

## Qualcomm

# Handset recovery could drive solid 1Q results, but a few long-term risks to note

Reiterate Rating: BUY | PO: 173.00 USD | Price: 154.37 USD

## Key focuses: handset demand, edge AI, Huawei, Samsung

Qualcomm is set to report 1Q earnings on January 31, 2024. We expect solid 1Q24 results, driven by continued improvements in Android handset demand and better channel inventories. The stock started reacting to the better demand and inventories, and has increased +42% in the last three months, vs. SOX's 35%. The valuation of ~16x NTM P/E is higher than the historical 14x average, partially due to the growing discussion of Edge AI devices and potential inclusion of an AI chip in smartphones, which could shorten the handset replacement cycle. With QCT revenues (semiconductors) down 23% YoY in 2023, the comps are getting easier and we expect handsets to grow 7% YoY in 1Q. We also believe recent easing of the Chinese monetary system may help smartphone demand in China and could potentially support growth and earnings. We crudely estimate that domestic handset sales in China account for 37% of Qualcomm's QCT handset revenues. We reiterate our Buy rating and increase our PO to \$173, from \$145, now based on 16x 2025E P/E, vs. prior 14x.

## Better handset demand & inventories remain key drivers

Management recently noted a stabilization in the Android smartphone environment after several weak quarters, and we believe handset demand should remain strong in 1Q. With better channel inventories and another quarter of recovery in handset sales, we model the QTL (licensing) business to grow ~11% QoQ to \$1.4bn. which should support overall results. We expect Edge AI to be a key focus on the 1Q call, and believe Qualcomm has a significant growth opportunity from increased content across handsets, IoT, PCs, and autos over the long-term.

## Several key risks, mainly over the long-term

With the valuation getting richer, we also flag some long-term risks, namely declining share at Samsung, which carries greater weight, given the high-end device bias and fully-built out application processor, and potential share losses in China, as Huawei re-enters the market and takes share from current Qualcomm customers. In addition, though we believe Qualcomm's autos segment could shine in the next few years, current demand across the industry seems soft and the segment's growth could come in softer than Street's 14% YoY growth expectations for 1Q.

Estimates (Sep) (US\$)	2022A	2023A	2024E	2025E	2026E
EPS	12.53	8.43	9.18	10.70	11.72
GAAP EPS	11.02	6.80	8.03	9.46	10.40
EPS Change (YoY)	46.7%	-32.7%	8.9%	16.6%	9.5%
Consensus EPS (Bloomberg)			9.37	10.79	11.86
DPS	2.86	3.12	3.22	3.24	1.68
Valuation (Sep)					
P/E	12.3x	18.2x	16.7x	14.3x	13.1x
GAAP P/E	13.9x	22.6x	19.1x	16.2x	14.8x
Dividend Yield	1.9%	2.0%	2.1%	2.1%	1.1%
EV / EBITDA*	11.9x	17.1x	16.6x	14.4x	13.2x
Free Cash Flow Yield*	3.0%	4.3%	4.7%	5.5%	6.1%

\* For full definitions of *IQmethod*<sup>SM</sup> measures, see page 7.

25 January 2024

### Equity

#### Key Changes

(US\$)	Previous	Current
Price Obj.	145.00	173.00

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### Stock Data

Price	154.37 USD
Price Objective	173.00 USD
Date Established	25-Jan-2024
Investment Opinion	B-1-7
52-Week Range	101.47 USD - 154.58 USD
Mkt Val (mn) / Shares Out	227,734 USD / 1,475.3 (mn)
Free Float	99.9%
Average Daily Value (mn)	1264.42 USD
BofA Ticker / Exchange	QCOM / NAS
Bloomberg / Reuters	QCOM US / QCOM.OQ
ROE (2024E)	43.1%
Net Dbt to Eqty (Sep-2023A)	13.7%
ESGMeter™	High

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

QCT: Qualcomm CDMA Technologies

QTL: Qualcomm Technology Licensing

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Timestamp: 25 January 2024 01:00AM EST

# iQprofile<sup>SM</sup> Qualcomm

## iQmethod<sup>SM</sup> – Bus Performance\*

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Return on Capital Employed	44.1%	24.9%	23.9%	24.5%	23.5%
Return on Equity	101.9%	47.9%	43.1%	40.6%	35.9%
Operating Margin	38.6%	32.0%	32.5%	33.5%	32.3%
Free Cash Flow	6,834	9,849	10,547	12,537	13,813

## iQmethod<sup>SM</sup> – Quality of Earnings\*

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Cash Realization Ratio	0.6x	1.2x	1.1x	1.1x	1.1x
Asset Replacement Ratio	1.3x	0.8x	0.6x	0.5x	0.5x
Tax Rate	14.1%	14.3%	15.0%	15.0%	15.0%
Net Debt-to-Equity Ratio	39.7%	13.7%	-8.3%	-28.6%	-44.3%
Interest Cover	36.3x	29.3x	NM	NM	NM

## Income Statement Data (Sep)

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Sales	44,170	35,831	37,917	42,658	48,199
% Change	32.0%	-18.9%	5.8%	12.5%	13.0%
Gross Profit	25,807	20,184	21,501	24,487	27,717
% Change	32.5%	-21.8%	6.5%	13.9%	13.2%
EBITDA	19,594	13,607	14,013	16,186	17,740
% Change	37.5%	-30.6%	3.0%	15.5%	9.6%
Net Interest & Other Income	(470)	(391)	(208)	(208)	(208)
<b>Net Income (Adjusted)</b>	<b>14,251</b>	<b>9,486</b>	<b>10,314</b>	<b>11,959</b>	<b>13,043</b>
<b>% Change</b>	<b>45.3%</b>	<b>-33.4%</b>	<b>8.7%</b>	<b>15.9%</b>	<b>9.1%</b>

## Free Cash Flow Data (Sep)

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Net Income from Cont Operations (GAAP)	12,532	7,655	9,018	10,577	11,577
Depreciation & Amortization	1,762	1,809	1,896	2,133	2,410
Change in Working Capital	(4,167)	600	(969)	(959)	(1,283)
Deferred Taxation Charge	NA	NA	NA	NA	NA
Other Adjustments, Net	(1,031)	1,235	1,775	1,958	2,280
Capital Expenditure	(2,262)	(1,450)	(1,172)	(1,172)	(1,172)
<b>Free Cash Flow</b>	<b>6,834</b>	<b>9,849</b>	<b>10,547</b>	<b>12,537</b>	<b>13,813</b>
<b>% Change</b>	<b>-21.0%</b>	<b>44.1%</b>	<b>7.1%</b>	<b>18.9%</b>	<b>10.2%</b>
Share / Issue Repurchase	(145)	87	0	0	0
Cost of Dividends Paid	(3,212)	(3,491)	(3,572)	(3,572)	(3,572)
Change in Debt	0	0	0	0	0

## Balance Sheet Data (Sep)

(US\$ Millions)	2022A	2023A	2024E	2025E	2026E
Cash & Equivalents	6,382	11,523	16,664	23,803	32,225
Trade Receivables	5,643	3,183	3,669	4,123	4,681
Other Current Assets	8,699	7,957	8,967	9,963	11,292
Property, Plant & Equipment	5,168	5,042	4,318	3,357	2,119
Other Non-Current Assets	23,122	23,534	23,534	23,534	23,534
<b>Total Assets</b>	<b>49,014</b>	<b>51,239</b>	<b>57,152</b>	<b>64,779</b>	<b>73,851</b>
Short-Term Debt	0	0	0	0	0
Other Current Liabilities	11,866	9,628	10,858	12,150	13,793
Long-Term Debt	13,537	14,484	14,484	14,484	14,484
Other Non-Current Liabilities	5,598	5,347	5,347	5,346	5,346
<b>Total Liabilities</b>	<b>31,001</b>	<b>29,459</b>	<b>30,689</b>	<b>31,980</b>	<b>33,622</b>
<b>Total Equity</b>	<b>18,013</b>	<b>21,581</b>	<b>26,264</b>	<b>32,600</b>	<b>40,030</b>
<b>Total Equity &amp; Liabilities</b>	<b>49,014</b>	<b>51,040</b>	<b>56,953</b>	<b>64,580</b>	<b>73,652</b>

\* For full definitions of iQmethod<sup>SM</sup> measures, see page 7.

## Company Sector

Telecom Equipment-Wireless/Cellular

## Company Description

Qualcomm (QCOM) designs, develops, and supplies semiconductors and collects royalties on wireless handheld devices and infrastructure based on its dominant position in CDMA and other related technology patents. In addition Qualcomm provides systems software and components to wireless handset vendors and promotes applications and services that run on high speed wireless networks. The company operates primarily through two segments: CDMA Technologies and Technology Licensing.

## Investment Rationale

We believe that Qualcomm is a long-term beneficiary of growing 3G/4G/5G smartphone, tablet and cellular enabled machine to machine adoption worldwide. QCT shipments should benefit from smartphone upgrades and IoT devices coming online, while ASPs are expected to increase due to higher-ASP 5G modems as well as growing RF front-end solution attach rates. Last, one of the biggest risks (Apple dispute) for QTL has been removed.

## Stock Data

Average Daily Volume 8,190,839

## Quarterly Earnings Estimates

	2023	2024
Q1	2.37A	2.35E
Q2	2.15A	2.20E
Q3	1.87A	2.14E
Q4	2.02A	2.48E

# BofA estimates vs. consensus

Exhibit 1: BofA estimates vs. Street's expectations

Our expectations are roughly in-line with Street estimates

(in 000s \$)	1Q24 Expectations			FY24 Expectations		
	BofA	Consensus	% difference	BofA	Consensus	% difference
Total revenue	\$9,435.1	\$9,537.2	(107) bps	\$37,917.3	\$38,065.7	(39) bps
QCT revenue	\$8,003.4	\$8,051.1	(59) bps	\$32,360.9	\$32,231.7	40 bps
QTL revenue	\$1,402.7	\$1,414.5	(84) bps	\$5,440.4	\$5,409.4	57 bps
Operating margin (%)	33.6%	33.3%	90 bps	32.5%	32.7%	(55) bps
EPS	\$2.35	\$2.36	(43) bps	\$9.18	\$9.38	(204) bps

Source: BofA Global Research estimates, Bloomberg

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**Exhibit 2: Income statement**

We model FY24 revenues/EPS to reach \$37.92bn/\$9.18, respectively

(\$mn except per share values)	1Q23	2Q23	3Q23	4Q23	1Q24E	2Q24E	3Q24E	4Q24E	1Q25E	2Q25E	3Q25E	4Q25E		F2023	F2024E	F2025E
QCT Revenues	7,892	7,942	7,174	7,374	8,003	7,943	7,870	8,544	8,821	9,149	9,102	9,676		30,382	32,361	36,748
YoY Growth	-10.8%	-16.8%	-23.5%	-25.5%	1.4%	0.0%	9.7%	15.9%	10.2%	15.2%	15.6%	13.2%		-19.4%	6.5%	13.6%
QTL Revenues	1,524	1,290	1,230	1,262	1,403	1,318	1,306	1,415	1,493	1,382	1,401	1,518		5,306	5,440	5,794
YoY Growth	-16.2%	-18.4%	-19.0%	-12.4%	-8.0%	2.1%	6.1%	12.1%	6.4%	4.9%	7.3%	7.3%		-16.5%	2.5%	6.5%
<b>Total Revenues</b>	<b>9,456</b>	<b>9,268</b>	<b>8,442</b>	<b>8,665</b>	<b>9,435</b>	<b>9,290</b>	<b>9,205</b>	<b>9,988</b>	<b>10,343</b>	<b>10,560</b>	<b>10,532</b>	<b>11,223</b>		<b>35,831</b>	<b>37,917</b>	<b>42,658</b>
YoY Growth	-11.6%	-16.9%	-22.7%	-23.9%	-0.2%	0.2%	9.0%	15.3%	9.6%	13.7%	14.4%	12.4%		-18.9%	5.8%	12.5%
Gross Profits	5,483	5,166	4,702	4,833	5,331	5,258	5,219	5,693	5,927	6,051	6,045	6,464		20,184	21,501	24,487
Gross Margin	58.0%	55.7%	55.7%	55.8%	56.5%	56.6%	56.7%	57.0%	57.3%	57.3%	57.4%	57.6%		56.3%	56.7%	57.4%
Total Opex	2,206	2,172	2,181	2,164	2,164	2,292	2,336	2,366	2,366	2,498	2,608	2,738		8,723	9,159	10,210
<b>Operating Income</b>	<b>3,277</b>	<b>2,994</b>	<b>2,521</b>	<b>2,669</b>	<b>3,167</b>	<b>2,966</b>	<b>2,883</b>	<b>3,327</b>	<b>3,560</b>	<b>3,552</b>	<b>3,438</b>	<b>3,726</b>		<b>11,461</b>	<b>12,342</b>	<b>14,277</b>
Operating Margin	34.7%	32.3%	29.9%	30.8%	33.6%	31.9%	31.3%	33.3%	34.4%	33.6%	32.6%	33.2%		32.0%	32.5%	33.5%
Financial Income (Expense)	-111	-137	-91	-52	-52	-52	-52	-52	-52	-52	-52	-52		-391	-208	-208
Income Tax Expense	-482	-437	-325	-340	-467	-437	-425	-491	-526	-525	-508	-551		-1,584	-1,820	-2,110
<b>Net Income</b>	<b>2,684</b>	<b>2,420</b>	<b>2,105</b>	<b>2,277</b>	<b>2,648</b>	<b>2,477</b>	<b>2,406</b>	<b>2,784</b>	<b>2,982</b>	<b>2,975</b>	<b>2,878</b>	<b>3,123</b>		<b>9,486</b>	<b>10,314</b>	<b>11,959</b>
<b>Non-GAAP EPS</b>	<b>\$2.37</b>	<b>\$2.15</b>	<b>\$1.87</b>	<b>\$2.02</b>	<b>\$2.35</b>	<b>\$2.20</b>	<b>\$2.14</b>	<b>\$2.48</b>	<b>\$2.66</b>	<b>\$2.66</b>	<b>\$2.58</b>	<b>\$2.80</b>		<b>\$8.43</b>	<b>\$9.18</b>	<b>\$10.70</b>
GAAP EPS	\$1.98	\$1.47	\$1.60	\$1.75	\$2.07	\$1.92	\$1.85	\$2.19	\$2.36	\$2.35	\$2.26	\$2.48		\$6.80	\$8.03	\$9.46
Diluted share count	1,131	1,123	1,124	1,125	1,125	1,124	1,122	1,121	1,120	1,119	1,117	1,116		1,126	1,123	1,118
Operating Cash Flow	3,095	1,457	2,657	4,090	2,812	3,067	2,899	2,941	3,334	3,453	3,464	3,459		11,299	11,719	13,709
OCF Margin	32.7%	15.7%	31.5%	47.2%	29.8%	33.0%	31.5%	29.4%	32.2%	32.7%	32.9%	30.8%		31.5%	30.9%	32.1%
<b>Free Cash Flow</b>	<b>2,697</b>	<b>1,004</b>	<b>2,351</b>	<b>3,797</b>	<b>2,519</b>	<b>2,774</b>	<b>2,606</b>	<b>2,648</b>	<b>3,041</b>	<b>3,160</b>	<b>3,171</b>	<b>3,166</b>		<b>9,849</b>	<b>10,547</b>	<b>12,537</b>
FCF Margin	28.5%	10.8%	27.8%	43.8%	26.7%	29.9%	28.3%	26.5%	29.4%	29.9%	30.1%	28.2%		27.5%	27.8%	29.4%
Cash and equivalents	8,238	6,676	8,631	11,324	12,491	13,914	15,168	16,465	18,156	19,966	21,787	23,604		11,324	16,465	23,604
Total debt	16,877	15,985	15,444	15,398	15,398	15,398	15,398	15,398	15,398	15,398	15,398	15,398		15,398	15,398	15,398
Net cash	-8,639	-9,309	-6,813	-4,074	-2,907	-1,484	-230	1,067	2,758	4,568	6,389	8,206		-4,074	1,067	8,206
<b>Margin Analysis</b>																
Gross Margin	58.0%	55.7%	55.7%	55.8%	56.5%	56.6%	56.7%	57.0%	57.3%	57.3%	57.4%	57.6%		56.3%	56.7%	57.4%
Research & Development	18.5%	18.5%	20.3%	19.1%	17.6%	18.8%	18.9%	17.4%	16.8%	17.2%	17.7%	17.5%		19.1%	18.2%	17.3%
Selling, General and Administrative	4.9%	5.0%	5.5%	5.8%	5.4%	5.9%	6.5%	6.2%	6.0%	6.5%	7.0%	6.9%		5.3%	6.0%	6.6%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%
Total Opex	23.3%	23.4%	25.8%	25.0%	22.9%	24.7%	25.4%	23.7%	22.9%	23.7%	24.8%	24.4%		24.3%	24.2%	23.9%
<b>Operating Income</b>	<b>34.7%</b>	<b>32.3%</b>	<b>29.9%</b>	<b>30.8%</b>	<b>33.6%</b>	<b>31.9%</b>	<b>31.3%</b>	<b>33.3%</b>	<b>34.4%</b>	<b>33.6%</b>	<b>32.6%</b>	<b>33.2%</b>		<b>32.0%</b>	<b>32.5%</b>	<b>33.5%</b>
Tax Rate	15.2%	15.3%	13.4%	13.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%		14.3%	15.0%	15.0%
Non-GAAP Net Income	28.4%	26.1%	24.9%	26.3%	28.1%	26.7%	26.1%	27.9%	28.8%	28.2%	27.3%	27.8%		26.5%	27.2%	28.0%
<b>YoY % Growth</b>																
Revenues	-11.6%	-16.9%	-22.7%	-23.9%	-0.2%	0.2%	9.0%	15.3%	9.6%	13.7%	14.4%	12.4%		-18.9%	5.8%	12.5%
Total Opex	9.3%	-0.8%	-0.2%	-7.8%	-1.9%	5.5%	7.1%	9.3%	9.3%	9.0%	11.6%	15.7%		-0.2%	5.0%	11.5%
Operating Income	-26.1%	-31.6%	-37.1%	-37.3%	-3.4%	-1.0%	14.4%	24.6%	12.4%	19.8%	19.3%	12.0%		-32.8%	7.7%	15.7%
EPS	-26.5%	-32.9%	-36.7%	-35.4%	-0.8%	2.3%	14.5%	22.7%	13.1%	20.7%	20.1%	12.7%		-32.8%	9.0%	16.5%
<b>QoQ % Growth</b>																
Revenues	-17.0%	-2.0%	-8.9%	2.6%	8.9%	-1.5%	-0.9%	8.5%	3.6%	2.1%	-0.3%	6.6%				
Total Opex	-6.0%	-1.5%	0.4%	-0.8%	0.0%	5.9%	1.9%	1.3%	0.0%	5.6%	4.4%	5.0%				
Operating Income	-23.0%	-8.6%	-15.8%	5.9%	18.7%	-6.4%	-2.8%	15.4%	7.0%	-0.2%	-3.2%	8.4%				
EPS	-24.2%	-9.2%	-13.1%	8.1%	16.3%	-6.4%	-2.7%	15.8%	7.3%	-0.1%	-3.2%	8.6%				

Source: BofA Global Research estimates, company report

BofA GLOBAL RESEARCH





## Price objective basis & risk

### Qualcomm (QCOM)

Our \$173 PO is based on roughly 16x our FY25E P/E. Our multiple is largely in-line with mobile/large cap semiconductor peers (14x), which we believe is warranted given the stability of Qualcomm's high-margin royalty business and relative strength of the company's QCT business beyond smartphones, as well as its high 5G baseband market share and 5G RF front-end content market share.

Downside risks to our price objective are 1) worse-than-expected resolution terms with Huawei, 2) low adoption rate of smartphones worldwide due to global economic pressure, 3) pressure on semiconductor pricing or market share as the company grows presence in emerging markets, 4) increased semiconductor competition, 5) ability to maintain the royalty rate when the market expands to different types of devices, such as tablets and other mobile wireless devices, or different technology generations, 6) any future negative trade policies related to China.

## Analyst Certification

I, Tal Liani, 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 - Telecom and Data Networking Equipment Coverage Cluster

Investment rating	Company	BofA Ticker	Bloomberg symbol	Analyst
<b>BUY</b>				
	Akamai	AKAM	AKAM US	Madeline Brooks
	Amdocs	DOX	DOX US	Tal Liani
	Arista Networks	ANET	ANET US	Tal Liani
	Check Point Software Technologies	CHKP	CHKP US	Tal Liani
	Ciena	CIEN	CIEN US	Tal Liani
	CrowdStrike Holdings Inc.	CRWD	CRWD US	Tal Liani
	CyberArk	CYBR	CYBR US	Tal Liani
	Fastly	FSLY	FSLY US	Madeline Brooks
	Fortinet	FTNT	FTNT US	Tal Liani
	Gen Digital, Inc.	GEN	GEN US	Jonathan Eisenson
	InterDigital, Inc.	IDCC	IDCC US	Tal Liani
	Motorola Solutions	MSI	MSI US	Tomer Zilberman
	Qualcomm	QCOM	QCOM US	Tal Liani
	Zscaler	ZS	ZS US	Tal Liani
<b>NEUTRAL</b>				
	Cellebrite	CLBT	CLBT US	Tal Liani
	Cisco Systems	CSCO	CSCO US	Tal Liani
	Palo Alto Networks	PANW	PANW US	Tal Liani
	SentinelOne, Inc.	S	S US	Tal Liani
<b>UNDERPERFORM</b>				
	Cloudflare	NET	NET US	Madeline Brooks
	CommScope	COMM	COMM US	Tal Liani
	F5 Inc	FFIV	FFIV US	Tal Liani
	Okta Inc	OKTA	OKTA US	Madeline Brooks
	SecureWorks	SCWX	SCWX US	Tal Liani

## iQmethod<sup>SM</sup> Measures Definitions

### Business Performance

Return On Capital Employed

Return On Equity

Operating Margin

Earnings Growth

Free Cash Flow

### Numerator

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

Net Income

Operating Profit

Expected 5 Year CAGR From Latest Actual

Cash Flow From Operations – Total Capex

### Denominator

Total Assets – Current Liabilities + ST Debt + Accumulated Goodwill

Amortization

Shareholders' Equity

Sales

N/A

N/A

### Quality of Earnings

Cash Realization Ratio

Asset Replacement Ratio

Tax Rate

Net Debt-To-Equity Ratio

Interest Cover

### Numerator

Cash Flow From Operations

Capex

Tax Charge

Net Debt = Total Debt – Cash &amp; Equivalents

EBIT

### Denominator

Net Income

Depreciation

Pre-Tax Income

Total Equity

Interest Expense

### Valuation Toolkit

Price / Earnings Ratio

Price / Book Value

Dividend Yield

Free Cash Flow Yield

Enterprise Value / Sales

### Numerator

Current Share Price

Current Share Price

Annualised Declared Cash Dividend

Cash Flow From Operations – Total Capex

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

Other LT Liabilities

Enterprise Value

### Denominator

Diluted Earnings Per Share (Basis As Specified)

Shareholders' Equity / Current Basic Shares

Current Share Price

Market Cap = Current Share Price × Current Basic Shares

Sales

Basic EBIT + Depreciation + Amortization

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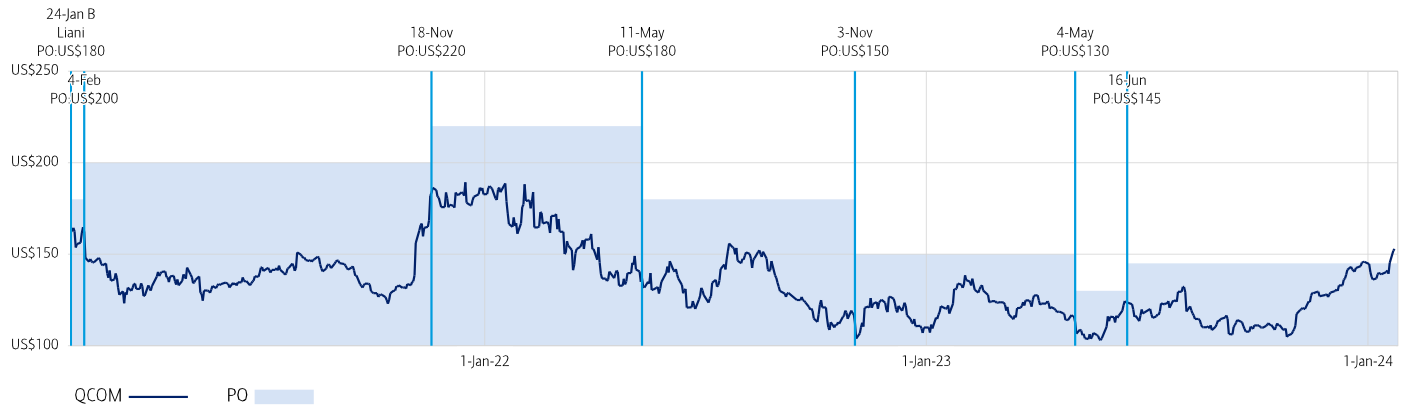
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B: Buy, N: Neutral, U: Underperform, PO: Price Objective, NA: No longer valid, NR: No Rating

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### Equity Investment Rating Distribution: Telecommunications Group (as of 31 Dec 2023)

Coverage Universe	Count	Percent	Inv. Banking Relationships <sup>R1</sup>	Count	Percent
Buy	57	51.82%	Buy	43	75.44%
Hold	27	24.55%	Hold	17	62.96%
Sell	26	23.64%	Sell	12	46.15%

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

Coverage Universe	Count	Percent	Inv. Banking Relationships <sup>R1</sup>	Count	Percent
Buy	1895	53.62%	Buy	1083	57.15%
Hold	832	23.54%	Hold	454	54.57%
Sell	807	22.84%	Sell	383	47.46%

<sup>R1</sup> Issuers that were investment banking clients of BofA Securities or one of its affiliates within the past 12 months. For purposes of this Investment Rating Distribution, the coverage universe includes only stocks. A stock rated Neutral is included as a Hold, and a stock rated Underperform is included as a Sell.

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

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