

Telecommunications

TRAI subscriber data (Jul-23) – Gains continue for Bharti & Jio

Sector Report ▶ Sector Specific Monthly Notes ▶ September 27, 2023

NIFTY 50: 19,716

The telecom industry's VLR base increased by 3.6mn in Jul-23, improving from the 0.5mn decline in Jun-23. VIL continued to lose VLR subscribers (-0.4mn), while Bharti/Jio saw subscriber addition of 3.2mn/1.4mn. In terms of overall subscribers, Jio continued to report the highest subscriber addition for the 16th straight month (3.9mn), with Bharti lagging at 1.5mn. VIL lost another 1.3mn. The overall subscriber base increased by 2.7mn. Jio also had a lead in wireless broadband subscriber additions, recording an increase of 3.9mn, followed by Bharti reporting a 2.9mn increase MoM. VIL's wireless broadband subscribers were down 0.6mn MoM. Jio maintained its lead on the wireline front as well, with the addition of 0.23mn subscribers. Even as Jio and Bharti continue with 5G rollouts, the timing of the tariff hike remains the key trigger. VIL needs a sizable fund-raising at the earliest to increase capex to restrict the loss of more subscribers.

Santosh Sinha

santosh.sinha@emkayglobal.com

+91 22 6624 2414

Overall subscriber base was up 2.7mn MoM, with Jio adding the highest number of subscribers yet again, followed by Bharti. VIL's base declined for the 28th month in a row, down by 1.3mn. The industry's VLR base improved by 3.6mn MoM, with Bharti (up 3.2mn) and Jio (up 1.4mn) adding VLR subscribers. VIL lost 0.4mn VLR subscribers.

Broadband subscriber base: Jio maintains the lead

Jio was the leader in wireless broadband subscriber additions, with 3.9mn growth MoM, while Bharti added 2.9mn broadband subscribers. VIL's wireless broadband subscribers were down 0.6mn MoM. This is the fifth successive month that Jio has added more wireless broadband subscribers than Bharti. Jio continued to consolidate its leadership position in the wireline broadband space, with 0.23mn additions (vs. +0.25mn in Jun-23). Bharti maintained its No. 2 position with 0.17mn additions (+0.14mn in Jun-23).

Player-wise analysis

Bharti Airtel: Bharti added 1.5mn wireless subscribers in Jul-23. Its VLR base grew by 3.2mn, with VLR proportion improving to 100.2% vs. 99.7% in Jun-23. Delhi and Karnataka were the main contributors to the VLR increase, while UP (E) and Bihar were the major laggards. Bharti discontinued its Rs99 plan in Feb-23 in 19 remaining circles, which may have impacted the company's subscriber addition when compared with Jio.

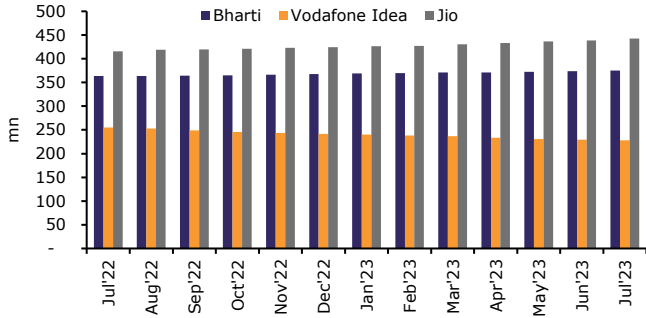
Reliance Jio: Jio added 3.9mn subscribers in Jul-23, up from the 2.3mn added in Jun-23. This is the 17th straight month of subscriber addition for Jio; its VLR base grew by 1.4mn, as its VLR proportion was down QoQ at 94% in Jul-23 from 94.5% in Jun-23. Maharashtra and Mumbai were the main contributors to the VLR increase, while UP (E) and Gujarat were the major laggards.

Vodafone Idea: Subscriber losses persisted in Jul-23, with the telco losing another 1.3mn subscribers. The VLR base declined by 0.4mn (moderation from 2.5mn dip in Jun-23), as the VLR proportion improved to 88.6% in Jul-23 from 88.3% in Jun-23. This is the 16th consecutive month of the VLR subscriber-base decline. **VIL lost VLR subscribers in 14 of the 22 circles MoM in July.** The dip in VLR base was led by UP (E) and Bihar, whereas Maharashtra reported the highest increase in the VLR base.

Urban-Rural Mix: Jio's performance on the rural front also improved, with the addition of 2.0mn subscribers, while Bharti lost 0.5mn rural subscribers. Jio continued to report the highest urban mix at 56%, followed by Bharti at 51.8% and VIL at 51.2%.

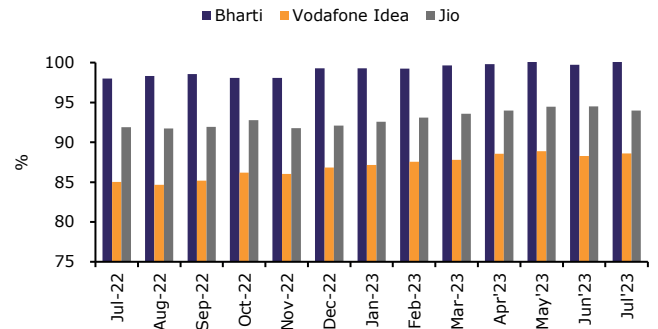
Story in Charts

Exhibit 1: Gross subscriber base of the top-3 operators



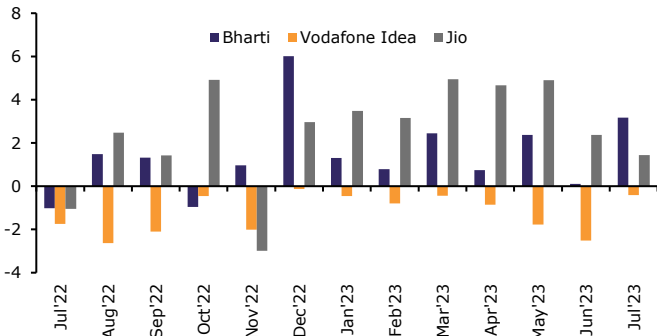
Source: TRAI, Emkay Research

Exhibit 2: VLR of the top-3 operators



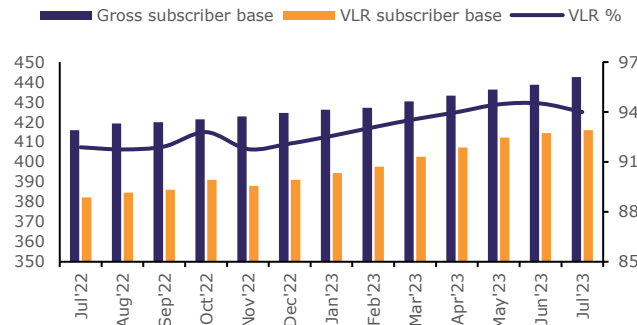
Source: TRAI, Emkay Research

Exhibit 3: Net VLR addition of the top-3 operators (%)



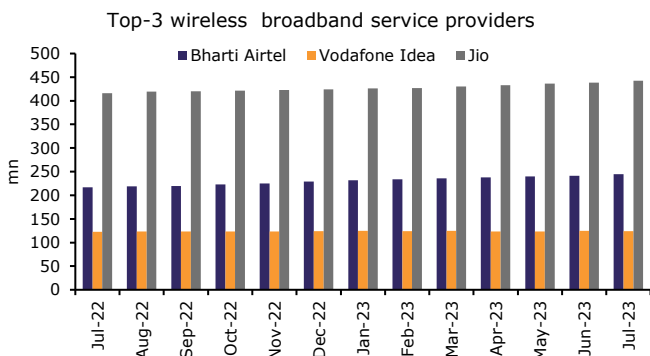
Source: TRAI, Emkay Research

Exhibit 4: Jio's VLR improves



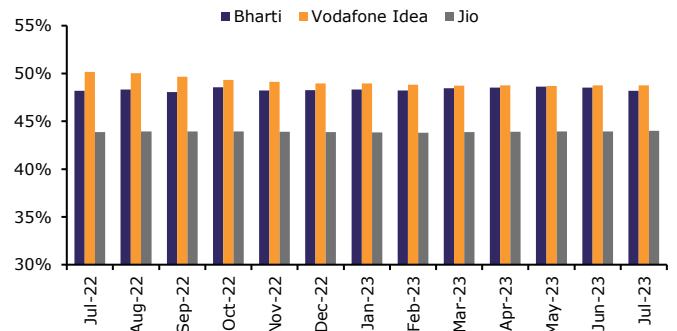
Source: TRAI, Emkay Research

Exhibit 5: Subscriber base for the top-3 wireless broadband subscribers



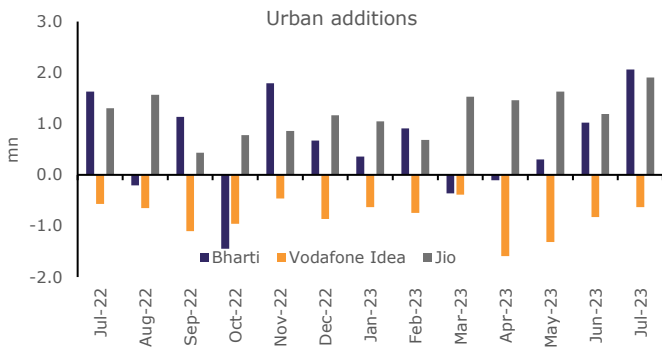
Source: TRAI, Emkay Research

Exhibit 6: Rural mix



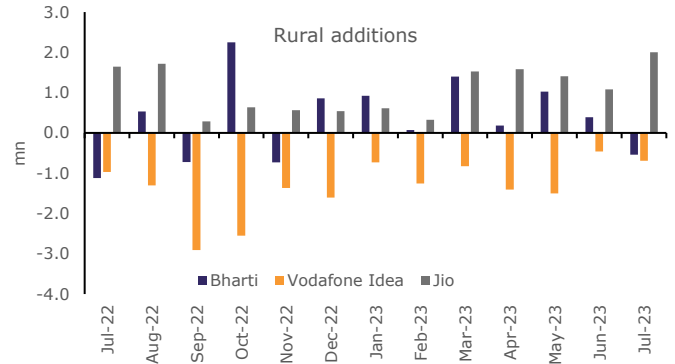
Source: TRAI, Emkay Research

Exhibit 7: Urban subscriber addition – Bharti Airtel leads



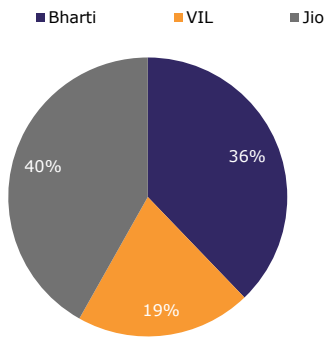
Source: TRAI, Emkay Research

Exhibit 8: Rural subscriber addition – Jio leads



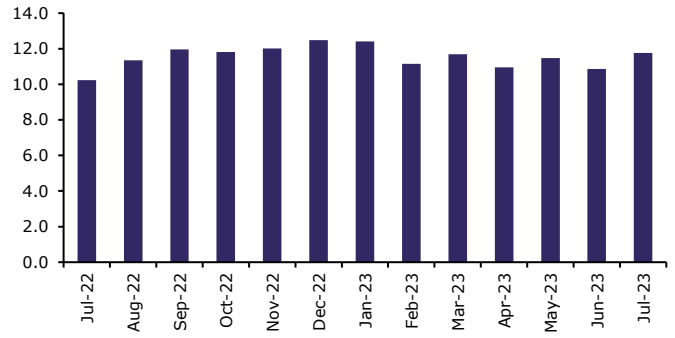
Source: TRAI, Emkay Research

Exhibit 9: VLR subscriber share – Jio leads



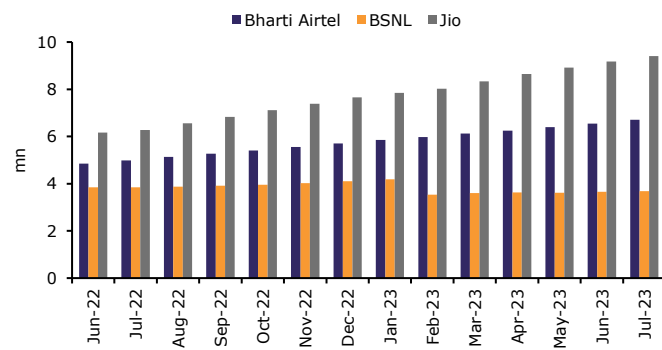
Source: TRAI, Emkay Research

Exhibit 10: The number of MNP requests has increased



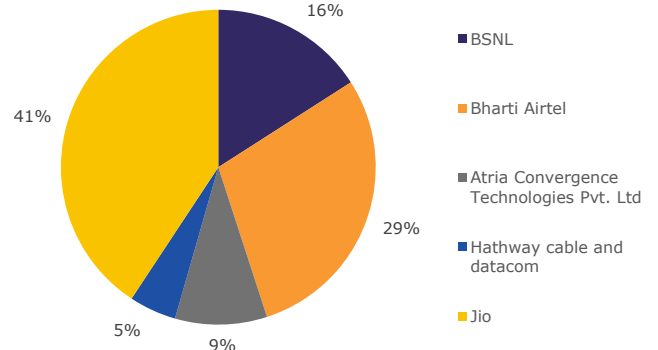
Source: TRAI, Emkay Research

Exhibit 11: Wired subscribers – Jio additions remain the highest



Source: TRAI, Emkay Research

Exhibit 12: Wired subscribers – Jio extends its lead



Source: TRAI, Emkay Research

Exhibit 13: Wireless broadband subscriber base

(mn)	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23
Bharti Airtel	217	219	220	223	225	229	232	234	236	238	240	242	244
Vodafone Idea	123	123	123	123	123	124	125	124	125	124	124	125	124
Jio	416	419	420	421	423	425	426	427	430	433	436	439	442
BSNL	21	22	22	22	22	22	23	21	22	22	22	21	21

Source: TRAI, Emkay Research

Exhibit 14: Broadband subscribers as a percentage of total subscribers

	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23
Bharti Airtel	60%	60%	60%	61%	61%	62%	63%	63%	64%	64%	65%	65%	65%
Vodafone Idea	48%	49%	49%	50%	51%	51%	52%	52%	53%	53%	54%	54%	54%
Jio	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
BSNL	19%	20%	20%	20%	20%	21%	22%	21%	21%	21%	21%	21%	21%

Source: TRAI, Emkay Research

Exhibit 15: Wired broadband subscribers

(mn)	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23
BSNL	3.9	3.9	3.9	4.0	4.0	4.1	4.2	3.5	3.6	3.6	3.6	3.7	3.7
Bharti Airtel	5.0	5.1	5.3	5.4	5.6	5.7	5.9	6.0	6.1	6.3	6.4	6.5	6.7
Atria Convergence Technologies	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2
Hathway Cable & Datacom	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Jio	6.3	6.6	6.8	7.1	7.4	7.7	7.8	8.0	8.3	8.7	8.9	9.2	9.4
Total	18.4	18.8	19.3	19.8	20.2	20.7	21.1	20.8	21.3	21.8	22.2	22.7	23.1

Source: TRAI, Emkay Research

Exhibit 16: Wired broadband market share

	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23
BSNL	21%	21%	20%	20%	20%	20%	20%	17%	17%	17%	16%	16%	16%
Bharti Airtel	27%	27%	27%	27%	27%	28%	28%	29%	29%	29%	29%	29%	29%
Atria Convergence Technologies	12%	11%	11%	11%	11%	10%	10%	10%	10%	10%	10%	10%	9%
Hathway Cable & Datacom	6%	6%	6%	6%	6%	5%	5%	5%	5%	5%	5%	5%	5%
Jio	34%	35%	35%	36%	36%	37%	37%	39%	39%	40%	40%	40%	41%

Source: TRAI, Emkay Research

Exhibit 17: Wired broadband subscriber additions

(mn)	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23
BSNL	0.01	0.03	0.03	0.04	0.07	0.09	0.07	-0.64	0.06	0.03	-0.02	0.05	0.02
Bharti Airtel	0.14	0.14	0.14	0.14	0.15	0.15	0.14	0.13	0.14	0.13	0.15	0.14	0.17
Atria Convergence Technologies	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02
Hathway Cable & Datacom	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	0.00	0.00	0.00
Jio	0.11	0.29	0.27	0.29	0.26	0.27	0.19	0.18	0.31	0.32	0.27	0.25	0.23
Total	0.3	0.5	0.5	0.5	0.5	0.5	0.4	-0.3	0.5	0.5	0.4	0.5	0.4

Source: TRAI, Emkay Research

Exhibit 18: Circle-wise VLR subscriber analysis

(mn)	Jio			Bharti Airtel			Vodafone Idea		
	Jun-23	Jul-23	% MoM	Jun-23	Jul-23	% MoM	Jun-23	Jul-23	% MoM
Andhra Pradesh	28	28	0%	33	33	1%	11	11	1%
Assam	9	8	-1%	11	11	0%	2	2	-2%
Bihar	36	36	-1%	39	38	-1%	7	7	-3%
Delhi	17	17	5%	16	17	7%	10	10	2%
Gujarat	27	27	-3%	12	13	3%	20	20	0%
Haryana	8	8	7%	7	7	3%	7	6	-1%
Himachal Pradesh	4	4	2%	4	3	-4%	1	0	-4%
Jammu & Kashmir	5	5	0%	5	5	1%	0	0	-3%
Karnataka	21	22	3%	32	33	2%	6	6	-1%
Kerala	10	10	0%	8	8	5%	13	13	0%
Kolkata	10	10	-2%	5	6	2%	5	5	0%
Madhya Pradesh	36	36	0%	16	16	0%	14	14	-1%
Maharashtra	41	42	4%	23	23	1%	22	22	1%
Mumbai	10	11	10%	9	9	2%	8	8	2%
North East	4	4	-6%	6	6	2%	1	1	-2%
Odisha	15	14	-4%	12	12	0%	2	1	-3%
Punjab	11	11	5%	12	13	1%	6	6	1%
Rajasthan	24	23	-2%	23	23	1%	9	9	-2%
Tamil Nadu	23	23	0%	28	29	1%	15	15	0%
Uttar Pradesh (E)	35	34	-3%	36	35	-2%	17	16	-3%
Uttar Pradesh (W)	21	20	-1%	19	19	-1%	15	15	0%
West Bengal	22	22	2%	17	17	1%	13	13	1%
Total	414	416	0%	373	376	1%	203	202	0%

Source: TRAI, Emkay Research

Exhibit 19: Jio – Circle-wise time series addition

JIO Time series	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23
Andhra	0.1	0.3	-0.4	0.0	-0.1	0.4	0.4	-0.3	-0.3	0.7	-0.1	0.7	0.1
Assam	-0.2	0.1	-0.1	0.2	-0.2	0.2	0.1	0.1	0.2	0.1	-0.2	0.0	-0.1
Bihar	-0.5	0.3	-0.4	1.8	-0.2	-1.0	0.3	0.4	0.1	1.5	1.0	-0.8	-0.5
Delhi	0.3	0.1	0.3	-0.1	-0.4	0.4	0.3	0.0	0.0	0.1	-0.4	0.1	0.8
Gujarat	0.0	-0.2	0.6	-0.3	0.4	0.5	0.4	0.2	-0.6	0.1	0.2	2.0	-0.9
Haryana	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.2	-0.1	0.2	-0.2	-0.2	0.5
Himachal Pradesh	-0.1	0.1	-0.1	0.0	-0.1	0.1	0.0	-0.1	0.1	0.0	0.3	0.1	0.1
Jammu & Kashmir	0.0	-0.1	0.0	-0.2	0.0	0.1	0.0	0.0	0.2	0.1	0.2	0.0	0.0
Karnataka	-0.1	0.4	0.6	-0.4	0.2	0.1	0.3	0.3	-0.6	0.5	0.5	0.1	0.6
Kerala	0.0	0.2	0.1	0.0	0.0	0.2	-0.4	-0.1	0.0	0.2	0.5	0.0	0.0
Kolkata	0.1	0.1	0.2	-0.2	0.0	0.0	0.1	0.0	0.2	-0.1	-0.1	-0.1	-0.2
Madhya Pradesh	-0.1	0.2	-0.8	0.1	-0.4	0.5	0.4	0.5	0.9	0.4	0.2	0.0	0.1
Maharashtra	0.4	0.2	0.4	-0.2	0.2	1.0	0.5	0.0	0.5	0.7	-0.1	0.7	1.7
Mumbai	0.1	0.3	0.2	0.0	-0.2	0.0	0.2	0.0	-0.1	0.4	-0.6	0.7	1.0
North East	-0.2	0.0	0.0	0.3	-0.4	0.1	0.0	0.1	0.0	0.2	0.0	0.1	-0.3
Odisha	-0.2	0.2	-0.1	-0.1	0.0	0.2	0.1	0.1	0.7	0.1	0.0	0.2	-0.6
Punjab	-0.1	-0.7	1.4	0.2	0.0	0.1	0.1	0.0	0.1	0.1	-0.1	0.1	0.5
Rajasthan	0.1	0.5	0.0	0.6	0.0	-0.3	0.5	0.1	0.1	0.2	0.9	-0.4	-0.4
Tamil Nadu	0.0	0.3	0.4	0.0	-0.3	0.1	-0.3	0.6	-0.2	0.0	0.3	0.1	0.0
Uttar Pradesh (E)	-1.2	0.0	0.5	1.1	-0.3	-0.1	0.1	0.6	1.9	-1.0	1.1	0.1	-1.0
Uttar Pradesh (W)	0.3	-0.1	-0.5	1.0	-1.0	0.1	0.2	0.5	1.0	0.2	0.8	-0.5	-0.3
West Bengal	0.1	0.2	-0.7	0.7	-0.5	0.3	0.2	-0.1	1.0	0.0	0.5	-0.8	0.4
Total Jio	-1.1	2.5	1.5	4.9	-3.0	3.0	3.5	3.2	5.0	4.7	4.9	2.3	1.4

Source: TRAI

Exhibit 20: Total subscriber base

(mn)	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23
Bharti Airtel	363	364	364	365	366	368	369	370	371	371	372	374	375
Vodafone Idea	255	253	249	246	244	241	240	238	237	234	231	230	228
Jio	416	419	420	421	423	425	426	427	430	433	436	439	442
BSNL	111	110	109	109	108	107	105	104	104	103	101	100	98
MTNL	3	3	3	3	3	3	3	3	2	2	2	2	2
Total	1,148	1,149	1,145	1,144	1,143	1,143	1,143	1,142	1,144	1,143	1,143	1,144	1,146

Source: TRAI, Emkay Research

Exhibit 21: Operator-wise VLR

VLR (%)	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23
Bharti Airtel	98	98	99	98	98	99.3	99.3	99.3	99.6	99.8	100.1	99.7	100.2
Vodafone Idea	85	85	85	86	86	86.9	87.2	87.6	87.8	88.6	88.9	88.3	88.6
Jio	92	92	92	93	92	92.1	92.6	93.1	93.6	94.0	94.5	94.5	94.0
BSNL	52	51	51	51	51	51	52	52	52	52	52	52	53
MTNL	23	23	22	22	24	23	22	22	25	28	26	41	28
Total	88	88	89	89	89	89	90	90	90	91	91	91	91

Source: TRAI, Emkay Research

Exhibit 22: VLR subscriber base

(mn)	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23
Bharti Airtel	356	358	359	358	359	365	366.3	367.1	369.5	370.3	372.7	372.8	375.9
Vodafone Idea	217	214	212	212	210	210	209.1	208.3	207.9	207.0	205.3	202.7	202.3
Jio	382	385	386	391	388	391	394.5	397.6	402.6	407.2	412.1	414.5	415.9
BSNL	57	56	56	55	55	55	54.3	53.9	53.7	53.3	52.8	52.0	51.7
MTNL	1	1	1	1	1	1	0.6	0.6	0.6	0.6	0.5	0.8	0.6
Total	1,013	1,013	1,014	1,017	1,012	1,021	1,025	1,028	1,034	1,038	1,043	1,043	1,046

Source: TRAI, Emkay Research

Exhibit 23: VLR subscriber addition

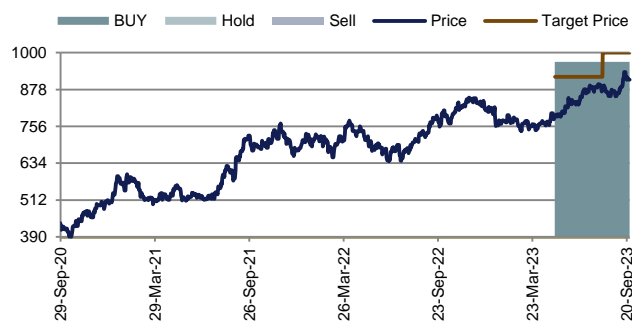
(mn)	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23
Bharti Airtel	-1.0	1.5	1.3	-1.0	1.0	6.0	1.3	0.8	2.4	0.7	2.4	0.1	3.2
Vodafone Idea	-1.7	-2.6	-2.1	-0.5	-2.0	-0.1	-0.5	-0.8	-0.4	-0.9	-1.8	-2.5	-0.4
Jio	-1.0	2.5	1.4	4.9	-3.0	3.0	3.5	3.2	4.9	4.7	4.9	2.4	1.4
BSNL	-0.5	-1.1	-0.1	-0.7	-0.5	-0.2	-0.4	-0.4	-0.3	-0.4	-0.5	-0.7	-0.4
MTNL	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	-0.3
Total	-4.4	0.3	0.5	2.8	-4.5	8.6	3.9	2.8	6.7	4.2	5.0	-0.5	3.6

Source: TRAI, Emkay Research

BHARTI AIRTEL**RECOMMENDATION HISTORY - DETAILS**

Date	CMP (INR)	TP (INR)	Rating	Analyst
13-Aug-23	871	1,000	Buy	Santosh Sinha
07-Aug-23	891	1,000	Buy	Santosh Sinha
05-Aug-23	890	1,000	Buy	Santosh Sinha
17-May-23	792	920	Buy	Santosh Sinha
05-May-23	787	920	Buy	Santosh Sinha

Source: Company, Emkay Research

RECOMMENDATION HISTORY - TREND

Source: Bloomberg, Company, Emkay Research

INDUS TOWERS**RECOMMENDATION HISTORY - DETAILS**

Date	CMP (INR)	TP (INR)	Rating	Analyst
28-Jul-23	174	185	Hold	Santosh Sinha
05-May-23	152	160	Hold	Santosh Sinha

Source: Company, Emkay Research

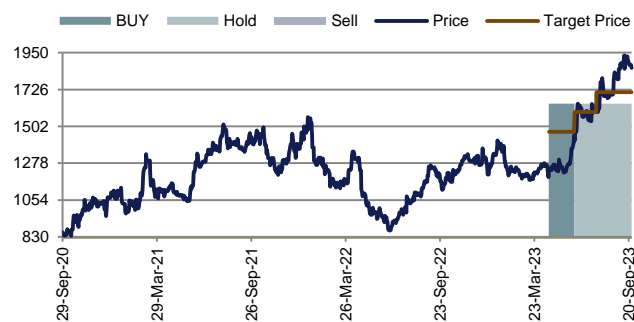
RECOMMENDATION HISTORY - TREND

Source: Bloomberg, Company, Emkay Research

TATA COMMUNICATIONS**RECOMMENDATION HISTORY - DETAILS**

Date	CMP (INR)	TP (INR)	Rating	Analyst
03-Sep-23	1,852	1,710	Hold	Santosh Sinha
20-Jul-23	1,604	1,710	Hold	Santosh Sinha
29-Jun-23	1,583	1,590	Hold	Santosh Sinha
08-Jun-23	1,414	1,590	Hold	Santosh Sinha
20-Apr-23	1,232	1,470	Buy	Santosh Sinha

Source: Company, Emkay Research

RECOMMENDATION HISTORY - TREND

Source: Bloomberg, Company, Emkay Research

VODAFONE IDEA**RECOMMENDATION HISTORY - DETAILS**

Date	CMP (INR)	TP (INR)	Rating	Analyst
27-Aug-23	9	-	NA	Santosh Sinha
15-Aug-23	8	-	NA	Santosh Sinha
26-May-23	7	-	NA	Santosh Sinha
05-May-23	7	-	NA	Santosh Sinha

Source: Company, Emkay Research

RECOMMENDATION HISTORY - TREND

Source: Bloomberg, Company, Emkay Research

GENERAL DISCLOSURE/DISCLAIMER BY EMKAY GLOBAL FINANCIAL SERVICES LIMITED (EGFSL):

Emkay Global Financial Services Limited (CIN-L67120MH1995PLC084899) and its affiliates are a full-service, brokerage, investment banking, investment management and financing group. Emkay Global Financial Services Limited (EGFSL) along with its affiliates are participants in virtually all securities trading markets in India. EGFSL was established in 1995 and is one of India's leading brokerage and distribution house. EGFSL is a corporate trading member of BSE Limited (BSE), National Stock Exchange of India Limited (NSE), MCX Stock Exchange Limited (MCX-SX), Multi Commodity Exchange of India Ltd (MCX) and National Commodity & Derivatives Exchange Limited (NCDEX) (hereinafter referred to be as "Stock Exchange(s)"). EGFSL along with its [affiliates] offers the most comprehensive avenues for investments and is engaged in the businesses including stock broking (Institutional and retail), merchant banking, commodity broking, depository participant, portfolio management and services rendered in connection with distribution of primary market issues and financial products like mutual funds, fixed deposits. Details of associates are available on our website i.e. www.emkayglobal.com.

EGFSL is registered as Research Analyst with the Securities and Exchange Board of India ("SEBI") bearing registration Number INH000000354 as per SEBI (Research Analysts) Regulations, 2014. EGFSL hereby declares that it has not defaulted with any Stock Exchange nor its activities were suspended by any Stock Exchange with whom it is registered in last five years. However, SEBI and Stock Exchanges had conducted their routine inspection and based on their observations have issued advice letters or levied minor penalty on EGFSL for certain operational deviations in ordinary/routine course of business. EGFSL has not been debarred from doing business by any Stock Exchange / SEBI or any other authorities; nor has its certificate of registration been cancelled by SEBI at any point of time.

EGFSL offers research services to its existing clients as well as prospects. The analyst for this report certifies that all of the views expressed in this report accurately reflect his or her personal views about the subject company or companies and its or their securities, and no part of his or her compensation was, is or will be, directly or indirectly related to specific recommendations or views expressed in this report.

This report is based on information obtained from public sources and sources believed to be reliable, but no independent verification has been made nor is its accuracy or completeness guaranteed. This report and information herein is solely for informational purpose and shall not be used or considered as an offer document or solicitation of offer to buy or sell or subscribe for securities or other financial instruments. Though disseminated to all the clients simultaneously, not all clients may receive this report at the same time. The securities discussed and opinions expressed in this report may not be suitable for all investors, who must make their own investment decisions, based on their own investment objectives, financial positions and needs of specific recipient.

EGFSL and/or its affiliates may seek investment banking or other business from the company or companies that are the subject of this material. EGFSL may have issued or may issue other reports (on technical or fundamental analysis basis) of the same subject company that are inconsistent with and reach different conclusion from the information, recommendations or information presented in this report or are contrary to those contained in this report. Users of this report may visit www.emkayglobal.com to view all Research Reports of EGFSL. The views and opinions expressed in this document may or may not match or may be contrary with the views, estimates, rating, and target price of the research published by any other analyst or by associate entities of EGFSL; our proprietary trading, investment businesses or other associate entities may make investment decisions that are inconsistent with the recommendations expressed herein. In reviewing these materials, you should be aware that any or all of the foregoing, among other things, may give rise to real or potential conflicts of interest including but not limited to those stated herein. Additionally, other important information regarding our relationships with the company or companies that are the subject of this material is provided herein. All material presented in this report, unless specifically indicated otherwise, is under copyright to Emkay. None of the material, nor its content, nor any copy of it, may be altered in any way, transmitted to, copied or distributed to any other party, without the prior express written permission of EGFSL. All trademarks, service marks and logos used in this report are trademarks or registered trademarks of EGFSL or its affiliates. The information contained herein is not intended for publication or distribution or circulation in any manner whatsoever and any unauthorized reading, dissemination, distribution or copying of this communication is prohibited unless otherwise expressly authorized. Please ensure that you have read "Risk Disclosure Document for Capital Market and Derivatives Segments" as prescribed by Securities and Exchange Board of India before investing in Indian Securities Market. In so far as this report includes current or historic information, it is believed to be reliable, although its accuracy and completeness cannot be guaranteed.

This report has not been reviewed or authorized by any regulatory authority. There is no planned schedule or frequency for updating research report relating to any issuer/subject company.

Please contact the primary analyst for valuation methodologies and assumptions associated with the covered companies or price targets.

Disclaimer for U.S. persons only: Research report is a product of Emkay Global Financial Services Ltd., under Marco Polo Securities 15a6 chaperone service, which is the employer of the research analyst(s) who has prepared the research report. The research analyst(s) preparing the research report is/are resident outside the United States (U.S.) and are not associated persons of any U.S. regulated broker-dealer and therefore the analyst(s) is/are not subject to supervision by a U.S. broker-dealer, and is/are not required to satisfy the regulatory licensing requirements of Financial Institutions Regulatory Authority (FINRA) or required to otherwise comply with U.S. rules or regulations regarding, among other things, communications with a subject company, public appearances and trading securities held by a research analyst account.

This report is intended for distribution to "Major Institutional Investors" as defined by Rule 15a-6(b)(4) of the U.S. Securities and Exchange Act, 1934 (the Exchange Act) and interpretations thereof by U.S. Securities and Exchange Commission (SEC) in reliance on Rule 15a 6(a)(2). If the recipient of this report is not a Major Institutional Investor as specified above, then it should not act upon this report and return the same to the sender. Further, this report may not be copied, duplicated and/or transmitted onward to any U.S. person, which is not the Major Institutional Investor. In reliance on the exemption from registration provided by Rule 15a-6 of the Exchange Act and interpretations thereof by the SEC in order to conduct certain business with Major Institutional Investors. Emkay Global Financial Services Ltd. has entered into a chaperoning agreement with a U.S. registered broker-dealer, Marco Polo Securities Inc. ("Marco Polo"). Transactions in securities discussed in this research report should be effected through Marco Polo or another U.S. registered broker dealer.

RESTRICTIONS ON DISTRIBUTION

This report is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation. Except otherwise restricted by laws or regulations, this report is intended only for qualified, professional, institutional or sophisticated investors as defined in the laws and regulations of such jurisdictions. Specifically, this document does not constitute an offer to or solicitation to any U.S. person for the purchase or sale of any financial instrument or as an official confirmation of any transaction to any U.S. person. Unless otherwise stated, this message should not be construed as official confirmation of any transaction. No part of this document may be distributed in Canada or used by private customers in United Kingdom.

ANALYST CERTIFICATION BY EMKAY GLOBAL FINANCIAL SERVICES LIMITED (EGFSL)

The research analyst(s) primarily responsible for the content of this research report, in part or in whole, certifies that the views about the companies and their securities expressed in this report accurately reflect his/her personal views. The analyst(s) also certifies that no part of his/her compensation was, is, or will be, directly or indirectly, related to specific recommendations or views expressed in the report. The research analyst (s) primarily responsible of the content of this research report, in part or in whole, certifies that he or his associated persons¹ may have served as an officer, director or employee of the issuer or the new listing applicant (which includes in the case of a real estate investment trust, an officer of the management company of the real estate investment trust; and in the case of any other entity, an officer or its equivalent counterparty of the entity who is responsible for the management of the issuer or the new listing applicant). The research analyst(s) primarily responsible for the content of this research report or his associate may have Financial Interests² in relation to an issuer or a new listing applicant that the analyst reviews. EGFSL has procedures in place to eliminate, avoid and manage any potential conflicts of interests that may arise in connection with the production of research reports. The research analyst(s) responsible for this report operates as part of a separate and independent team to the investment banking function of the EGFSL and procedures are in place to ensure that confidential information held by either the research or investment banking function is handled appropriately. There is no direct link of EGFSL compensation to any specific investment banking function of the EGFSL.

¹ An associated person is defined as (i) who reports directly or indirectly to such a research analyst in connection with the preparation of the reports; or (ii) another person accustomed or obliged to act in accordance with the directions or instructions of the analyst.

² Financial Interest is defined as interest that are commonly known financial interest, such as investment in the securities in respect of an issuer or a new listing applicant, or financial accommodation arrangement between the issuer or the new listing applicant and the firm or analysis. This term does not include commercial lending conducted at the arm's length, or investments in any collective investment scheme other than an issuer or new listing applicant notwithstanding the fact that the scheme has investments in securities in respect of an issuer or a new listing applicant.

COMPANY-SPECIFIC / REGULATORY DISCLOSURES BY EMKAY GLOBAL FINANCIAL SERVICES LIMITED (EGFSL):

Disclosures by Emkay Global Financial Services Limited (Research Entity) and its Research Analyst under SEBI (Research Analyst) Regulations, 2014 with reference to the subject company(s) covered in this report:-

- EGFSL, its subsidiaries and/or other affiliates and Research Analyst or his/her associate/relative's may have Financial Interest/proprietary positions in the securities recommended in this report as of September 27, 2023
- EGFSL, and/or Research Analyst does not market make in equity securities of the issuer(s) or company(ies) mentioned in this Report
Disclosure of previous investment recommendation produced:
- EGFSL may have published other investment recommendations in respect of the same securities / instruments recommended in this research report during the preceding 12 months. Please contact the primary analyst listed in the first page of this report to view previous investment recommendations published by EGFSL in the preceding 12 months.
- EGFSL, its subsidiaries and/or other affiliates and Research Analyst or his/her relative's may have material conflict of interest in the securities recommended in this report as of September 27, 2023
- EGFSL, its affiliates and Research Analyst or his/her associate/relative's may have actual/beneficial ownership of 1% or more securities of the subject company at the end of the month immediately preceding the September 27, 2023
- EGFSL or its associates may have managed or co-managed public offering of securities for the subject company in the past twelve months.
- EGFSL, its affiliates and Research Analyst or his/her associate may have received compensation in whatever form including compensation for investment banking or merchant banking or brokerage services or for products or services other than investment banking or merchant banking or brokerage services from securities recommended in this report (subject company) in the past 12 months.
- EGFSL, its affiliates and/or and Research Analyst or his/her associate may have received any compensation or other benefits from the subject company or third party in connection with this research report.

Emkay Rating Distribution

Ratings	Expected Return within the next 12-18 months.
BUY	Over 15%
HOLD	Between -5% to 15%
SELL	Below -5%

Emkay Global Financial Services Ltd.

CIN - L67120MH1995PLC084899

7th Floor, The Ruby, Senapati Bapat Marg, Dadar - West, Mumbai - 400028. India

Tel: +91 22 66121212 Fax: +91 22 66121299 Web: www.emkayglobal.com

OTHER DISCLAIMERS AND DISCLOSURES:**Other disclosures by Emkay Global Financial Services Limited (Research Entity) and its Research Analyst under SEBI (Research Analyst) Regulations, 2014 with reference to the subject company(s) -:**

EGFSL or its associates may have financial interest in the subject company.

Research Analyst or his/her associate/relative's may have financial interest in the subject company.

EGFSL or its associates and Research Analyst or his/her associate/ relative's may have material conflict of interest in the subject company. The research Analyst or research entity (EGFSL) have not been engaged in market making activity for the subject company.

EGFSL or its associates may have actual/beneficial ownership of 1% or more securities of the subject company at the end of the month immediately preceding the date of public appearance or publication of Research Report.

Research Analyst or his/her associate/relatives may have actual/beneficial ownership of 1% or more securities of the subject company at the end of the month immediately preceding the date of public appearance or publication of Research Report.

Research Analyst may have served as an officer, director or employee of the subject company.

EGFSL or its affiliates may have received any compensation including for investment banking or merchant banking or brokerage services from the subject company in the past 12 months. . Emkay may have issued or may issue other reports that are inconsistent with and reach different conclusion from the information, recommendations or information presented in this report or are contrary to those contained in this report. Emkay Investors may visit www.emkayglobal.com to view all Research Reports. The views and opinions expressed in this document may or may not match or may be contrary with the views, estimates, rating, and target price of the research published by any other analyst or by associate entities of Emkay; our proprietary trading, investment businesses or other associate entities may make investment decisions that are inconsistent with the recommendations expressed herein. EGFSL or its associates may have received compensation for products or services other than investment banking or merchant banking or brokerage services from the subject company in the past 12 months. EGFSL or its associates may have received any compensation or other benefits from the Subject Company or third party in connection with the research report. EGFSL or its associates may have received compensation from the subject company in the past twelve months. Subject Company may have been client of EGFSL or its affiliates during twelve months preceding the date of distribution of the research report and EGFSL or its affiliates may have co-managed public offering of securities for the subject company in the past twelve months.