
Amazon	Revenue	469,822	513,983	570,669	637,255	710,719
	S&M	32,551	42,238	43,575	46,839	53,304
	S&M as % of Rev	7%	8%	8%	7%	8%
Uber	Revenue	17,455	31,877	37,150	43,516	51,254
	S&M	4,692	4,654	4,287	4,262	4,972
	S&M as % of Rev	27%	15%	12%	10%	10%
Wayfair	Revenue	13,708	12,218	12,034	12,547	13,762
	S&M	1,934	2,071	1,931	2,020	2,202
	S&M as % of Rev	14%	17%	16%	16%	16%
eBay	Revenue	10,420	9,795	10,073	10,225	10,560
	S&M	2,170	2,136	2,199	2,199	2,270
	S&M as % of Rev	21%	22%	22%	22%	21%
Airbnb	Revenue	5,992	8,399	9,864	11,103	12,635
	S&M	1,086	1,403	1,632	1,830	2,085
	S&M as % of Rev	18%	17%	17%	16%	17%
Booking	Revenue	10,958	17,090	21,287	23,700	26,398
	S&M	3,801	5,993	6,837	7,384	8,025
	S&M as % of Rev	35%	35%	32%	31%	30%
Expedia	Revenue	8,598	11,667	12,810	14,070	15,247
	S&M	4,125	6,033	6,689	7,326	7,898
	S&M as % of Rev	48%	52%	52%	52%	52%
Average S&M as % of Rev		21.3%	21.0%	19.7%	19.2%	19.1%
Average Y/Y Growth		29%	21%	9%	11%	11%

Source: BofA Global Research, Company Filings, Visible Alpha

BofA GLOBAL RESEARCH

Meta, Amazon and TikTok expected to gain share

We estimate Google and Meta will continue to have leading share of the US online advertising market, with combined share of around 67% in 2024 down 1pts (from 68% in 2023). Including Amazon, the combined market share of the three companies is expected to remain flat y/y at 83%.

Meta lost 2.4pts market share in 2022 given targeting and measurement disruption on iOS (IDFA). However, we estimate Meta gained back 0.6pts share in 2023 (and is expected to gain 0.3pts in 2024) driven by ramping Reels and messaging monetization and AI/ML integrations (Advantage+) driving incremental ad spend on the platform.

Google gained 1.9pts market share in 2022 as it benefited from increased ad spending on the Android due IDFA issues on iOS. However, in 2023, Google's share is expected to decline 2.3pts (with another 1.1pts decline in 2024) as Meta and Amazon are expected to grow faster.

Other potential share gainers for 2024 include Amazon (+0.8pts) and TikTok (+0.5pts). Amazon is gaining advertising share as the company continues to see increased ad spend from its sellers as a percent of gross merchandise value (GMV). Among smaller platforms, we expect Pinterest to gain marginal share (0.01pts) benefiting from Amazon deal and increased ad load on the platform.

Exhibit 12: US Advertising Market Share for Top Online Advertising Companies (\$ mn)

In 2024, Meta, Amazon and TikTok are expected to gain market share.

	2020	2021	2022	2023E	2024E	2025E
Google US ad revenue, net	\$61,083	\$85,180	\$95,993	\$100,588	\$109,385	\$119,072
Y/Y Growth (%)		39%	13%	5%	9%	9%
% of Total US Ad Spend	21%	27%	29%	29%	30%	32%
% of Online US Ad Spend	41.6%	43.0%	45.0%	42.6%	41.5%	40.6%
Meta US/Canada ad revenue	\$40,576	\$53,419	\$52,583	\$59,616	\$67,393	\$75,333
Y/Y Growth (%)		32%	(2%)	13%	13%	12%
% of Total US Ad Spend	14%	17%	16%	17%	19%	20%
% of Online US Ad Spend	27.6%	27.0%	24.6%	25.3%	25.6%	25.7%
Amazon US Ad Revenue	\$15,463	\$24,616	\$29,436	\$35,869	\$42,308	\$49,267
Y/Y Growth (%)		59%	20%	22%	18%	16%
% of Total US Ad Spend	5.3%	7.7%	9.0%	10.5%	11.8%	13.1%
% of Online US Ad Spend	10.5%	12.4%	13.8%	15.2%	16.0%	16.8%
Snap North America ad revenue	\$1,774	\$2,974	\$3,236	\$2,993	\$3,272	\$3,670
Y/Y Growth (%)		68%	9%	(7%)	9%	12%
% of Total US Ad Spend	0.6%	0.9%	1.0%	0.9%	0.9%	1.0%
% of Online US Ad Spend	1.2%	1.5%	1.5%	1.3%	1.2%	1.3%
Pinterest US ad revenue	\$1,425	\$2,133	\$2,309	\$2,453	\$2,771	\$3,151
Y/Y Growth (%)		50%	8%	6%	13%	14%
% of Total US Ad Spend	0.5%	0.7%	0.7%	0.7%	0.8%	0.8%
% of Online US Ad Spend	1.0%	1.1%	1.1%	1.0%	1.1%	1.1%
TikTok US ad revenue	\$776	\$2,095	\$5,026	\$6,613	\$8,662	\$10,835
Y/Y Growth (%)		170%	140%	32%	31%	25%
% of Total US Ad Spend	0.3%	0.7%	1.5%	1.9%	2.4%	2.9%
% of Online US Ad Spend	0.5%	1.1%	2.4%	2.8%	3.3%	3.7%
Yelp ad revenue	\$836	\$985	\$1,134	\$1,275	\$1,400	\$1,521
Y/Y Growth (%)		18%	15%	12%	10%	9%
% of Total US Ad Spend	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%
% of Online US Ad Spend	0.6%	0.5%	0.5%	0.5%	0.5%	0.5%

Source: BofA Global Research, Visible Alpha for Street Estimates, eMarketer, Company Filings

BofA GLOBAL RESEARCH

US – Expect 12% growth in 2024

We estimate US digital ad revenues grew 11% y/y in 2023, above our prior estimate at 4% as stabilizing macro-economic environment with receding recession fears, resilient consumer spending, and improving advertiser sentiment prompted companies to deploy renewed advertising investments. For 2024, we expect industry growth to accelerate 1pt to 12% y/y and reach \$264bn, which compares to most industry forecasts average of around 9-14% (eMarketer 14% and Magna 9%). We estimate Search will accelerate 2pts and grow 11% y/y to \$98bn while Display (including video) is expected to accelerate 1pt to 13% y/y and reach \$150bn. For 2024, we forecast Display to gain 1pts share and unchanged share for Search (37%) with Mobile Search gaining 1pts and Desktop Search declining 1pts vs 2023.

Exhibit 13: US Digital Advertising Estimates (\$ mn)

US digital ad spending is expected to grow 12% y/y to reach \$264bn in 2024.

\$ in million	2020	2021	2022	2023E	2024E	2025E
Search	\$55,743	\$76,907	\$81,551	\$88,496	\$97,807	\$107,340
Y/Y	7%	38%	6%	9%	11%	10%
Desktop	\$25,393	\$30,471	\$30,471	\$30,776	\$32,007	\$32,327
Y/Y	(2%)	20%	0%	1%	4%	1%
Mobile	\$30,350	\$46,436	\$51,079	\$57,720	\$65,801	\$75,013
Y/Y	16%	53%	10%	13%	14%	14%
Display/Video	\$80,523	\$108,276	\$118,386	\$133,063	\$150,431	\$169,630
Y/Y	22%	34%	9%	12%	13%	13%
Desktop Display	\$16,918	\$18,272	\$19,185	\$20,528	\$22,581	\$24,162
Y/Y	4%	8%	5%	7%	10%	7%
Desktop Video	\$8,562	\$10,446	\$11,177	\$12,071	\$13,157	\$14,210
Y/Y	12%	22%	7%	8%	9%	8%
Mobile Display	\$63,605	\$90,005	\$99,201	\$112,534	\$127,849	\$145,468
Y/Y	28%	42%	10%	13%	14%	14%
Mobile Display/Banner	\$41,719	\$56,738	\$61,277	\$67,404	\$74,145	\$81,559
Y/Y	25%	36%	8%	10%	10%	10%
Mobile Video	\$21,886	\$33,267	\$37,924	\$45,130	\$53,705	\$63,909
Y/Y	35%	52%	14%	19%	19%	19%
Other (Classifieds, Lead Gen, Email)	\$10,664	\$12,794	\$13,607	\$14,435	\$15,461	\$16,562
Y/Y	9%	20%	6%	6%	7%	7%
Desktop	\$7,127	\$8,196	\$8,688	\$9,123	\$9,670	\$10,250
Y/Y	4%	15%	6%	5%	6%	6%
Mobile	\$3,536	\$4,597	\$4,919	\$5,313	\$5,791	\$6,312
Y/Y	20%	30%	7%	8%	9%	9%
Total US Internet Advertising	\$146,930	\$197,977	\$213,544	\$235,994	\$263,699	\$293,531
Y/Y	15%	35%	8%	11%	12%	11%
Mobile (Search, Display, Video), Net	\$97,492	\$141,038	\$155,200	\$175,567	\$199,441	\$226,792
Y/Y	24%	45%	10%	13%	14%	14%
Social Media	\$47,342	\$62,086	\$61,475	\$67,300	\$76,340	\$0
Y/Y	22%	31%	(1%)	9%	13%	(100%)
Video	\$30,448	\$43,713	\$49,101	\$57,201	\$66,862	\$78,119
Y/Y	28%	44%	12%	16%	17%	17%
Revenue as % of Total	2020	2021	2022	2023E	2024E	2025E
Search	38%	39%	38%	37%	37%	37%
Desktop	17%	15%	14%	13%	12%	11%
Mobile	21%	23%	24%	24%	25%	26%
Display	55%	55%	55%	56%	57%	58%
Desktop	12%	9%	9%	9%	9%	8%
Mobile	43%	45%	46%	48%	48%	50%
Other(Classifieds, Lead Gen, Email)	7%	6%	6%	6%	6%	6%
Desktop	5%	4%	4%	4%	4%	3%
Mobile	2%	2%	2%	2%	2%	2%
Total	100%	100%	100%	100%	100%	100%
Mobile (Search, Display, Video), Net	66%	71%	73%	74%	76%	77%
Social Media	32%	31%	29%	29%	29%	0%
Video	21%	22%	23%	24%	25%	27%

Source: BofA Global Research, eMarketer, Zenith, IAB, Denstu, Magna Global

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Europe – Expect 12% growth in 2024

Aided by Euro appreciation vs the US\$, digital ad spending in Western Europe in US\$ also tracked above our forecasts and grew 11% y/y in 2023 (vs prior forecast of down 1% y/y). In 2024, we expect digital ad spending in the region to grow 12% y/y to \$121bn driven by improving macro environment and favorable FX. Regulatory changes remain an important risk for the region. The Digital Markets Act, expected to go into enforcement in 1Q, could cause short-term disruption and weigh on 2024 growth.

Exhibit 14: Western Europe Internet Advertising Estimates (\$ mn)

Western Europe digital ad spending is expected to grow 12% y/y to \$121bn in 2024.

\$ in million	2020	2021	2022	2023E	2024E	2025E
Search	\$37,878	\$54,089	\$57,186	\$62,658	\$69,521	\$75,544
Y/Y	5%	43%	6%	10%	11%	9%
Desktop	\$21,028	\$24,603	\$25,341	\$26,355	\$27,409	\$27,957
Y/Y	0%	17%	3%	4%	4%	2%
Mobile	\$16,849	\$29,486	\$31,845	\$36,303	\$42,112	\$47,586
Y/Y	13%	75%	8%	14%	16%	13%
Display	\$28,979	\$41,648	\$38,259	\$43,777	\$49,453	\$54,617
Y/Y	18%	44%	(8%)	14%	13%	10%
Desktop	\$9,105	\$11,836	\$10,534	\$11,061	\$11,503	\$11,733
Y/Y	15%	30%	(11%)	5%	4%	2%
Mobile	\$19,875	\$29,812	\$27,725	\$32,716	\$37,950	\$42,884
Y/Y	19%	50%	(7%)	18%	16%	13%
Other (Classifieds, Lead Gen, Email)	\$1,907	\$2,136	\$1,965	\$2,063	\$2,187	\$2,340
Y/Y	(8%)	12%	(8%)	5%	6%	7%
Western European Internet Advertising	\$68,764	\$97,873	\$97,410	\$108,498	\$121,161	\$132,501
Y/Y	10%	42%	(0%)	11%	12%	9%
Mobile (Search, Display, Video), Net	\$36,724	\$59,298	\$59,570	\$69,019	\$80,062	\$90,470
Y/Y	16%	61%	0%	16%	16%	13%
Social Media	\$23,686	\$32,600	\$29,441	\$33,542	\$36,123	\$40,171
Y/Y	21%	38%	(10%)	14%	8%	11%
Video	\$14,846	\$20,933	\$21,561	\$24,149	\$27,047	\$30,022
Y/Y	9%	41%	3%	12%	12%	11%
Revenue as % of Total	2020	2021	2022	2023E	2024E	2025E
Search	55%	55%	59%	58%	57%	57%
Desktop	31%	25%	26%	24%	23%	21%
Mobile	25%	30%	33%	33%	35%	36%
Display	42%	43%	39%	40%	41%	41%
Desktop	13%	12%	11%	10%	9%	9%
Mobile	29%	30%	28%	30%	31%	32%
Other (Classifieds, Lead Gen, Email)	3%	2%	2%	2%	2%	2%
Total	100%	100%	100%	100%	100%	100%
Mobile (Search, Display, Video)	53%	61%	61%	64%	66%	68%
Social Media	34%	33%	30%	31%	30%	30%
Video	22%	21%	22%	22%	22%	23%

Source: BofA Global Research, Zenith, IAB, Denstu, Magna Global

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2024 Top Sector Events/Themes

1) Macro outlook and sector correlation with GDP

In 2023, global digital ad spend was higher than our initial expectation as our forecasts included outlook for a mild recession, which was avoided with US GDP up over 2%. Looking forward to 2024, our BofA Economists expect a soft landing globally and worldwide GDP to grow 2.8% y/y, a mild deceleration vs 2023. For US, our economists' estimates a gradual disinflation and a slowdown in employment should slow GDP growth and allow the Fed to start cutting rates by middle of next year.

Exhibit 15: GDP Growth Estimates

BofA Economists expect a global soft landing, with inflation moving gradually lower.

	GDP Growth Estimates			
	2022	2023F	2024F	2025F
Global	3.50	3.00	2.80	3.00
US	1.90	2.40	1.40	1.30
Euro Area	3.40	0.50	0.50	1.20
Japan	0.90	1.70	0.80	1.00
China	3.00	5.30	4.80	4.60
Developed Markets	2.60	1.50	0.90	1.20
Emerging Markets	4.20	4.20	4.20	4.30
Emerging Asia	4.20	5.00	4.80	4.80
Emerging EMEA	4.60	2.10	3.50	3.80
Latin America	4.00	2.20	1.80	2.10

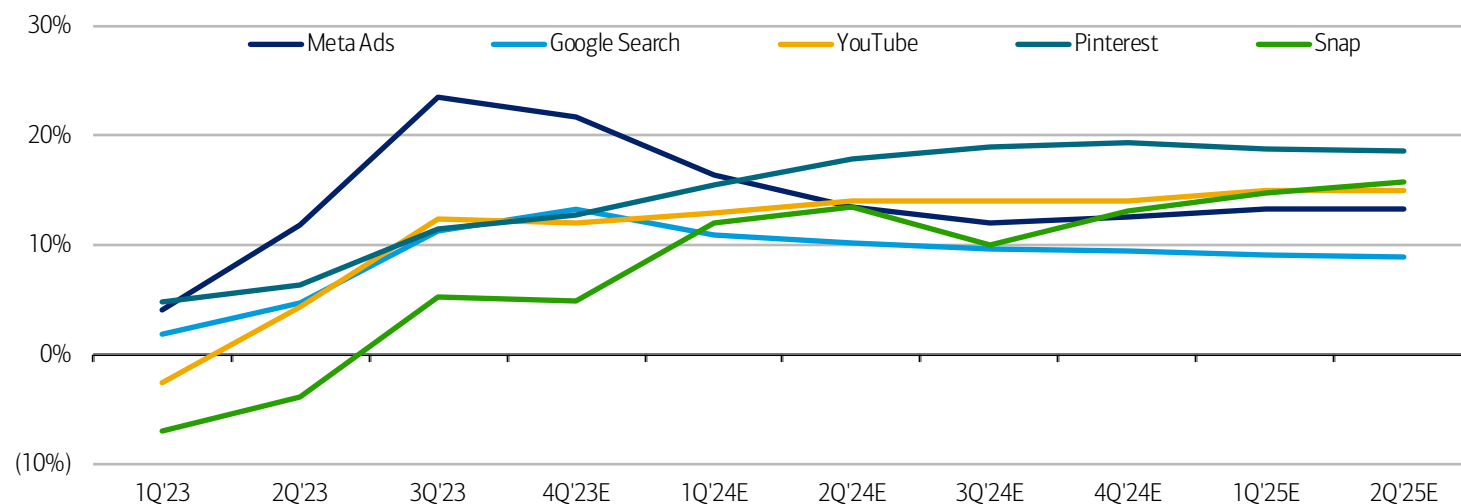
Source: BofA Global Research

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Given the high correlation between GDP and online advertising growth, a stabilizing global economic outlook with less uncertainty could maintain or improve advertiser sentiment (especially important for brand budgets). We expect companies such as Pinterest and Snap to see accelerating growth on relatively easy comps and DR product improvements, while we expect Meta's growth to decelerate on difficult comps, but to remain above industry on Reels monetization.

Exhibit 16: Y/Y Growth for major online media companies

A stabilizing to improving global economic outlook should weigh positively on advertiser sentiment and brand budgets.



Source: Company Filings, BofA Global Research

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Recent industry estimates from Denstu and eMarketer call for 6% and 11% global digital advertising industry growth in 2024, respectively, while bottoms up consensus estimates for Alphabet, Meta, Pinterest and Snap suggest 12% industry growth. If financial conditions ease (as inflation and interest rates come down), we believe these industry estimates could prove to be conservative.

2) Growing role of AI/ML capabilities in ad ecosystem

With new limitations on user data collection, major online media platforms are making investments in AI/ML and other data capabilities that should drive improving content & ad inventory, and ad targeting & measurement over the next 3-5 years. AI and data integrations are playing a crucial role in boosting ad spend at major platforms, aiding in four key areas:

- Campaign Optimization including Advantage+ and Performance Max: Moving spend to most effective platforms and enhanced targeting are resulting in higher return on ad spend and click-through rates.
- Enhanced ad measurement: Data integration with advertisers is enabling better measurement of both realized and estimated ad conversions, growing confidence in advertising ROIs.
- Creative Enhancement: Gen-AI tools are helping advertisers with ad creative and formats that help boost conversion, and
- Cost Savings: AI integrations are streamlining back-end processes for advertisers, leading to cost savings that can be reinvested into advertising

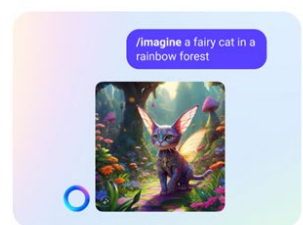
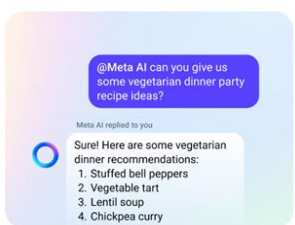
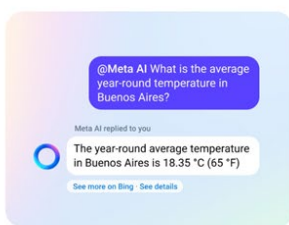
In 2023, Meta also used AI to increase engagement on its platforms. On 3Q earnings call, the company highlighted that AI driven ranking and product improvements in Reels have driven more than 40% increase in time spent on Instagram since launch. Meta also noted that in 2023, the company saw a 7% increase in time spent on Facebook and a 6% increase on Instagram as a result of recommendation improvements. Meta also highlighted that AI recommended content from unconnected accounts continues to become increasingly incremental to engagement in the US and Canada.

Meta AI is powered by a custom model that leverages technology from Llama 2 and the company's latest LLM research. Meta AI has access to real-time information through search partnership with Bing and also offers tools for image generation. Meta has launched two new features for image editing and creation, Restyle and Backdrop. Restyle allows users to reimagine images by applying the visual styles that they describe while Backdrop changes the scene or background of an image. Prompts like "put me in front of a sublime aurora borealis" or "surrounded by puppies" will cue the tool to create an image of the primary subject in the foreground with the background described.

Exhibit 17: Meta AI Features

Meta AI has access to real-time information through search partnership with Bing & offers tools for image generation.

↓ Meta AI features

		
<p>Dream it, create it</p> <p>Generate images you can't capture with a camera. Just describe an image for Meta AI to create – like “/imagine a fairy cat in a rainbow forest” – and watch your idea come to life.</p>	<p>Ask @Meta AI</p> <p>Invoke @Meta AI into your group chats to get recommendations for a group trip, spark ideas for dinner party recipes or just add a bit of fun with photorealistic images.</p>	<p>Search the web</p> <p>Get up-to-date information from the web with search powered by Bing. Meta AI will let you know the sources of the information it pulls into your chat.</p>

Source: Meta Website

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Meta also plans to roll out an updated LLM AI model next year. According to press reports, META's new LLM is expected to be as powerful as OpenAI's GPT 4.0, and several times more powerful compared to the company's Llama 2. In 3Q'23, Meta launched a new AI coding software tool, Code Llama that leverages generative AI to enhance the efficiency of developers by suggesting lines of software code. Code Llama will make workflows faster and more efficient for developers. The product can be used as a productivity and educational tool to help programmers write more robust, well-documented software. The company also launched an AI tool, AudioCraft, that generates high-quality audio and music from text prompts and testing a new generative AI feature that allows users to create custom stickers.

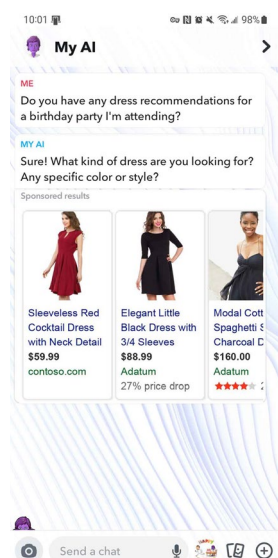
For Google, rapidly growing advertiser adoption of Performance Max should be an ongoing growth driver in 2024. The AI/ML tool launched in late 2021, brings together the best of Google's automation to help advertisers drive better results across all of Google's channels: YouTube, Display, Search, Discover and more. According to Google, advertisers that use Performance Max campaigns in their account see an average increase of 13% total incremental conversions at a similar cost per action. Also, the integration of LLM results with search will be an important driver which we review in the next section.

Pinterest has grown its AI model size by 100x since 2022, that is helping drive increases in search relevancy and ad conversion rates. Uses of AI for advertisers include AI based creative tools for image ad creation and, and in 2024, the company plans to launch a fully automated end-to-end ad solution that will help advertisers manage and optimize their Pinterest ad campaigns with less effort. On the user/usage side, AI has helped enable whole page optimization (with more relevant ads per page), and Pinterest indicated a >60% better lift in saves per user by incorporating intent signals into image understanding models.

Snap is also investing in AI technologies to improve targeting, measurement, and aid engagement. On 2Q earnings call, Snap highlighted that combination of improvements to ML infrastructure, systems for ad optimization has led to more relevant ads and more than 30% q/q growth in purchase related conversions for advertisers. In Sep, Snap also announced a partnership with Microsoft to show relevant ads in Snap's My AI feature.

Exhibit 18: Ads in Snapchat's MyAI

Snap has partnered with Microsoft to show sponsored links in its AI-powered chatbot, My AI.



Source: Microsoft Website

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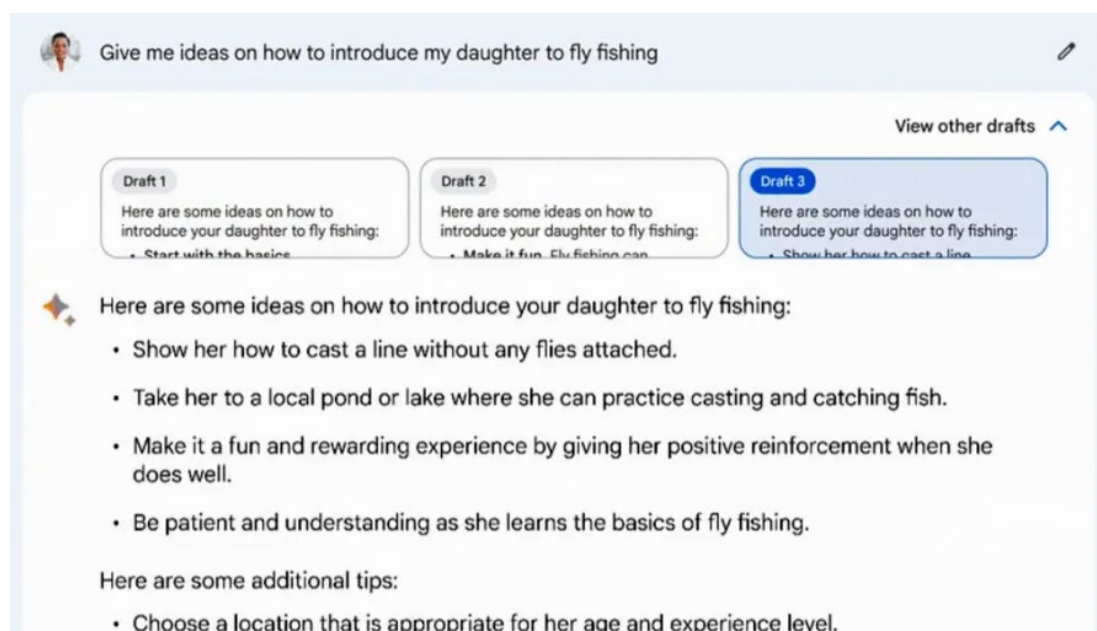
3) Evolution of LLM based search results

Since the launch of ChatGPT in late 2022, the Internet search landscape has experienced a rapid evolution. Bing has partnered with Open AI to power search queries, Google has introduced a number of new products (Bard and Search Generative Experience (SGE)) to enhance user experiences and new sources of potential competition to search is developing from Open AI, Meta and even TikTok. LLM integration has the opportunity to provide more personalized and context-aware results across multiple platforms, shaping the way users consume information over the web.

Within search, Gen-AI technology will enable new era of conversational search. While we expect traditional search to be most effective for the majority of queries, users will be able to interact with search engines in a more conversational manner, expecting nuanced responses akin to a dialogue. Conversational search features will also enable users to ask follow-up questions, seek clarification, and receive responses that reflect a deeper comprehension of their initial queries. This shift represents a departure from traditional keyword-based searches, making search experience more intuitive and user-friendly.

Exhibit 19: Example of LLM search on Google Bard

Gen-AI technology is enabling a new era of conversational search, making the experience more intuitive and user-friendly.



Source: NYTimes.com

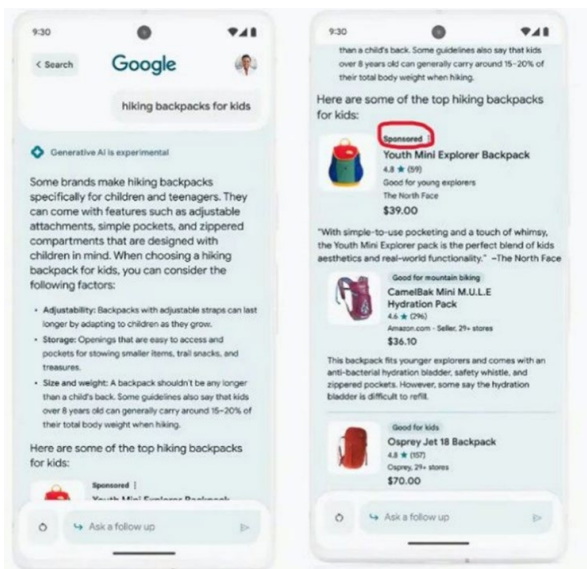
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There are questions on potential disruption to search revenues as queries shift to LLM formats. We expect that results in search to lower overall ad loads at launch, though stable search market share should help Google regulate the integration in LLM generated results on a pace that is not disruptive. Medium-term, we believe LLM integration can increase search volumes (new use cases) and result in more relevant ads with higher click rates, potentially driving an increase in search monetization. Demos at Google I/O and Google Marketing Live illustrated how Google's can effectively integrate ads in response to commercially relevant LLM results pages.

Google has launched a new feature named "Search Generative Experience (SGE) while browsing" that employs Gen-AI (LLMs) to create concise bullet-point summaries of web articles. With a single click, this feature generates key points from long articles within seconds, making it easier for users to quickly grasp the main content. The purpose of this feature is to assist users in navigating online information more swiftly and efficiently, enabling them to access the core content faster. Google said ads continue to appear in dedicated ad slots throughout the page with SGE. In this new experience, advertisers can reach potential customers along their search journeys.

Exhibit 20: Ads in Google SGE

Ads appear in dedicated ad slots throughout the page with Google SGE.



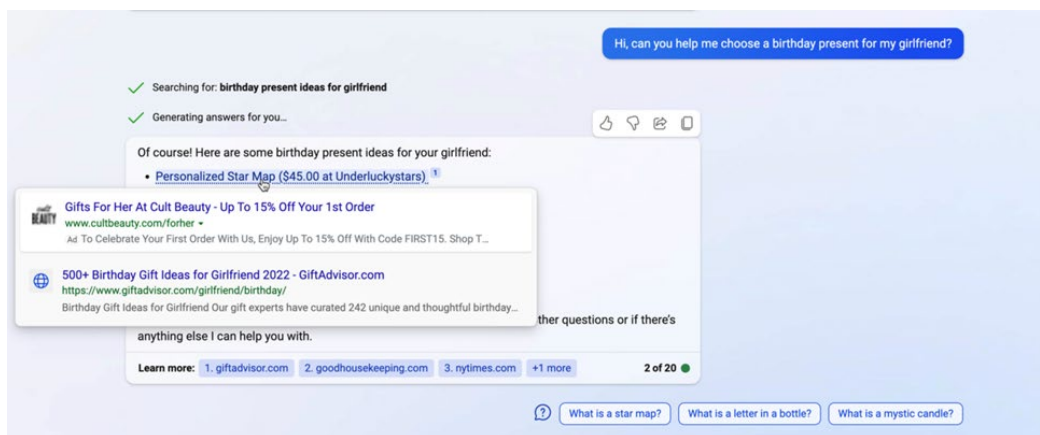
Source: Adguard.com

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Microsoft has also been testing ads in Bing's LLM-powered chatbot. Since Feb'23, the company has launched various types of ads (Text Ads, Shopping Campaigns, Multimedia Ads, Credit Card Ads and Automotive Inventory Ads, etc.) in the Bing Chat experience. In May'23, Microsoft also announced Ads for Chat API which provides publishers and apps, ability to customize their own Chat experiences with ads. In Sep'23, Microsoft announced partnership with Snap to integrate sponsored links into Snap's ChatGPT-powered chatbot, My AI.

Exhibit 21: Ads in Bing's LLM powered Chatbot

Microsoft has also been testing ads in Bing's LLM-powered chatbot.



Source: Adguard.com

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We expect greater LLM integration into search in 2024. New models are being developed, including Google's Gemini that is expected to be more versatile and multimodal, integrating text, images, and other data types. There is also media speculation that Gemini will have new abilities around memory and will potentially be capable of taking tasks that requires reasoning. Gemini is expected to power Google's existing AI chatbot, Bard, Search, and if the model has real advancements in AI, it could accelerate Google's LLM monetization roadmap.

The rapid advancements in LLMs, and potential shift in user behavior, also pose a new risk to Google. As users find it increasingly convenient to engage in a dialogue with LLMs on multiple platforms (such as Open AI, Meta, etc), there is a possibility that a percentage of internet traffic could shift away from Google search (currently dominating the market with more than 91.5% Search share globally). We believe Gen-AI will make Search more complex and benefit Google given its resource and data advantages. Long-term, we expect LLM integration to increase volumes (new use cases) and result in more relevant ads with higher click rates, potentially driving an increase in search monetization.

4) Big year for SFV monetization ramp

In 2023 short-form video (SFV) emerged as a cornerstone for growth of the social media industry, driving enhanced user engagement. All major social and video platforms including Meta, YouTube and Snap are increasingly directing users to SFV content which is driving both incremental usage, and some cannibalization of existing features. In 2024, SFV monetization should switch from a headwind to a tailwind to sector revenue growth as companies enable more advertising around SFV content.

As Reels, Shorts and Spotlight improve their respective platforms, offer improved content creation tools, and improve content targeting capabilities, we expect the category to grow to 85mins/day/US Internet user by 2024, up from 18mins y/y from 67mins in 2023. While TikTok has a lead in time share in 2023 and is still growing, we expect TikTok's time spent share to decline as others ramp SFV usage. We estimate FB and IG time spent share on SFV will grow towards 40% in 2024 (combined 36mins), up from 28% in 2022 (12mins).

Exhibit 22: Estimated time on SFV on each platform per US user

We expect TikTok to grow, but potentially lose some time spent share as other platforms.

Estimated Time spent on Short-form Videos (mins)	2019	2020	2021	2022	2023E	2024E
Facebook Reels	0	0	1	5	9	14
Instagram Reels	0	1	4	7	17	22
Snapchat Spotlight	0	1	2	3	6	9
TikTok	5	10	14	17	19	21
YouTube	0	1	2	6	10	13
Other social media platforms	2	3	4	5	6	6
Total minutes	7	16	27	43	67	85
Y/Y Growth		129%	69%	59%	56%	27%

Source: BofA Global Research

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We think SFV can be monetized at par with other social content (but below professional video content), with known creators generating premiums. Assuming modest discount on CPMs to professional content, we estimate SFV revenue to reach \$66bn by 2025 (~9.3% of digital ad spend, up 3.7pts vs 2023). Using 3rd party estimates, TikTok could generate revenue of \$21bn in 2024, capturing 44% of total SFV revenue, down from 52% in 2023. The decline in market share is driven by the growth of Meta Reels and YouTube Shorts revenues, which we estimate at \$19bn/\$6bn in 2024. The strength of Reels is driven by AI/ML investments that offer superior consumer targeting through commoditized content, while YouTube Shorts benefits from its extensive video native user base.

Exhibit 23: SFV Revenue Estimates (\$ bn)

Meta and YouTube will grow faster on SFV compared to TikTok between 2023 and 2028.

SFV Revenue Estimates	2022	2023E	2024E	2025E	2026E	2027E	2028E
TikTok SFV Revenue (Gross, \$ bn)	\$10	\$16	\$21	\$27	\$32	\$38	\$44
Y/Y Growth	162%	55%	35%	26%	21%	18%	16%
% of total	68%	52%	44%	41%	39%	38%	38%
Meta Reels Revenue (Gross, \$ bn)	\$3	\$11	\$19	\$27	\$34	\$40	\$46
Y/Y Growth		260%	70%	42%	26%	18%	16%
% of total	21%	34%	40%	42%	43%	44%	44%
YouTube Shorts Revenue (Gross, \$ bn)	\$1	\$3	\$6	\$9	\$12	\$15	\$18
Y/Y Growth		350%	95%	55%	33%	25%	18%
% of total	4%	10%	12%	12%	13%	14%	14%
Other SFV Revenue (Gross, \$ bn)	\$1	\$2	\$2	\$3	\$4	\$5	\$5
Y/Y Growth		55%	50%	33%	23%	22%	18%
% of total	7%	5%	5%	5%	5%	5%	5%
Total SFV Revenue (Gross, \$ bn)	\$15	\$31	\$48	\$66	\$82	\$98	\$114
Y/Y Growth		110%	54%	36%	25%	19%	16%

Source: BofA Global Research

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5) Growing social and eCommerce partnerships

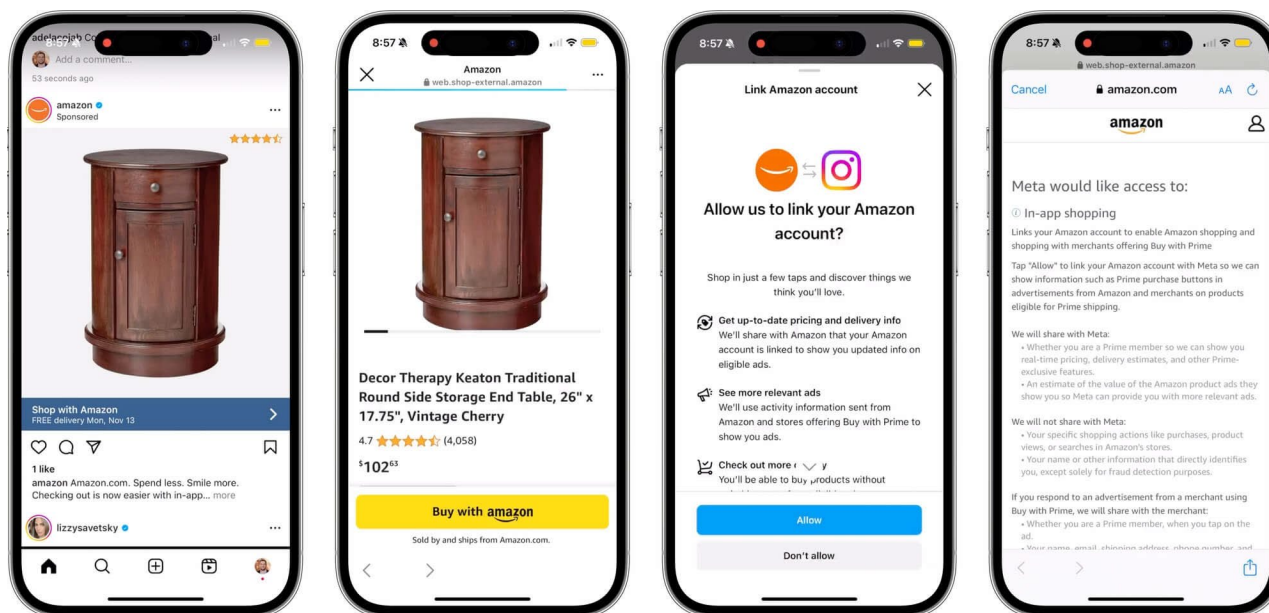
As time spent on social media platforms continues to grow, social platforms are playing an increasingly important role in consumer journey from research to buying products online. According to eMarketer, the social commerce market in the US is expected to grow at a CAGR (2023-27) of 21% to \$145bn by 2027.

The industry (including Meta, Google and Pinterest) has gone through strategy shift from trying to aggregate seller products and complete sales/bookings on platform, back to lead generation/partnership models. We believe recently announced industry partnerships with Amazon could accelerate partnership activity. In November, Amazon announced partnerships with Meta and Snap to give users on Facebook, Instagram and Snapchat the ability to link their Amazon accounts and shop from promoted Amazon ads without leaving the respective apps. Amazon indicated US users will be able to see real-time pricing, Prime eligibility, delivery time estimates, and product details while on partner apps. If the ads drive higher conversion, Amazon could see higher ROIs, and spend more on social advertising.

The eCommerce partnerships could be important for Meta and Snap for two reasons: 1) Adds more advertising inventory and volumes, and 2) Increases conversion with on-click sales for Prime members and 3) provides significant conversion data that can be used to inform other advertising algorithms. For Meta, the partnership could also accelerate monetization for messaging assets as the company successfully integrated shopping and payment features with WhatsApp in other global regions. If the Amazon deals are successful in increasing conversion on Amazon's social ads, we would expect other deals with large retailers with customer loyalty programs to follow.

Exhibit 24: Amazon Meta Partnership

Facebook and Instagram users can link their Amazon accounts and shop from promoted Amazon ads without leaving Meta apps.



Source: Company Website

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The Meta and Snap deal comes after Amazon announced a multi-year collaboration with Pinterest to become its first ever third-party advertising partner in April'23. With less advertiser overlap than Amazon, Amazon's deal with Pinterest seems more focused on increasing relevant ad loads on its platform, while the Amazon partnership with Meta is more focused on facilitating eCommerce conversion on Meta surfaces. While the partnership is still in early stage in 4Q'23, the contribution to Pinterest's topline is expected to become more meaningful starting in 1Q'24. Relative to its scale, we believe Pinterest has opportunity for biggest incremental change from increasing shopping activity on the platform.

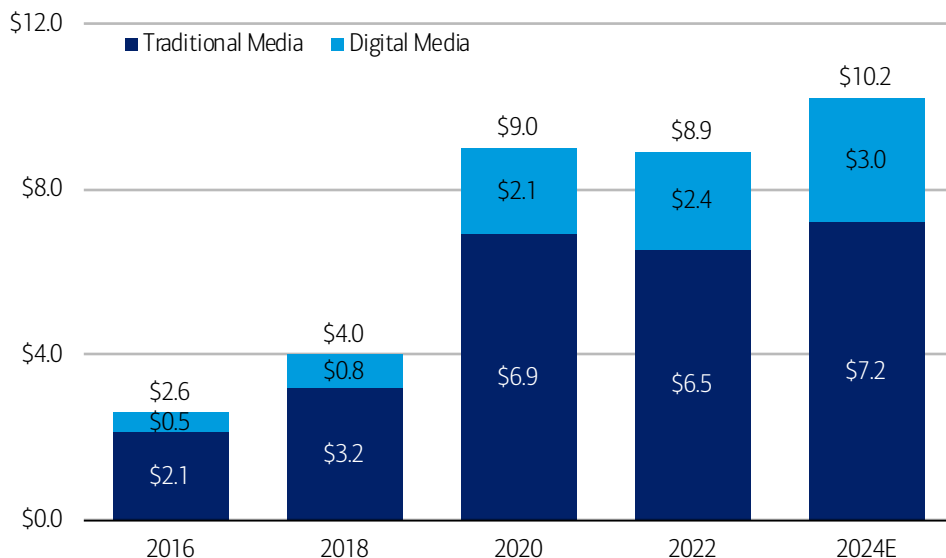
6) US Elections and Olympics in 2024

In 2024, two major events (Olympics in 3Q and US elections in 4Q) will provide modest benefits to global digital ad spending. Major sports events such as Olympics offer advertisers an opportunity to capitalize on heightened attention, engagement, and audience reach in a positive news/content safe environment, while political ad spending in the US can have a substantial uptick during presidential election years. While traditional media formats such as linear TV and local television still account for dominant share of ad spend during the two events (given the extensive coverage by broadcasting networks), digital platforms are becoming increasingly integral to these events. With the growth of online streaming services, advertisers are leveraging social media promotions, targeted online ads, and interactive content, to develop a more immersive and dynamic advertising landscape during these events.

According to AdImpact, total political ad spending in the US is expected to grow to \$11.2bn in 2024 (\$1.2bn higher vs 2020) with digital expected to account roughly 25-30% of the total budget (~\$3bn or ~1% of sector revenue). According to BIA Advisory Services 2024 political ad dollars in digital will be allocated to local search (~46%) and local video (~34%) and buying will lean heavily toward data-driven programmatic ad platforms to reach specific audience segments likely to register and vote.

Exhibit 25: Estimated US Political Ad Spend (\$ bn)

Digital advertising is expected to account for roughly 25-30% of the total political ad budget.



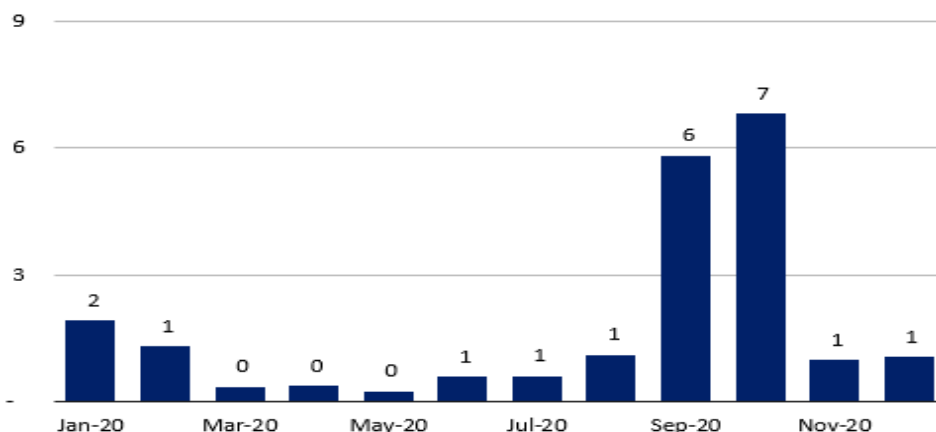
Source: AdImpact, BIA Advisory Services, BofA Global Research

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We note Snap's disclosures from 2020 suggest a modest benefit with approx. \$20mn (~1% of revenues) of US political ad spend.

Exhibit 26: US Political Ad Spending on Snap in 2020 (\$ mn)

Snap had a modest benefit with ~\$20mn (~1% of revenues) of US political ad spend in 2020.



Source: Snap

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The Olympics are expected to have a more modest benefit to ad spend, estimates suggest approx. \$2.25bn in US ad spend in 2021. Assuming a 25% increase in total ad spend on 2024 Summer Olympics (2021 was impacted by pandemic and broadcast timing), the Olympics could generate \$2.9bn in total ad spending, and assuming roughly 30% Online, suggests roughly \$1bn of incremental Online ad spending (about 0.4% boost to total digital ad spend in 2024).

Sector risks

1) Platform privacy changes

Implementation of Google Privacy Sandbox

In May'23, Google announced timeline to phase out Cookies on Chrome in 2024, which suggested future delays are less likely. In preparation, Google has developed the Privacy Sandbox set of replacement standards and measurement API, enabling developers to test privacy APIs with live traffic. The Privacy Sandbox aims to create technologies that both protect user privacy online and give advertisers alternative tools for targeting and measurement. The Privacy Sandbox has two core aims: 1) Phase out support for third-party cookies when new solutions are in place, and 2) Reduce cross-site and cross-app tracking while helping to keep online content and services free for all. The Privacy Sandbox initiative also includes efforts designed to limit covert tracking, including proposals to address specific covert tracking techniques such as fingerprinting and network-level tracking.

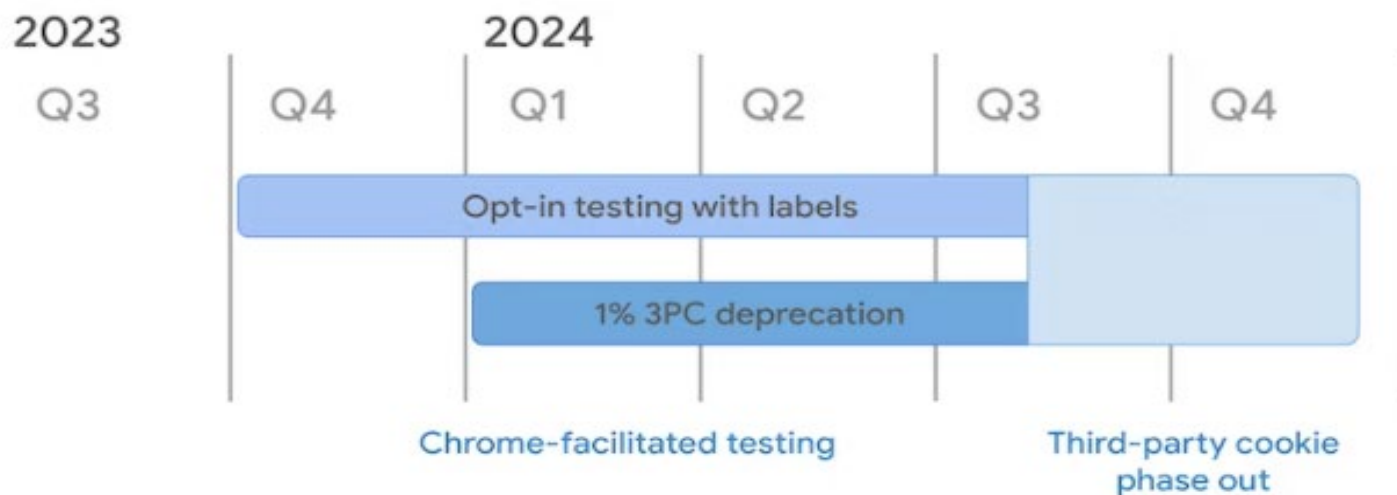
Google is moving toward the same direction as Apple on protecting users' data privacy, but the company's approach seems more collaborative with advertisers and developers by providing alternative solutions and more time for testing before implementing the changes. When Apple phased out cookies in Safari browser in April 2020, major online media platforms reported no significant adverse impact. Moreover, investments by leading platforms in developing AI/ML technologies and IDFA workaround solutions should also help mitigate the impact.

Timeline

In 1Q'24, Google will test changes to 1% of Chrome users by disabling cookies, and by 3Q'24, the company plans to expand the third-party cookie deprecation to 100% of Chrome users, pending UK CMA regulatory approval. In early 2022, Alphabet also announced it was working on privacy measures that would limit data sharing on Android smartphones, phasing out Android IDFA equivalent - AAID, which enables 3rd party tracking on mobile devices. However, since then, the company has not shared any definite timelines on implementing these privacy changes. Hence, we do not expect any major privacy changes for the Android mobile platform until the end of 2024.

Exhibit 27: Timeline for phasing out third-Party cookies on Chrome

Starting in 3Q'24, Google plans to expand the third-party cookie deprecation to 100% of Chrome users globally.



Source: Alphabet Website

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We see potential risk to Meta and Snap (though both are mobile app first companies), and Meta is well positioned to use alternative targeting technology and potential benefits for Google (search relative beneficiary). As for app tracking changes in Android,

we see greater risk as Apple's app tracking changes were disruptive for the industry. Based on Meta's estimates for up to a \$10bn impact from Apple's ATT changes, the impact may have been up to 20% of Meta's revenues on iOS. Google and the industry appear be much better prepared for changes in 2024, Google's Privacy Sandbox will replace third-party cookies with new measurement and reporting tools that will prevent people from being identified across different websites.

More Apple privacy initiatives

In April 2021, Apple's rolled out its iOS 14.5 update and its new ATT (App Tracking Transparency) framework went into effect. ATT has created significant challenges for major social media platforms and advertisers as there is less data available on off-platform activities by app users. Since the iOS14.5 update, Apple appears to be taking a more measured and advertiser friendly approach with SKAdNetwork4.0 addressing some of the limitations on measurement (such as attributing app installations to specific ad campaigns and providing additional information while maintaining user privacy). iOS 15 and 16 had relatively minor impacts on the advertising ecosystem, while iOS 17 (released in Sep 2023) has also added some new privacy features, but they are not expected to be disruptive to digital ad ecosystem.

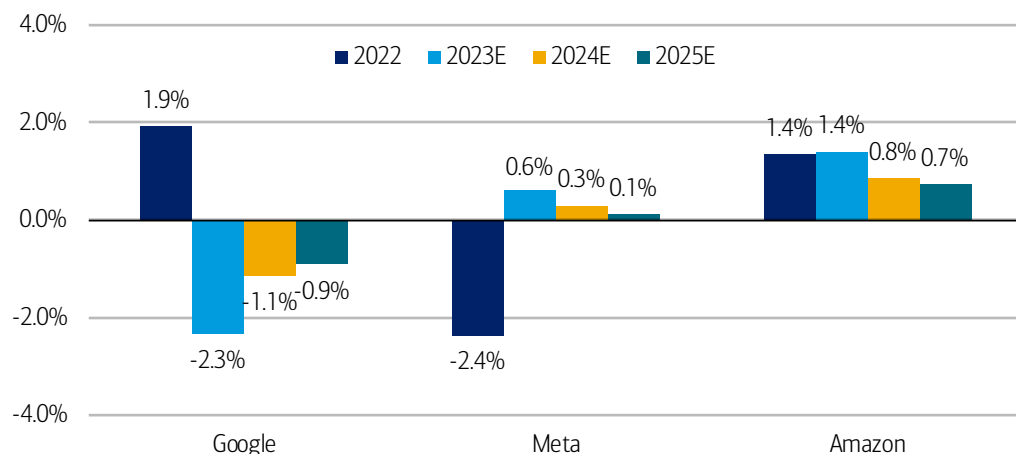
iOS 17's Link tracking protection feature automatically removes tracking information from web addresses that can be used to uniquely identify a device and track a user across the web. This makes it more difficult for websites and advertisers to see which other sites a user accesses. Another feature, Privacy Manifests, provides websites with a standardized way to declare the data they collect and how they use it. The feature is designed to give app developers full transparency into how the third-party SDKs they work with collect and use data. According to Apple, Privacy manifests are, "a property list that records the types of data collected by your app or third-party SDK, and the required reason APIs your app or third-party SDK uses.

2) Growing competition for ad spend

eCommerce platforms – eCommerce and online food delivery platforms are strategically making significant investments into building digital advertising businesses to expand revenue streams and boost margins. Platforms such Amazon, Walmart, Uber, Doordash and others are seizing the opportunity to position themselves as not just eCommerce destinations but also as advertising ecosystems with strong measurement capabilities and high ROI. These platforms recognize that the vast amount of consumer data they possess, derived from user interactions, purchase histories, and preferences, can be leveraged to deliver highly targeted and personalized ads. Moreover, privacy and measurement changes favor platforms with 1st party data, improving eCommerce platform's relative position. Amazon has gained significant share in the industry, with US ad revenues expected at \$42.3bn in 2024 (up 18% y/y), and industry share increasing from 3% in 2018 to 12% in 2024, & Walmart's platform is growing faster than Amazon.

Exhibit 28: estimated US online media market share change (% , y/y)

Looking ahead, Amazon is expected to continue take market share



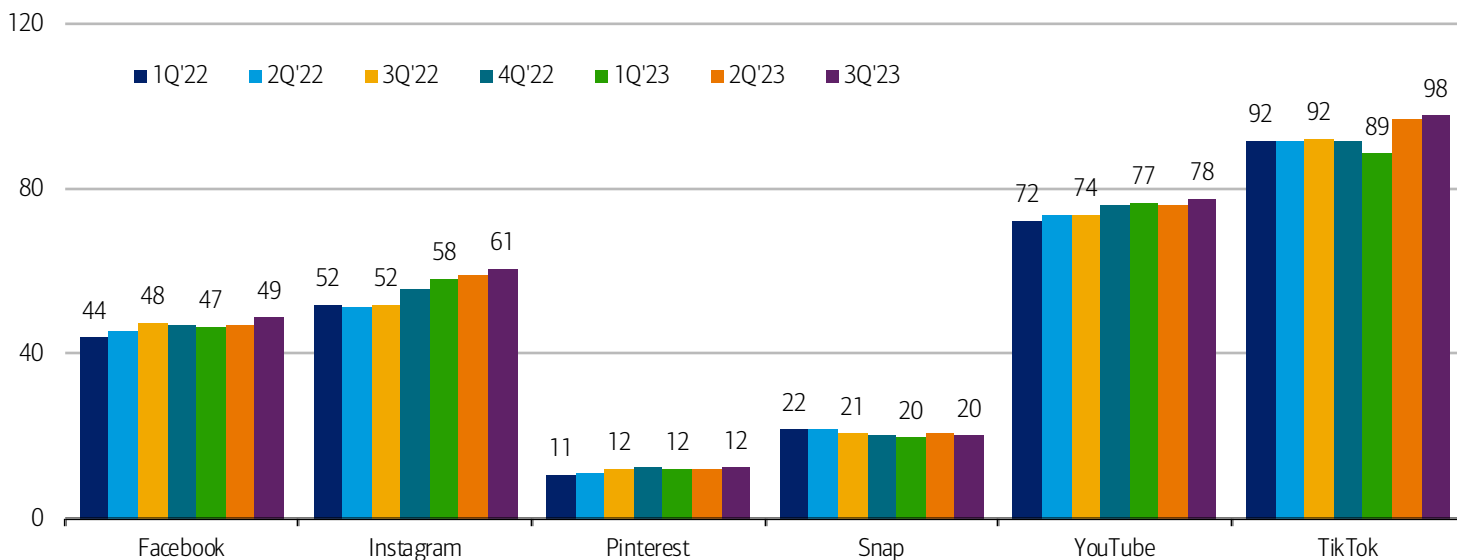
Source: BofA Global Research

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TikTok - The exponential growth of TikTok and short-form video usage overall has transformed the social media landscape. TikTok now has more than 1bn MAUs globally, and the platform is still in early stages of its monetization ramp with potential to take revenue share given 98mins daily time per user on the platform, well above YouTube (78mins), Instagram (61mins), Facebook (49mins) and Snap (20mins).

Exhibit 29: Global average daily time spent per daily user (in minutes)

TikTok remains the global leader in average daily time spent per active user with more than 98mins/user/daily.



Source: Sensor Tower and BofA Global Research

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With growing DR capabilities, eMarketer estimates a TikTok's US ad growth CAGR at 28%, to \$11bn by 2025 from \$6.6bn in 2023. Even if TikTok ad growth is below expectations, an infusion of new ad inventory to boost revenues could put downward pressure on industry ad pricing.

Exhibit 30: Global average daily time spent per daily user (in minutes)

TikTok's time spent per user is well above peers, though growth has slowed in recent quarters and now trends in line with peers.

	1Q'21	2Q'21	3Q'21	4Q'21	1Q'22	2Q'22	3Q'22	4Q'22	1Q'23	2Q'23	3Q'23
Facebook	46	46	46	44	44	45	48	47	47	47	49
q/q		(0%)	(0%)	(6%)	1%	3%	5%	(2%)	(1%)	1%	4%
y/y					(5%)	(2%)	3%	7%	6%	4%	3%
2yr CAGR									0%	1%	3%
Instagram	52	54	54	53	52	52	52	56	58	59	61
q/q		4%	2%	(3%)	(2%)	(1%)	1%	8%	4%	2%	2%
y/y					0%	(4%)	(4%)	6%	13%	15%	17%
2yr CAGR									6%	5%	6%
Pinterest	12	11	11	10	11	11	12	12	12	12	12
q/q		(9%)	(0%)	(3%)	3%	2%	10%	2%	(1%)	(1%)	3%
y/y					(9%)	2%	13%	18%	14%	10%	3%
2yr CAGR									2%	6%	8%
Snapchat	23	22	21	22	22	22	21	21	20	21	20
q/q		(2%)	(5%)	3%	(2%)	(0%)	(4%)	(1%)	(4%)	6%	(2%)
y/y					(6%)	(4%)	(2%)	(7%)	(9%)	(4%)	(2%)
2yr CAGR									(7%)	(4%)	(2%)
YouTube	71	70	71	71	72	74	74	76	77	76	78
q/q		(1%)	2%	0%	1%	2%	(0%)	3%	1%	(1%)	2%
y/y					2%	5%	4%	7%	6%	3%	5%
2yr CAGR									4%	4%	4%
TikTok	79	84	88	91	92	91	92	92	89	97	98
q/q		6%	5%	3%	1%	(0%)	1%	(1%)	(3%)	9%	1%
y/y					17%	9%	5%	1%	(3%)	6%	6%
2yr CAGR									6%	8%	5%

Source: Sensor Tower and BofA Global Research

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AVOD platforms - The growth of ad-supported tier on major CTV platforms such as Netflix, Disney+, Hulu, and Peacock poses a threat to incumbent Online media platforms. With more time spent on CTV and declining linear TV viewership, there's potential for a substantial monetization ramp of AVOD (ad supported video platforms) as consumers evaluate discretionary spending and seek budget friendly offerings. According to eMarketer, total advertising spend on major CTV platforms is expected to grow to \$10.6bn by 2024, representing 19% growth, above overall digital ad growth. Fortunately for incumbent Online media platforms, the \$1.8bn in expected incremental growth is just 0.3% of the global Online ad market.

Exhibit 31: US Advertising Revenues of Major AVOD platforms

Major CTV platforms are expected to add \$1.8bn in US ad revenues in 2023 and 1.4bn 2024.

	2023E	2024E	2025E
Hulu	\$3.8	\$4.4	\$4.9
Disney+	\$0.8	\$0.9	\$1.1
Peacock	\$1.3	\$1.5	\$1.7
Netflix	\$0.7	\$1.0	\$1.1
Pluto TV	\$1.0	\$1.2	\$1.3
Tubi	\$1.0	\$1.2	\$1.5
Paramount+	\$0.4	\$0.5	\$0.5
Total	\$8.9	\$10.6	\$12.0
Y/Y Dollar Growth		\$1.8	\$1.4

Source: eMarketer

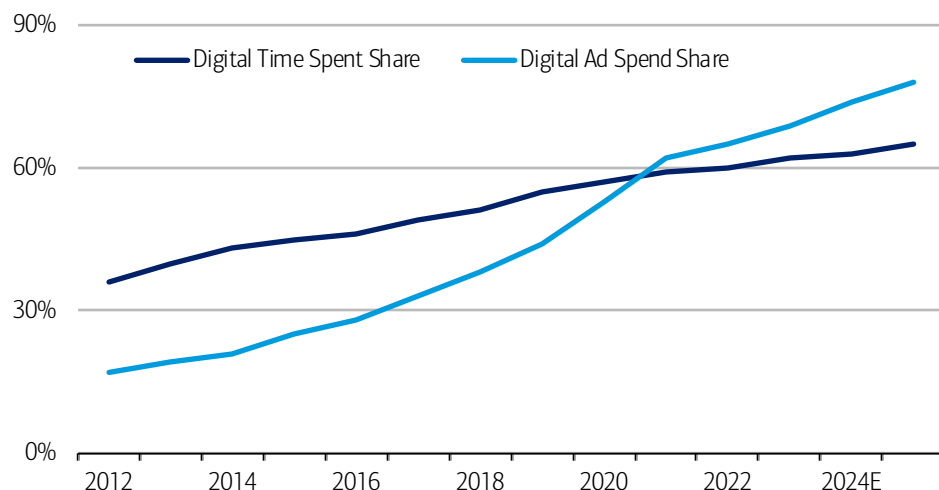
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3) Online time spent and ad dollar saturation

The time spent on digital ad formats continues to increase, but growth is expected to slow as consumers are now spending more than 4 hours a day on their phones. Going forward, time spend growth is expected to decelerate to a 3% CAGR (2023-25), down from 6% from 2019-2023. Also, around 2020 (see chart below), Online ad dollar share surpassed digital time spent share for the first time. We would expect slowing Online time spent growth and high ad dollar penetration to slow the rate of industry revenue growth.

Exhibit 32: US Online Media Time Spent and Ad Spend Share

The gap between digital ad spend share and time spent share has reduced.



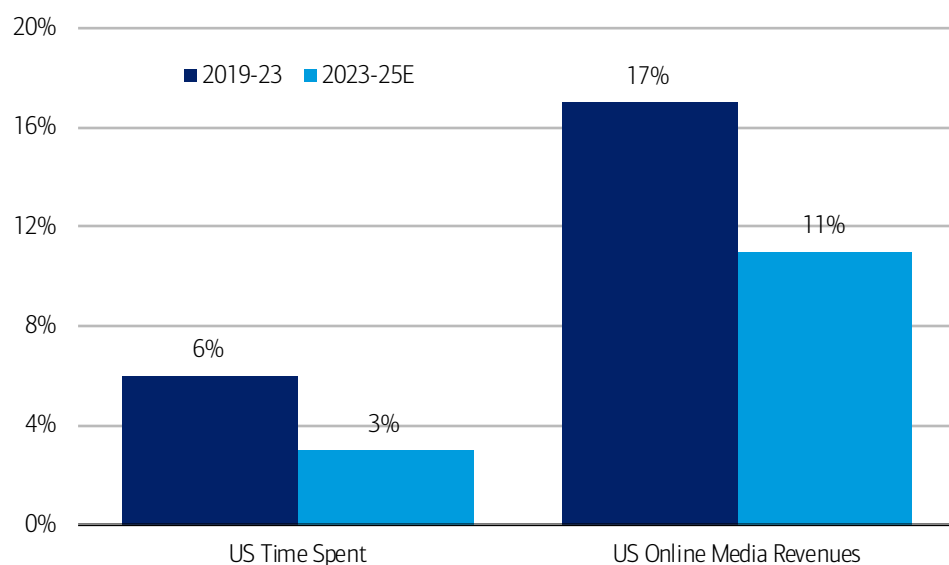
Source: eMarketer, BofA Global Research

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Between 2019-23, US online media industry revenues increased at 17% CAGR but, going forward, we expect the industry growth to decelerate 6pts to 11% CAGR (2023-25).

Exhibit 33: US Online Media Industry and Time Spent Growth

Given high penetration and slowing time spent growth, Online ad spend growth is also expected to slow.



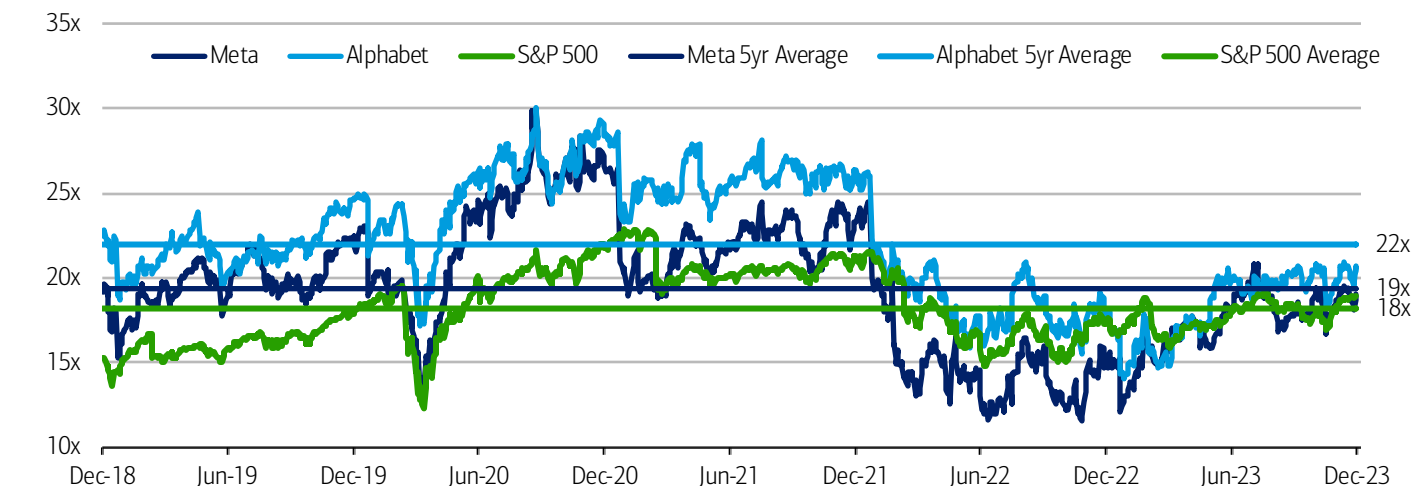
Source: eMarketer, BofA Global Research

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Slowing growth likely to impact valuation multiples - Historically, major incumbent online media companies (Google and Meta), have traded a premium to S&P 500 given higher growth and strong margins on core businesses. However, slowing growth could impact Online media valuations and reduce or reverse the historical gap to the S&P 500. Comparing average 2yr forward PE multiples in the last five years, Alphabet has traded at ~20% premium to S&P and Meta at ~5% premium. Looking forward, we would anticipate smaller premiums to S&P given a lower Online ad growth differential vs GDP.

Exhibit 34: 2yr Forward GAAP PE Multiple (Dec 2018-Dec 2023)

Comparing avg. 2yr forward PE multiples for the past 5yrs, Alphabet has traded at ~20% premium to S&P and Meta at ~5% premium.



Source: Bloomberg

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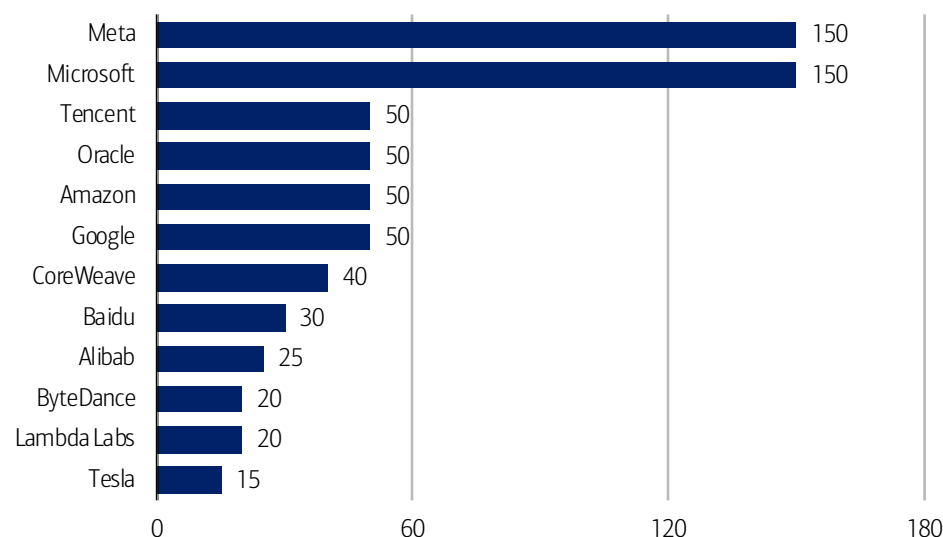
4) Potential new capex cycle with growing Gen-AI focus

All major online media companies are investing in the AI technology to enhance usage, engagement and drive operational efficiencies. Gen-AI technologies require cutting-edge processors capable of handling complex AI workloads, necessitating the adoption of specialized hardware. As the race to develop leading Gen-AI capabilities intensifies, capex intensity of the Online media industry seems likely to increase.

Graphics Processing Units (GPUs) are critical in developing Gen-AI capabilities and illustrate high costs (and competition) in the sector. According to press reports, Nvidia's flagship H100 GPUs, which the company calls as the first chip designed for generative AI applications, are priced at an average of \$30K-\$40K and the demand for these products is so high that the lead time of H100-based servers is reportedly 36 to 52 weeks. According to Omdia, in 2023, Meta is expected to get approx. 150K Nvidia H100 GPUs (~\$5.25bn assuming avg price of \$35K) while Google & Amazon will get 50K GPUs.

Exhibit 35: Nvidia H100 GPU orders expected to be fulfilled in 2023 ('000)

In 2023, Meta is expected to get ~150K Nvidia H100 GPUs (~\$5.25bn assuming avg price of \$35K)



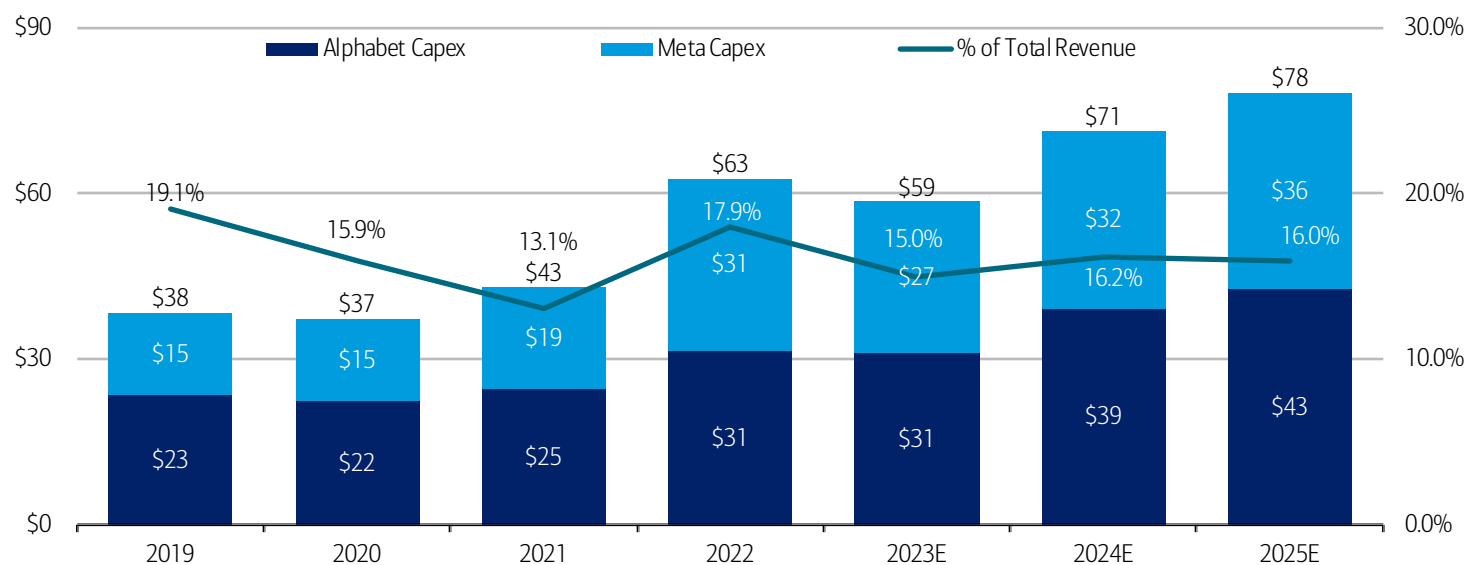
Source: Omdia

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Driven by new investments in Gen-AI processors and infrastructure, we estimate combined capex for Alphabet & Meta will increase by \$12bn y/y in 2024 (\$8.1bn y/y for Alphabet & \$4.7bn for Meta) to \$71bn, representing 16.2% of revenues in 2024 vs 15% in 2023.

Exhibit 36: Alphabet and Meta combined capex and as % of total revenue

In 2024, we estimate combined capex for Alphabet and Meta will increase by \$12bn y/y.



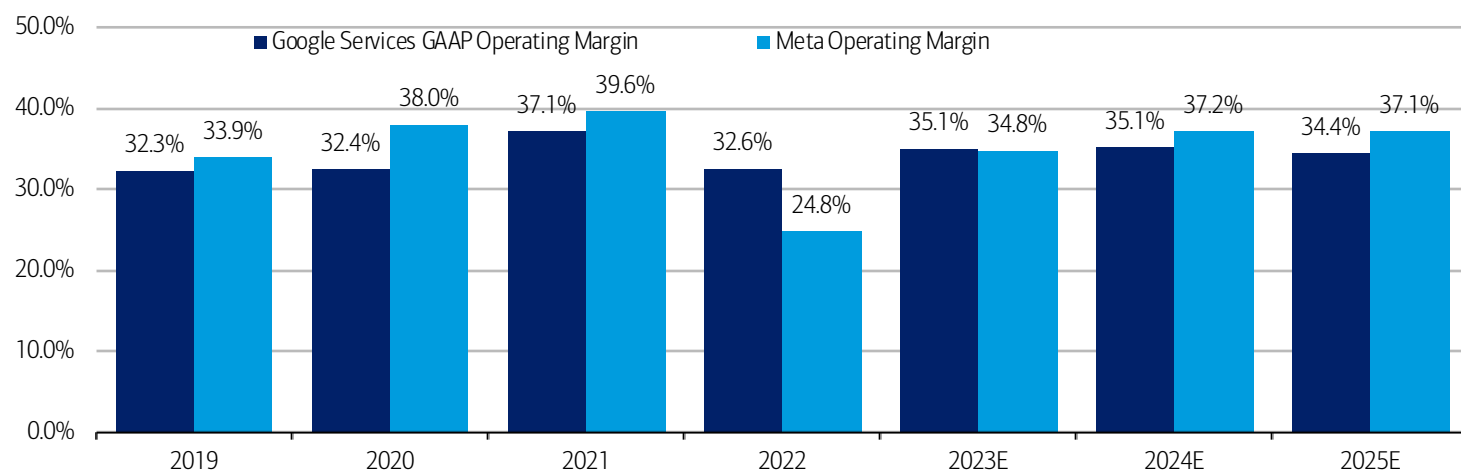
Source: Company Filings, BofA Global Research

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Looking forward to 2024, we expect Alphabet core operating margins to remain stable at 35.1% and expect Meta to expand ~240bps to 37.2%. However, an acceleration in the pace of Gen-AI investments could put downward pressure on future margin expectations.

Exhibit 37: GAAP Operating Margin (%)

Meta operating margins are expected to improve in 2024 while Alphabet's are expected to remain stable.



Source: Company Filings, BofA Global Research

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5) Increasing regulatory headwinds

Concerns over data privacy and security have prompted the call for more stringent regulations. Moreover, the proliferation of disinformation and fake news with the rise of Gen-AI has raised concerns about the manipulation of public opinion, election interference, and the spread of harmful narratives. Regulatory authorities are also increasingly pushing for measures to ensure that online platforms provide age-appropriate content for children. Also, larger platforms (Alphabet and Meta), have leading

market share positions, raising antitrust concerns. Some of the key regulatory risks for 2024 include Digital Markets Act and Digital Services Act in EU, antitrust lawsuits in the US, changes to Google App store policies, limitation on targeting children and potential loss of Section 230 protections.

Antitrust lawsuits

Alphabet search deals

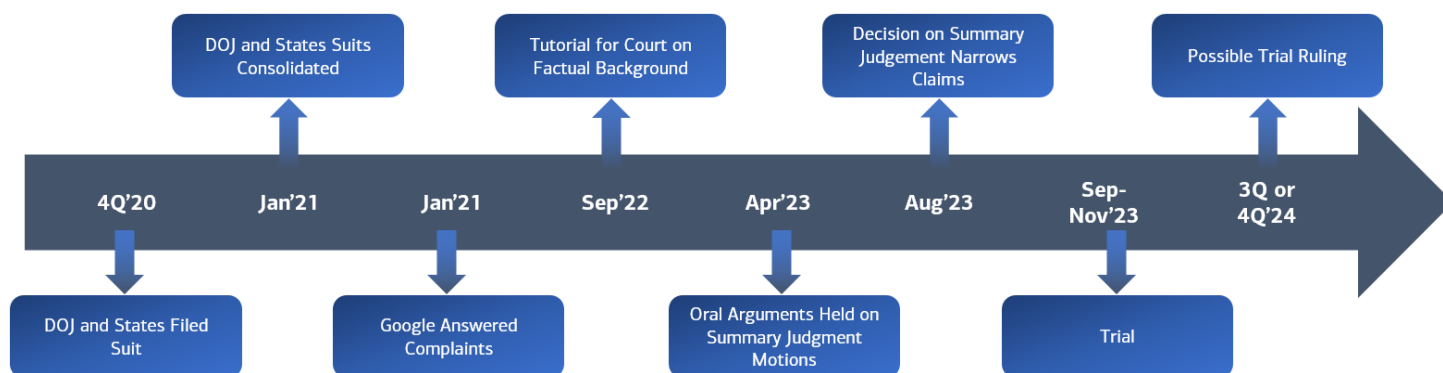
In Oct 2020, US Department of Justice and 11 states brought an antitrust case against Google on the basis that the company anti-competitive actions violated the Sherman Antitrust Act of 1890. The case has since been consolidated with additional complaints from the DOJ and other states joining the litigation. The DOJ is asserting that Google has hurt consumers through exclusionary agreements and limit competition, including a deal with Apple making Google the default search engine on the Safari browser.

The complaint alleged that Google has entered into a series of exclusionary agreements that collectively lock up the primary avenues through which users access search engines, and thus the Internet, by requiring that Google be set as the preset default general search engine on billions of mobile devices and computers worldwide and, in many cases, prohibiting preinstallation of a competitor. In particular, the complaint alleged that Google has unlawfully maintained monopolies in search and search advertising by:

- Entering into exclusivity agreements that forbid preinstallation of any competing search service.
- Entering into tying and other arrangements that force preinstallation of its search applications in prime locations on mobile devices and make them undeletable, regardless of consumer preference.
- Entering into long-term agreements with Apple that require Google to be the default – and de facto exclusive – general search engine on Apple’s popular Safari browser and other Apple search tools.
- Generally using monopoly profits to buy preferential treatment for its search engine on devices, web browsers, and other search access points, creating a continuous and self-reinforcing cycle of monopolization.

Exhibit 38: Timeline of Google Antitrust Trial

The hearing concluded in late Nov'23 and the court will hear closing arguments in early May 2024, and asked both sides to submit written filings before then.



Source: Bloomberg, Public Filings, BofA Global Research

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The trial on the case began on Sept 12 and the hearing concluded in late November. The court will hear closing arguments in early May 2024, and asked both sides to submit written filings before then. Some of the interesting data points from the trial include: 1) Google pays Apple 36% revenue from searches conducted on the Safari browser, 2) DOJ estimates Google’s search deal with Apple is currently worth ~\$10bn, 3) DOJ estimates Google’s exclusive deals prevented its competitors from accessing ~50% of search

queries in US, and 4) Google admitted to making changes to its search Ad auctions and hiking ad prices by 5-10% without notifying advertisers.

A ruling in favor of Google could mark the end result, save for a government appeal, while if the DOJ prevails, appeals could last a year or two. If the judge rules in favor for DOJ, even in part, it will start a new phase to decide what the remedy looks like and, in all likelihood, the judge will reopen discovery so that both sides could do discovery on the remedy. Then there would have another hearing on the remedy, likely sometime in 2025, with a decision possibly 6 months later. If the judge does rule in favor of the DOJ it could be an overhang on Google stock and big tech exiting 2024 and in 2025.

Google App store policies

Alphabet is facing multiple antitrust lawsuits over its Play Store fees, alleging that the company's practice of requiring app developers to use its own payment processing system and pay a 30% commission on in-app purchases is anticompetitive.

- In July 2021, a coalition of 36 states and Washington, D.C. sued Google in the U.S. District Court for the Northern District of California, alleging that the company's Play Store fees are anticompetitive, and that Google has abused its monopoly power. However, in Sep 2023, all 50 states, the District of Columbia and Puerto Rico reached an agreement with Google to settle the lawsuit.
- In March 2021, Match Group sued Google in the U.S. District Court for the Western District of Texas for the company's app store policies and high commission. However, the case was settled in October 2023, with Google agreeing to allow Match to use "user choice billing" by March 31, 2024. This feature allows users to pay with other systems and reduced the payment fee rate to Google to 26% for purchases.
- In August 2020, Epic Games also sued Google alleging that the company's Play Store fees are anticompetitive. The case is currently ongoing.

For 2024, we estimate \$15.8bn in Play Store fee revenues, a modest rebound in growth to 8%. If we assume new app stores take some share, or fees were cut to 26% from 30% (more consistent with Match deal), there could be \$2-2.5bn of high-margin revenue at risk.

Meta's acquisitions

In December 2020, the Federal Trade Commission (FTC) and attorneys general from 48 states filed separate antitrust lawsuits against Meta. The suits allege that Meta engaged in anticompetitive behavior when it acquired Instagram in 2012 and WhatsApp in 2014. The complaints also allege that Facebook has imposed anticompetitive conditions on third-party software developers' access to interconnections to its platform. Our expert calls following the court filing suggested a low likelihood of a Meta breakup based on history and precedent.

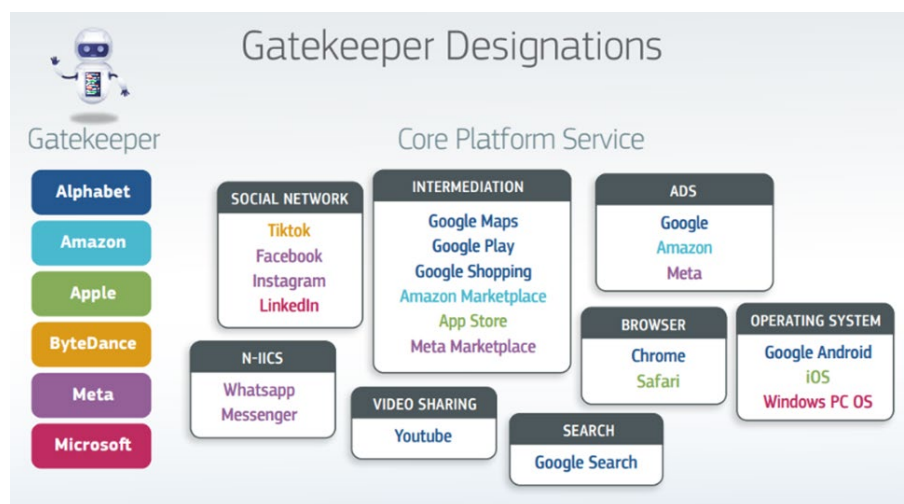
In June 2021, a federal court dismissed the FTC's antitrust complaint against Meta and the case brought by 48 state attorneys general. The court ruled that the FTC failed to prove its main contention and the cornerstone of the case: that Facebook holds monopoly power in the US personal social networking market and gave agency 30 days to refile the case. In August 2021, FTC filed an amended complaint against Meta that allege that the company resorted to illegal buy-or-bury scheme to crush competition after string of failed attempts to innovate. The lawsuit states that lacking serious competition, Meta has been able to hone a surveillance-based advertising model and impose ever-increasing burdens on users.

Digital Markets Act (DMA)

The Digital Markets Act (DMA) is a regulation by the European Union (EU) that aims to ensure fair competition in digital markets. The regulation entered into force in November 2022 and has been applicable since May 2023. Designated gatekeepers have until March 6, 2024, to comply with the Act's requirements. The requirements outlined in the DMA share similarities with the European Union's General Data Protection Regulation (GDPR) in several aspects. However, the DMA extends its scope in certain dimensions, specifically pertaining to additional access to and utilization of end users' personal data. The Digital Markets Act aims to help ensure healthy competition from smaller, non-gatekeeper companies, greater transparency and choice, and more open digital markets.

Exhibit 39: Designated Gatekeepers under DMA

Designated gatekeepers include Alphabet, Meta, Amazon, Apple, ByteDance, and Microsoft.



Source: European Commission Website

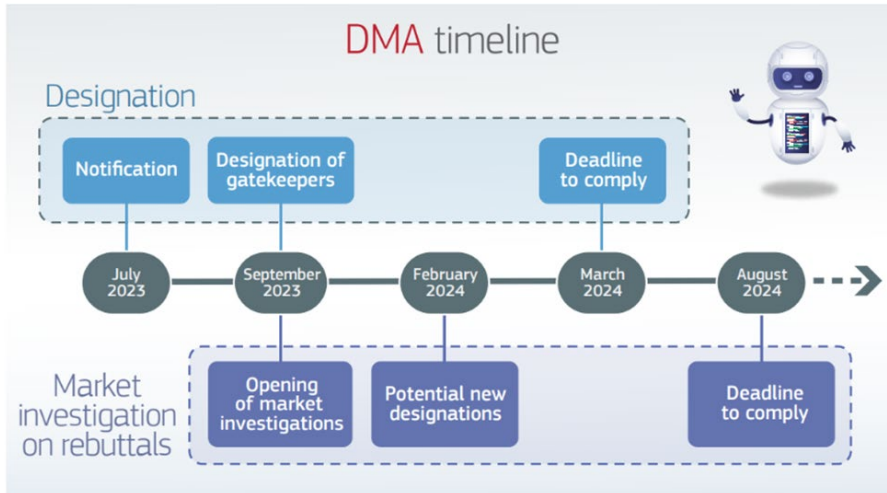
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In Sep'23, the European Commission (EC) designated six "gatekeeper" organizations, chosen as such due to the size, reach and global influence of the platforms and service, including: Alphabet, Meta, Amazon, Apple, ByteDance, and Microsoft. These companies have to ensure full compliance of their designated core platform services with DMA by March 2024, else they risk substantial fines and additional penalties. These gatekeepers are subject to several obligations under the DMA, including:

- Prohibiting self-preferencing: Gatekeepers will not be able to promote their own products or services over those of their rivals.
- Allowing users to uninstall pre-installed apps: Gatekeepers will not be able to force users to keep certain apps pre-installed on their devices.
- Making it easier for users to switch between platforms: Gatekeepers will have to make it easy for users to transfer their data to other platforms.
- Opening up their platforms to third-party apps and services: Gatekeepers will have to allow third-party apps and services to access and interoperate with their platforms.

Exhibit 40: Timeline for DMA Implementation

Gatekeepers have to ensure full compliance of their core platform services with DMA by March 2024.



Source: European Commission Website

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Gatekeepers in violation of the DMA can be fined up to 10% of annual global turnover, or up to 20% for repeated infringements. In case of systematic infringements of the DMA obligations by gatekeepers, additional remedies may be imposed on the gatekeepers after a market investigation.

Digital Services Act

The Digital Services Act (DSA), another recently introduced regulation by EU aims to make online platforms more accountable for the content. It was adopted in July 2022 and entered into force in October 2022. The DSA's general date of applicability is 17 February 2024. The DSA applies to companies offering digital services to users (both individuals and legal entities) in the region, regardless of where they are established. Obligations are layered according to the size of the company and the nature of the services they offer. The most regulated companies under the DSA are those that present and share user-provided information to the public, e.g., social media networks. Very large online platforms (VLOPs) and very large search engines (VLOSEs) i.e., platforms with over 45mn users in the European Union, will have to comply with stricter obligations. The DSA is intended to address a number of concerns, including:

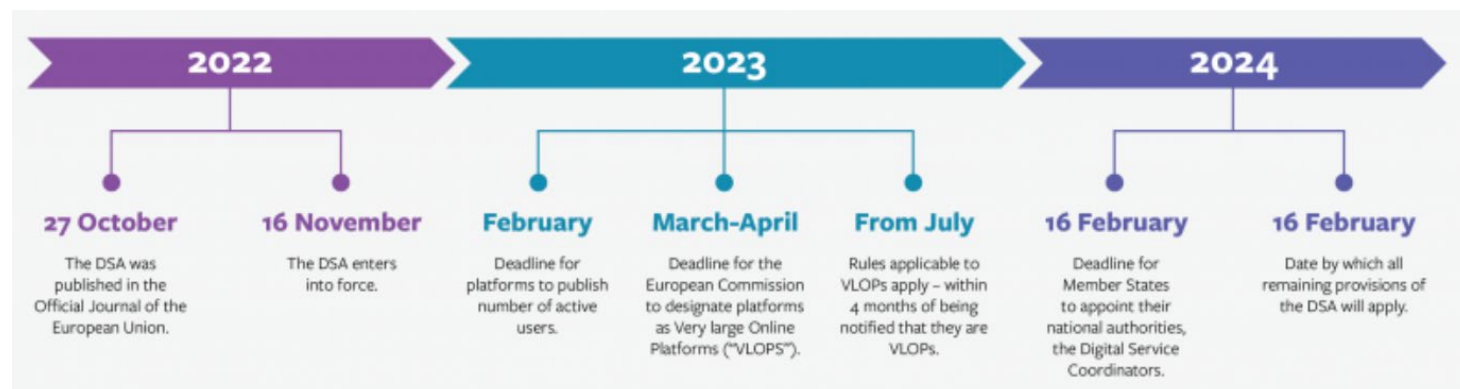
- Spread of illegal content: The DSA requires online platforms to take steps to remove illegal content, such as hate speech and terrorist propaganda.
- Spread of disinformation: The DSA requires online platforms to take steps to prevent the spread of disinformation, such as by fact-checking content and promoting authoritative sources of information.
- Protection of children: The DSA requires online platforms to protect children from harmful content, such as pornography and violence.

In April 2023, European Commission adopted the first designation decisions under the Digital Services Act (DSA), designating 17 Very Large Online Platforms (VLOPs) and 2 Very Large Online Search Engines (VLOSEs) that reach at least 45mn monthly active users, which include:

- **Very Large Online Platforms:** Facebook, Instagram, Pinterest, Snapchat, Google Play, YouTube, Google Maps, Google Shopping, LinkedIn, TikTok, Twitter, Wikipedia, Alibaba AliExpress, Amazon Store, Apple AppStore, Booking.com and Zalando
- **Very Large Online Search Engines:** Google Search and Bing

Exhibit 41: Timeline for DSA Implementation

The DSA's general date of applicability is 17 February 2024.



Source: www.mccannfitzgerald.com

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Obligations for online platforms include:

- Present clear information about each ad they display and cease targeting ads based on profiling of sensitive data or children's data,
- Refrain from designing online Interface in a way that seeks to shape user, behavior in a particular way (prohibition of dark patterns) and disclose,
- Information about use of fully or partially automated systems to recommend specific Information to users in terms and conditions (T&C)
- Offer notice mechanisms for users to report illegal content and provide affected users with reasons behind action taken over their content; offer an effective internal complaint-handling system for users impacted by decisions in relation to content or accounts,
- Additional ad transparency requirements and more detailed T&Cs obligations apply to VLOPS and VLOSES; they will also need to offer at least one non-personalized option of their service.

Under the DSA, the EC has both investigative and sanctioning powers. If the European Commission establishes a breach of the DSA, it may adopt a decision imposing fines up to 6% of the global turnover of the VLOP or VLOSE concerned and order that provider to take measures to address the breach by the set deadline.

Potential loss of Section 230 protections

Violence at the US Capital in 2021, and the suspension of Donald Trump's accounts on Facebook and Twitter has led to controversy and calls for changing the protections on user generated content offered by Section 230 of the Communications Decency Act, which has shielded online platforms from liability for hosting and moderating user content. Critics believe online platforms have bias, limiting distribution of certain content, or are facilitating illegal activity, which shouldn't be protected. While platforms such as Facebook and YouTube are actively policing content on their sites (such as content related to sex trafficking), a rollback of Section 230 could increase risks including: 1) new federal enforcement actions, 2) potential civil liability arising from all user generated content, and 3) expense risk from need to increase content review capabilities.

In Feb 2023, the Supreme Court of the US (SCOTUS) heard arguments in *Gonzalez vs. Google* and was the first time that SCOTUS has interpreted the scope of Section 230. The Gonzalez family brought the lawsuit under the Antiterrorism Act, arguing that Google aided ISIS's recruitment through YouTube videos - specifically, recommending

ISIS videos to users through its algorithms. Previously, a divided panel of the US Court of Appeals for the 9th Circuit ruled that Section 230 protects such recommendations, at least if the provider's algorithm treated content on its website similarly. The majority acknowledged that Section 230 "shelters more activity than Congress envisioned it would". However, concluded that Congress rather than courts should clarify how broadly Section 230 applies.

In May 2023, ruling on the Twitter vs Taamneh case, the US Supreme Court reversed a lower court's decision, basically maintaining Section 230 protections for social media platforms. In the Twitter vs Taamneh case, the Supreme Court declined to reinterpret Section 230, concluded that Twitter and its peers had not aided and abetted terrorism. In a related section 230 case, Gonzalez vs Google, the court dismissed the complaint, referring it back to the lower court, largely because of its ruling in Twitter v. Taamneh.

We think the case decisions could reduce the risk of further court challenges. The ruling suggests that it may take an act of Congress to change Section 230 protections, and there seems to be a broad consensus in the US Congress that Section 230 needs to be revisited. However, Congress is divided with significant disagreements on how to legislate the issue between Democrats and Republicans. While platforms such as Facebook, Instagram and YouTube are actively policing content on their sites (such as content related to sex trafficking), a Section 230 rollback in future could lead to increased risks including: 1) new federal enforcement actions, 2) potential civil liability arising from all users generated content, and 3) expense risk from need to increase content review capabilities. With the resolution of the Twitter case and Court's dismissal of the Google case, we see reduced Section 230 related tail risk for the sector, a positive for Alphabet and Meta.

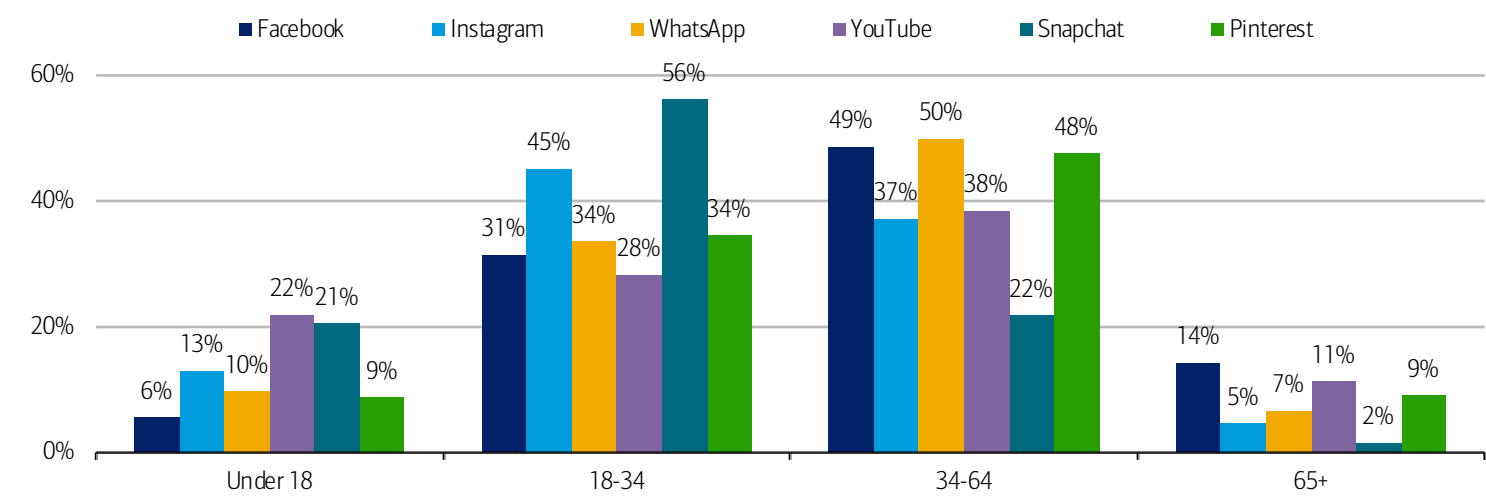
Limitations on targeting users under 18

In May 2023, FTC proposed changes to its 2020 order against Meta, prohibiting the company from monetizing data on users under 18. The FTC proposes expanding the 2020 order, affecting FB, IG, WhatsApp Oculus, to add the following: 1) Total prohibition of monetizing data from anyone under 18; 2) No launching new or modified products or services without the independent assessor confirming that the new features are in compliance; 3) Rules also apply to any Meta acquisitions; 4) Expanded limitations on facial recognition, requiring disclosure and affirmative consent; 5) Strengthened requirements throughout relating to privacy review, data inventory, access controls, etc.

The FTC has twice before settled with Meta over privacy violations. The Commission first filed a complaint against Meta in 2011 and secured an order in 2012 barring the company from misrepresenting its privacy practice. The 2020 order required Meta to pay \$5bn penalty and expanded the privacy program. The 2020 order created an independent third-party assessor, who would evaluate whether Meta was adhering to the agreed privacy rules. The assessor recently submitted its report to FTC and identified several gaps in Meta's privacy program. The FTC alleges that in certain circumstances, Meta continued to allow 3rd party app developers to access user data (until mid-2020) even when the user hadn't been on the site for 30 days. FTC complaint also claims that from late 2017 to mid-2019, parental contact controls put in place by Meta were inadequate & allowed children to communicate with unapproved contacts via video calls and chats. In Nov'23, Judge Timothy Kelly of the U.S. District Court for the District of Columbia denied a motion filed by Meta for the court to take over the dispute with the FTC.

According to eMarketer, in 2022, 6% (10mn) of Facebook users, 13% (17mn) of Instagram and 10% (6mn) of WhatsApp users in the US were under 18, which compares to 21% for Snap and 9% for Pinterest. Given teen targeting limitations already in place, and assuming general ads will still be allowed, we see less than 3% risk to Meta's overall revenue (US advertising accounts for roughly 45% of the company's total revenues).

Exhibit 42: Percentage of total US by Age (%), 2022
Under 18 users represented 6% of total FB US users, 13% of total IG US users and 10% of total WhatsApp US users.



Source: eMarketer

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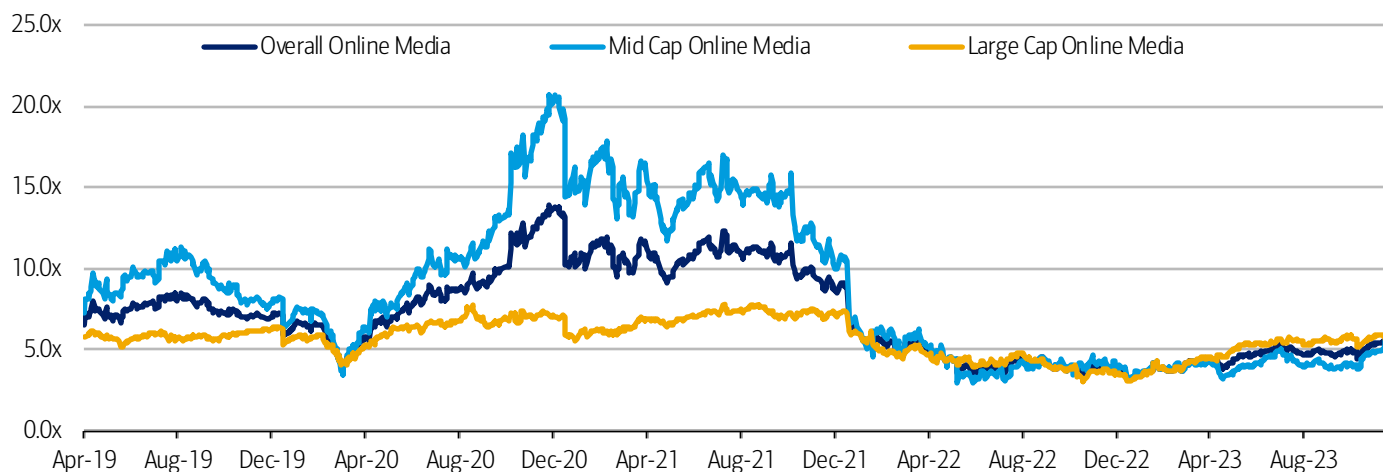


Sector valuation – Where we are now vs history

After declining by more than 75% from peak 14x EV/Rev valuation in 4Q'20 to 3.5x at the start of 2023, US online media average EV/Rev multiple has rebounded to ~5.7x in early December, which compares to a 10-year average at 7.3x, with large caps at 5.8x (avg. at 6.8x), and small caps at 5.7x (avg. at 8.3x). A key question for 2024 is if small caps can outperform large caps as the outlook changes to a more accommodative fed and lower interest rates. However, if inflation or recession fears return, we see some risk for mid-caps and potential for large caps to outperform given advertiser preference for these platforms in uncertain macro, ability to preserve EPS with cost cutting measures, and AI/ML advantages (higher advertiser ROI).

Exhibit 43: Online Media Historical 2Yr Forward Avg. EV/Revenue

Large cap online media stocks are trading in line with historical average, while mid cap stocks are ~35% below their 5yr historical average.



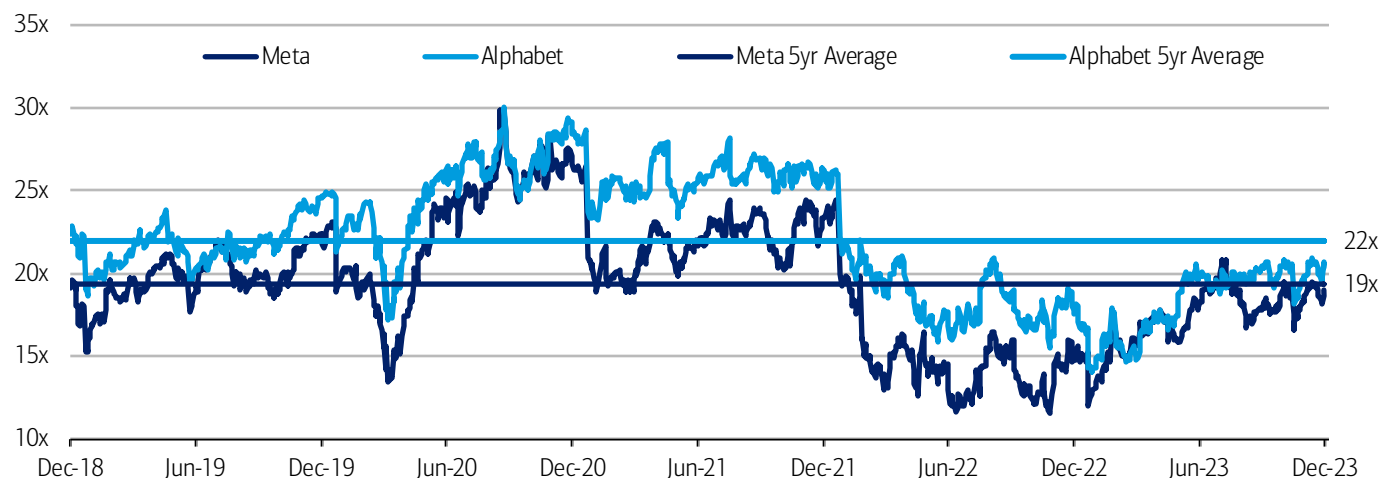
Source: Bloomberg

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On 2yr forward GAAP PE basis, Meta is currently trading at 19x (2% below its 5yr historical average) and Alphabet at 20x (7% below its 5yr average of 22x).

Exhibit 44: Meta and Alphabet 2yr Forward GAAP PE

Meta is currently trading at a 2yr forward GAAP PE multiple of 19x and Alphabet at 20x.



Source: Bloomberg

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Current US online media average 2yr forward EV/Rev multiple of ~5.7x is 22% below 10yr historical average of 7.3x. Large caps at 5.8x vs a 10-year avg. at 6.8x, and small caps at 5.7x vs 5-year avg. at 8.3x.

Exhibit 45: Average 2yr Forward EV/Sales Multiple (2013-2023)

Current average 2yr forward EV/Sales multiple of 5.7x is 22% below 10year average of 7.3x

Avg Multiple	Alphabet	Meta	Snap	Pinterest	Average
2013	5.3x	9.2x			7.2x
2014	6.0x	11.3x			8.7x
2015	5.9x	10.8x			8.4x
2016	6.2x	9.5x			7.8x
2017	6.2x	9.1x			7.7x
2018	6.0x	7.1x			6.6x
2019	5.3x	6.1x	8.0x		6.5x
2020	5.8x	6.7x	11.3x	9.7x	8.4x
2021	7.2x	6.6x	16.7x	11.7x	10.6x
2022	5.4x	3.4x	4.7x	4.4x	4.5x
2023	5.3x	4.6x	3.2x	5.1x	4.5x
Current	6.0x	5.7x	4.8x	6.6x	5.7x

Source: Bloomberg

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Online Media Comps

In large cap, on 2025 ests, even though Meta (2025 GAAP PE of 16x) has higher growth outlook, the stock is trading at a marginal discount to Alphabet (17x). In mid-cap, Pinterest (2025 EV/Rev of 5.0x) is trading at a slight premium to Snap (4.6x) possibly due to a higher growth and margin outlook.

Exhibit 46: Online Media Multiples

In large-cap, Meta is trading at a marginal discount to Alphabet and in mid-cap, Snap is trading at a discount to Pinterest.

Company	Price	2024E				2025E			
	8-Dec-23	EV/S	EV/EBITDA	GAAP P/E	P/FCF	EV/S	EV/EBITDA	GAAP P/E	P/FCF
Meta	\$332.75	5.6x	10x	19x	21x	5.0x	9x	16x	18x
Alphabet	\$134.99	6.2x	12x	20x	21x	5.5x	11x	17x	19x
Snap	\$15.09	5.3x	NM	NM	NM	4.6x	41x	NM	48x
Pinterest	\$34.91	6.0x	24x	NM	29x	5.0x	19x	NM	22x
Median		5.8x	12x	20x	21x	5.0x	15x	17x	20x

Source: Bloomberg, Visible Alpha

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Exhibit 47: Online Media Consensus Metrics

Pinterest has highest expected growth; Meta has highest expected margins and Alphabet has highest FCF margin.

Company	Price	Sales Growth		Gross Margin		Operating Margin		EBITDA Margin		FCF Margin		SBC as % Revenue	
	8-Dec-23	2024	2025	2024	2025	2024	2025	2024	2025	2024	2025	2024	2025
Meta	\$332.75	13%	12%	80%	80%	37%	38%	55%	56%	28%	29%	10%	10%
Alphabet	\$134.99	11%	11%	62%	61%	35%	36%	49%	50%	30%	31%	9%	9%
Snap	\$15.09	13%	16%	55%	57%	(16%)	0%	5%	11%	6%	9%	28%	25%
Pinterest	\$34.91	17%	19%	78%	79%	15%	17%	25%	27%	23%	25%	21%	18%
Median		13%	14%	70%	70%	25%	26%	37%	39%	25%	27%	15%	14%

Source: Bloomberg, Visible Alpha

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Stock comparison framework entering 2024

For 2024, we think macro factors will remain a key determinant of relative performance for the Online media group vs other sectors, and for large caps vs small caps. Product cycles, management discipline to drive margins, and market share trends will also be important drivers of stock returns. For 2024, in the large cap category, we prefer Meta as we see strong growth drivers for the stock including: 1) Solid overall usage trends around video, 2) Reels monetization flipping to become a revenue tailwind, 3) Strong advertiser traction with Advantage+ and other ad measurement solutions, and 4) Increasing monetization of messaging assets. Moreover, we also believe growing optimism on the company's increasing AI capabilities and potential for new AI services has potential to drive multiple expansion for the stock. Meta's increasing AI/ML capabilities will help the company: 1) continue grow core engagement and usage with better recommendations, 2) introduce new creative products that add new usage, 3) increase advertiser ROI and drive back-end cost savings driving incremental ad spend, and 4) diversify into content and business services (ad creative, messaging customer service) platform/ecosystem.

In mid-caps, we recently upgraded and prefer Pinterest given: 1) potential acceleration to above industry growth in 1H'24 as Amazon deal ramps, 2) high expense discipline with potential for further margin/EBITDA upside, and 3) outlook for highest growth in the sector in 2024, 5) constructive valuation vs historical averages. After a year of relative underperformance vs larger peers (both revenue acceleration and stock performance), we expect significant optimism on Pinterest in 2024 on renewed advertiser traction and impact of new ad partnerships.

Exhibit 48: Online media stock comparison

For 2024, we think macro factors will be a key determinant of relative performance, but valuations, product cycles and untapped assets also high importance.

Factors	Valuation	Product Cycle	Untapped Assets	3-5 Year Growth
Factor Impact	High	High	High to Medium	High to Medium
Google	+	+	~	~
Meta	+	++	++	+
Snap	~	+	++	++
Pinterest	~	+	+	++
Comments	Large caps have much lower EV/EBITDA and GAAP P/Es. However, mid-caps at a bigger discount to 10-year P/S historical averages, and lower interest rate expectations over the next two years could be relatively bigger tailwind for midcap stocks.	Positive cycle for group. Shopping content and AI/ML driving deeper engagement at Pinterest; Reels, messaging and AI/ML main growth drivers for Meta. Growing advertiser adoption of DR solutions should aid Snap. Google on cusp of greater AI integration into search, and Shorts monetization in YouTube.	Amazon partnership ramp will help increase ad load and accelerate growth at Pinterest. Reels and Messaging ramp will drive growth at Meta; Spotlight and Maps remain untapped assets for Snap.	Snap and Pinterest have the highest room for monetization growth, though concerns remain on monetization potential on Snap messaging usage. Expect Meta to grow faster than Google medium-term.

Factors	Privacy Changes	Regulatory	Competition	Volatility
Factor Impact	Medium	Medium	Medium to Low	Medium to Low
Google	~	--	~	+
Meta	--	--	~	+
Snap	~	+	-	--
Pinterest	+	+	~	-
Comments	Cookies phase out and potential Android privacy changes could have a modest impact on Meta and Snap and benefit Google. Data use changes in Europe negative for large-caps. Pinterest could be most immune given 1st party data.	Increasing regulatory scrutiny for Google and Meta could impact targeting, time spent, user growth or business model. As advertisers diversify, Pinterest and Snap could benefit and gain share. New under-18 targeting laws could impact Snap.	TikTok user growth has stalled, but given scale, ramp of revs, a risk for Meta & Snap. AVOD growth was below expectations in 2023 but could ramp in 2024 and remains a headwind for the sector. New AI driven info sources (OpenAI, Meta) remains a concern for Google. Pinterest has limited scale for use of AI.	Higher earnings and stock volatility remains a risk in a uncertain 2024 economic outlook. Google and Meta have highest earnings quality based on lower annual volatility.

Source: BofA Global Research

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PO Changes and Upside/Risks for 2024

We are rolling forward our PO basis for the group to 2025 ests. from 2024

Alphabet

Growth drivers – 1) Continued recovery in the ad market, 2) AI/ML improvements in Search (Street is underestimating the complexity of LLM integration into search and we see Google as best positioned), 3) growing advertiser adoption of Pmax and other advertiser solutions, 4) Shorts monetization ramp, and 5) Chrome cookies phase out and potential new privacy on Android and iOS changes could favor Google search and ad networks.

Downside risks – 1) LLM integration in search may take longer than expected or disrupt search revenues with lower ad loads, 2) New regulatory framework in the European Digital Markets Act (DMA) is disruptive for use of data for targeting, 3) Adverse judge ruling on the ongoing DOJ search distribution trial, 4) Increasing capex and lower FCF with new gen-AI investments.

Price Objective - We are raising our Alphabet PO to \$166 (from \$146) based on 2025 GAAP EPS of \$7.84 and unchanged 20x multiple, plus cash. Maintain Buy.

Meta

Estimate upside drivers – 1) Reels monetization improves from higher ad loads, 2) AI/ML capabilities drive further usage growth and better ad products, 3) eCommerce partnerships will improve advertising conversion and spend and provide significant first party data that can be used to inform other advertising algorithms, 4) Ongoing ramp of Click-to-Message ads.

Downside risks – 1) Cookies phase and potential Android and iOS platform changes could affect targeting and measurement, 2) Regulatory changes in Europe (DMA and DSA) and US (teen targeting and antitrust lawsuit), 3) Competition from AVOD or TikTok ad sales (adding significant brand inventory to market) and 4) Tough comps could weigh on growth.

Price Objective - We are increasing our PO to \$405 (from \$384) based on 2025 GAAP EPS of \$20.43, but slightly lower our PO multiple to 19x multiple (vs 20x previously) as we expect revenue growth to slow from current levels. Maintain Buy.

Pinterest

Estimate upside drivers – 1) Amazon deal ramp aids revenue growth, 2) Improving AI/ML content algorithms drives deeper engagement, 3) Increasing shopping content on the platform and better links to advertiser sites drive better user monetization/revenue upside 4) improvement in the home furnishings category (vs -10% in 2023) and 5) Macro improvement drives more ad dollar spend to non-core ad platforms

Downside risks – 1) Continued macro slowdown, pressures ad spend on smaller platforms, 2) Amazon deal ramp lower than expected, 3) Google privacy changes affecting targeting and measurement, 4) Slowing user growth in US and Europe impact ad inventory growth, and 5) High SBC to EBITDA ratio limits stock multiple expansion.

Price Objective - We are raising our PO to \$42 (from \$37) based on 2025 revenue of \$4.3bn and slightly lower 6x multiple (vs 6.5x previously) given less room for margin improvement vs better-than-expected margin improvement in 2023. Our PO represents 22x our 2025 EBITDA estimates. Maintain Buy.

Snap

Estimate upside drivers– 1) Growing smaller advertiser traction of DR solutions, 2) larger client adoption of ad measurement solutions driving higher ad spend, 3) Improving usage trends in US aiding ad inventory, 4) Traction for non-advertising revenue (Snapchat+) and 5) Macro improvement drives more ad dollar spend to non-core ad platforms.

Downside risks – 1) Lower CPMs from more aggressive TikTok competition, 2) lack of monetizable surfaces vs peers, 3) Margin pressure with need for more gen-AI investments, 4) Decelerating user growth due to usage competition from Instagram, Shorts and TikTok, 5) High SBC and uncertain path to GAAP profitability limits multiple expansion.

Price Objective - We raise our PO to \$16 (from \$11) based on unchanged 2025 revenue of \$5.9bn and higher 5x multiple (vs 3.5x previously) on multiple expansion in the sector given a lower interest rate outlook. Our PO would represent 57x our 2025 EBITDA estimate, a large premium to peers.

AI Appendix

Below we highlight various AI initiatives by Online media companies under our coverage:

Alphabet

Google developing next-gen AI model, Gemini

Press reports indicate that Gemini is a new gen AI model that is being developed by Google's AI arm, DeepMind. The model is still in training and expected to be released this Fall. Gemini was created from the ground up to be multimodal, highly efficient at tool and API integrations and built to enable future innovations, like memory and planning. It is the first AI model to be designed to be multimodal, and it is also the first to be built on the same infrastructure as Google's search engine. According to press reports, Gemini has the potential to be much more powerful and versatile than competitive AI models. It is also being designed to be efficient and easy to integrate with other tools and APIs. Once fine-tuned and tested, Gemini will likely be available at various sizes and capabilities, just like PaLM 2. Gemini is expected to power Google's existing AI chatbot, Bard, Search, and enterprise applications such as Cloud, workspace, etc, and, if the model lives up to expectations, we think Gemini could be quite positive for Google sentiment. According to recent press reports, Google has delayed the release of Gemini LLM model to 1Q'24.

Anthropic to use Google chips in expanded partnership

Google announced that AI startup Anthropic will deploy Google's Cloud TPU v5e chips to power its LLM, Claude. Anthropic has agreed to spend more than \$3bn on Google's cloud computing services over four years. Separately, Google has committed to invest \$2bn in the company. Since the startup was founded in 2021, Anthropic has been a Google Cloud customer. As part of the new agreement, Anthropic will use more of Google Cloud's infrastructure and security features, though Amazon also has a deal with Anthropic running workloads on AWS infrastructure.

Google in talks to invest in AI startup Character.AI

Google is reportedly in talks to invest hundreds of millions of dollars in Character.AI, a Gen-AI startup that allows people to chat with virtual versions of celebrities like Billie Eilish or anime characters, while creating their own chatbots and AI assistants. The platform is free to use but also offers subscription model that charges \$9.99 a month for users who want to skip the virtual line to access a chatbot. The investment, which could be structured as convertible notes, will deepen the existing partnership between the two companies and will allow Character.AI to use Google's cloud services and Tensor Processing Units (TPUs) to train its LLM models.

Bard's launches new features for homework help and teenager experience

In November, Bard rolled out new features with focus on homework help and teenager experience. Bard now can show step-by step explanation of solving math equations, and it can directly read inputs and understand questions from a photo that's uploaded. Bard can also generate charts (e.g. a graph for math function) from data or equations that users include in prompts or from tables that Bard generates during the conversation. Bard is now accessible to teenagers with onboarding and safety measures. The updated version of Bard is currently accessible in English across most countries.

YouTube tests AI feature that mimics famous artists

Google is testing a new feature 'Dream Track' on YouTube. The new AI powered feature allows creators use a text prompt or a hummed tune to auto-generate short 30 sec music tracks in famous artists' style. Currently, 'Dream Track' is being tested with a 'small group of selected creators, and it can imitate nine different artists who have agreed to collaborate with YouTube.

Google is adding inaudible watermarks to its AI generated music

In Nov'23, Google announced that audio products that are created by DeepMind's AI Lyria model will be watermarked with SynthID. According to DeepMind, the audio watermark will not affect human's listening experience, but will still be identifiable in the AI-generated audio, even if the audio is heavily audited. A few months ago, Google also released SynthID in beta for images created by Imagen on Google Cloud's Vertex AI. Watermarking tools are seen as an important safeguard against some of the harms of generative AI. President Joe Biden's executive order on artificial intelligence also calls for a new set of government-led standards for watermarking AI-generated content.

New Gen-AI features in Google Search

In Oct'23, Google announced two new features for SGE: 1) creating images with generative AI, and 2) draft generation. Google now enables users to request SGE to generate images with command like "draw a picture on xxx", and SGE will generate up to four images according to users' requests. Tapping on the images, the users can further edit the images with more detail. With the draft generation feature, users can leverage SGE to create documents, edit the length, and change tone.

Google Maps rolling out new AI powered features

Google released several AI features for Maps. The introduction of Immersive View for Places feature uses AI to process billions of street view and aerial images to enable the users see what a place looks like before they go there. Lens in Maps integrates AI and augmented reality to show users what surrounding environment at a place is like. Google's navigation map now can show more realistic buildings and added more details on the lanes to help drivers navigate the traffic.

AI features on Google Maps add in "Search" like experience

Search in Google Maps is evolving to give users more answers, help discover things to do, and find inspiration. Google is leveraging AI and image recognition models to improve the Maps experience and add search like experience. For instance, when users search key words like "anime" or "cherry blossoms", Google Map will recommend the users on places that might interest them. In addition, Google Map will provide EV drivers information on whether nearby charging stations are compatible with their vehicles, and their charging efficiencies.

Double-check Bard's responses

Bard rolled out a new feature called 'Double-checked Bard's response'. The results generated by Bard can now be automatically searched through Google, and it'll highlight whether Google find similar results or found something is contradicted to what Bard generates. Accuracy of generated content through generative AI was a major concern for users and this new feature helps with it.

Google integrates Bard with other Google Apps

Google released Bard Extensions in English. Bard Extension will be linked to Gmail, Docs, Drive, Google Maps, YouTube, and Google Flights and hotels. Bard can interact with data from these apps to find information and organize them from the platforms. The new features enable Bard to implement tasks like planning for the users. In one conversation, Bard can pull recommendation from multiple apps, and provide informative summaries to users. According to Google, the data from Google Workspace will not be used to train Bard's model and users can disable the feature at any time.

YouTube's AI solutions on Ads creativity

Google rolled out its AI-integrated tools for businesses to optimize video Ads on YouTube. The AI tools helps to optimize the brand logo, voiceover, video duration, and aspect ratio. Google AI notifies advertisers when their Ads miss a creative best practice (based on Google's data-backed creative best practice) and provides actionable insights on further optimization. According to YouTube, eBay's conversion rate increased 34% and CPMs decreased 11% through Google AI-powered video campaign types (Video reach, video view, and video action campaigns).

Google testing SGE while browsing

Google started testing a new feature named "Search Generative Experience (SGE) while browsing" that employs AI to create concise bullet-point summaries of web articles. With a single click, this feature generates key points from long articles within seconds, making it easier for users to quickly grasp the main content. The purpose of this feature is to assist users in navigating online information more swiftly and efficiently, enabling them to access the core content faster. The feature is initially available on the Google app for Android and iOS and will be introduced to the Chrome browser on desktop later.

Google enhances SGE with new features

Google introduced three new AI features (more images/videos, faster overviews, and publication dates) for Search Generative Experience. Google added more images and short videos to the AI-generated SGE overviews. Google has also improved the speed of generating AI overview and has cut the time to produce the summaries in half. The company has also added published dates for all linked web pages alongside the AI text, which gives users more precise information on the pages' recency.

Google plans major upgrade to Assistant with Gen AI features

Google is working on a significant upgrade to its virtual personal assistant, Google Assistant, with generative AI features. According to an internal email reported by Axios, Google aims to develop a "supercharged" version of the assistant powered by the latest large language models (LLM) like ChatGPT and Bard chatbots. The email said preliminary work on the new mobile version of Assistant has started. The new Google Assistant may leverage LaMDA (Language Model for Dialogue Applications), the company's conversational AI system. LaMDA powers chatbots like Bard to generate human-like exchanges. Integrating LaMDA's capabilities will enable Assistant to understand the context better during interactions. If Google opens APIs and other resources to allow third-party apps and services, developers could integrate the AI-powered Assistant into their products.

Meta

Meta developing a more powerful AI model

Meta plans to roll out an updated LLM AI model next year. According to press reports, META's new LLM is expected to be as powerful as OpenAI's GPT 4.0, and several times more powerful compared to the company's Llama 2. Meta has been purchasing more of the Nvidia's H100 chips and building its in house AI infrastructure. The company expects to start training the new LLM in early 2024.

Meta's launches new AI video creation and image editing tools

Meta has unveiled two new AI tools for video creation and image editing on Facebook and Instagram: Emu Video and Emu Edit. The video editing feature enables users to create short video clips from text or still image inputs, with capabilities to animate images based on text prompts. The editing feature allows users to conduct local and global editing, and other image editing tasks, through detailed instructions (text inputs).

Meta bars political advertisers from using Gen-AI ads tools

Meta announced that it will prohibit political and advertisers from certain regulated industries such as housing, pharmaceuticals, and financial services etc. from using its Gen AI advertising tools. The policy update comes a month after Meta started to expand advertisers' access of its AI-powered ad tools that can instantly create backgrounds, image adjustments and variations of ad copy in response to simple text prompts.

Meta expands generative AI tools to boost effectiveness of Ads

Meta rolled out new-gen AI tools for the advertisers to create ad images and texts more efficiently. Previously, small number of advertisers tested Meta's tools in its "AI Sandbox" that was launched in May. Meta said 50% of advertisers expect the new feature to save them more than 5 hours per week on ads creation. The new tools will be added to Meta's Ads Manager, and access will be available to all advertisers in 2024.

Meta launches AI agents and new image generating model at Connect

Meta Connect featured a number of new AI tools and integrations including: 1) Launch of Meta AI (and 28 topics specific) chatbots for users to engage with and explore specific interests. Meta has partnered with well-known public figures to embody some of these AIs (such as Chris Paul as Perry, Pro golfer helping you perfect your stroke). 2) Meta launched AI Studio, a platform to help developers build AI chatbots for company's messaging surfaces. Starting with Messenger, AI Studio will allow companies to create AIs to align with their brand and improve customer service experiences, and 3) Meta also launched a new image generating model named Emu, which allow users to create/edit images with prompts or generate custom stickers in chats. Meta highlighted that Emu can create custom images from scratch much faster than competitive LLM models.

Meta launches AI coding software, Code Llama

Meta launched a new AI coding software tool, Code Llama that leverages generative AI to enhance the efficiency of developers by suggesting lines of software code. Code Llama will make workflows faster and more efficient for developers. The product can be used as a productivity and educational tool to help programmers write more robust, well-documented software.

Code Llama is built on top of Llama 2 and Meta made the underlying model open source and accessible for commercial purposes. Code Llama is a code-specialized version of Llama 2 that was created by further training Llama 2 on its code-specific datasets, sampling more data from that same dataset for longer. It can generate code and natural language about code, from both code and natural language prompts. It can also be used for code completion and debugging. It supports many of the most popular programming languages used today, including Python, C++, Java, PHP, Typescript, C#, Bash, etc.

Meta launches AI tool to create music from text prompt

Meta launched an AI tool, AudioCraft, that generates high-quality audio and music from text prompts. AudioCraft comprises three models: MusicGen, AudioGen, and EnCodec. MusicGen generates music from text, while AudioGen produces audio from text, and EnCodec enhances music generation quality. Meta envisions MusicGen evolving into a new type of instrument, like the innovation brought by synthesizers. The AudioCraft models simplify the design of generative models for audio, making it easier for users to experiment and develop their own models. AudioCraft's model and code are also open-sourced, allowing researchers and practitioners to train their own models with custom datasets.

WhatsApp testing AI-generated stickers

WhatsApp is testing a new generative AI feature that allows users to create custom stickers. With the new features, using a text-based command, users can generate stickers, like image generator tools like Midjourney and OpenAI's Dall-E. The feature is currently available only to Android users who are part of WhatsApp's Google Play Beta Program and is planned for wider release in the coming weeks.

Cloudflare and Meta partner to empower AI App Developers

Cloudflare and Meta have partnered up to make the Llama 2 open-source large language model, available for global usage to developers building AI applications on Cloudflare's developer platform. Llama 2 allows developers to run and deploy their own LLMs. Until recently, the only way to have access to an LLM was through proprietary models. Training LLMs requires investment in time, computing, and financial resources and something that's accessible to most developers. Meta's release of Llama 2, a open sourced and publicly available LLM, has presented a major shift, allowing developers to run and deploy their own LLMs. However, this still requires access to, and managing, the infrastructure to run the LLM. With Cloudflare partnership, more than a million developers will have access to Llama2.

Snapchat

Snap launches new ChatGPT powered Lens API

Snap released a new version of its AR development tool, Lens Studio 5.0. The new AR development tool is designed to support more advanced AR development with increased productivity and the addition of new AI capabilities. The company has also partnered with OpenAI to develop a new ChatGPT Remote API that allows developers to leverage ChatGPT in their Lenses. With the new API, developers can generate text-based content to create new types of learning, conversational, and creative experiences for Snapchat users. For example, developers can create Lenses that feature infinite quizzes and randomizers created by ChatGPT or they can create new types of Lenses that change the camera style by automatically applying filters based on the user's prompt.

Snapchat partners with Microsoft for ads in 'My AI' Chatbot

Snapchat started testing Sponsored Links in My AI begun in May. Snap would generate the suggestions on links of restaurants, airline, and hotel. Snapchat and Microsoft entered a partnership on the link suggestions, and Microsoft Advertising's Ads for Chat API will power Snap's Sponsored links. Snap's ads will be like the ads in the form of Sponsored Links provided by Bing and Google. According to Snapchat, the sponsored link feature remains in an early experimental phase.

Pinterest

Pinterest showcases AI capabilities at Investor Day

Pinterest has grown its AI model size by 100x since 2022, that is helping drive materials increases in search relevancy and ad conversion rates. On the user/usage side, AI has helped enable whole page optimization (with more relevant ads per page), and Pinterest indicated a >60% better lift in saves per user by incorporating intent signals into image understanding models

Amazon

Amazon launches AI powered image generating tool for advertisers

Amazon launched the feature of image generation in beta powered by generative AI solution. The solution enables advertisers who don't have in-house capabilities to easily create brand-theme imagery and supports the bigger brands too. The advertisers can select their products and click generate to efficiently generate requested images in Amazon Ad Console. The images can be further refined by entering short text prompts, and the tool can generate multiple versions of the images.

Price objective basis & risk

Alphabet (GOOGL / GOOG)

Our price objective of \$166/\$166 is based on 20x 2024E 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 slower, but still 10%+ revenue growth in future years.

Risks for the stock include: 1) Still volatile macro and geopolitical backdrop may impact ad spend in 4Q, 2) LLM integration in search may take longer than expected or negatively impact search revenues, 3) concerns related new regulatory framework in the European Digital Markets Act (DMA), 4) adverse judge ruling on the ongoing DOJ search distribution trial, 5) potential for increasing Capex and lower FCF given AI focus.

Amazon.com (AMZN)

Our PO of \$168 is based on our SOTP analysis that values the 1P retail business at 0.9x 2024E Revenue (including subscription/Prime membership fees), 3P retail business at 3.0x 2024E Revenue, AWS at 7.5x 2024 Sales, and the advertising business at 3.5x 2024

Sales. For 2024E, our 7.5x AWS multiple is relatively in line with our SaaS comps at 7.9x, our 0.9x GMV multiple is a discount to our retail comps at 1.1x, and our 3.5x advertising multiple is a discount to our digital advertising comps at 3.6x. 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.

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 \$405 price objective is based on 19x 2024E 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.

Revenue drivers are a recovery in Online advertising markets, an acceleration in Reels or messaging monetization, and AI/ML benefits driving better content engagement and incremental ad spend.

Downside risks are decline in user activity from competition, privacy or data issues impact revenue generation, potential for Street to assign a negative value for Metaverse (e.g., Reality Labs) given massive 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 5.0x 2024E 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 usage pressure, revenue volatility and low 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, and 3) valuation that has less earnings based support than peers when including SBC.

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
	Electronic Arts	EA	EA US	Omar Dessouky, CFA
	Expedia	EXPE	EXPE US	Justin Post
	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
	Wayfair	W	W US	Curtis Nagle, CFA
	Wix.com	WIX	WIX US	Michael McGovern
	Zillow	ZG	ZG US	Curtis Nagle, CFA
	Zillow	Z	Z US	Curtis Nagle, CFA
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
	Instacart	CART	CART US	Justin Post
	Playtika	PLTK	PLTK US	Omar Dessouky, CFA
	Snap	SNAP	SNAP US	Justin Post
	Take-Two Interactive	TTWO	TTWO US	Omar Dessouky, 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
	Redfin Corp	RDFN	RDFN US	Curtis Nagle, CFA
	Shutterstock	SSTK	SSTK US	Curtis Nagle, CFA
RSTR				
	Vivid Seats	SEAT	SEAT US	Curtis Nagle, CFA

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Important Disclosures

Equity Investment Rating Distribution: Media & Entertainment Group (as of 30 Sep 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	33	51.56%	Buy	13	39.39%
Hold	15	23.44%	Hold	7	46.67%
Sell	16	25.00%	Sell	5	31.25%

Equity Investment Rating Distribution: Technology Group (as of 30 Sep 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	204	51.52%	Buy	104	50.98%
Hold	95	23.99%	Hold	45	47.37%
Sell	97	24.49%	Sell	27	27.84%

Equity Investment Rating Distribution: Global Group (as of 30 Sep 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships ^{R1}	Count	Percent
Buy	1869	53.48%	Buy	1046	55.97%
Hold	828	23.69%	Hold	461	55.68%
Sell	798	22.83%	Sell	370	46.37%

^{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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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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