

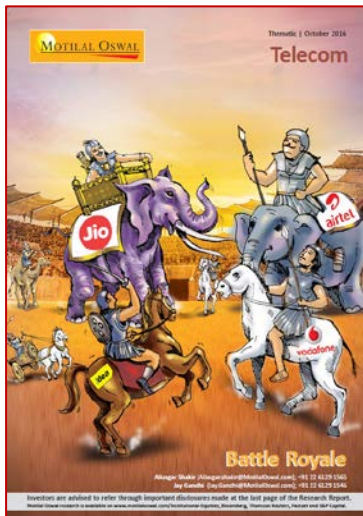


Battle Royale

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Battle Royale

Data revenue pool to expand significantly

- **Indian telecom sector is set for a Battle Royale.** In the last two decades, this will be the third phase of competition and perhaps the fiercest one. In early 2000s, value migration from fixed to wireless services was a game-changing event as voice revenues exploded despite intense competition. In FY07-08, the incumbents were challenged by weak players, but it led to a disruption in pricing, in turn impacting the return ratios significantly. Now, Reliance Jio's wireless services launch has set the stage for the third phase of the battle.
- **We expect this to be highly disruptive in the near term.** It may be a battle of survival, especially for uncompetitive marginal operators, as pricing strategies and increased competitive intensity will enforce consolidation. The current dynamic operating/regulatory environment and high investments – a scenario similar to 2002 – would ultimately lead to select players surviving and owning a pie of the expanded revenue pool in the longer term.
- **Over the next five years (FY17-22E), we expect revenue pool expansion, with industry data growth of 32% more than offsetting voice revenue decline of 4%. Over this period, we see RJio's market share reaching 17%, with about 440bp of that taken from the top three telcos and the rest from marginal operators.**

Structural change in telecom industry dynamics

- **Voice v/s data:** RJio's wireless mobile services launch with free voice offering is likely to lead to a major shift in the telecom market dynamics. Among RJio's announced plans/offering, we are surprised by the simplified unlimited voice price plan with ARPU of INR149/28 days. In our view, this could potentially change the course of the industry over the coming months. Although industry voice ARPU of INR124/month (which contributes 75% of telecom sector revenues) is below RJio's INR149/month plan, it will be challenging for existing operators to retain their mid-higher ARPU voice subscribers, who would find it beneficial to go with RJio's fixed monthly plan with free voice services.
- **Who wins, who loses:** Over next two years, we expect intense competition as telcos battle to protect their market shares. We expect RJio's 'nothing to lose' attitude to continue disrupting the market over next 6-8 quarters. As RJio's capacity utilization reaches 60% and market share increases to ~10%, incremental investment will drive rationality in the market. We see RJio's market share reaching 9% by FY19E, with over 70% of that taken from marginal players and the rest from the top three operators. As operators try to protect their market shares, the voice/data price disruption should lead to 2% industry revenue de-growth in FY17E (for the first time in over a decade) and low 4% growth in FY18E, before growth rebounds to 9% in FY19E.

RJio – EBITDA breakeven in FY20; Estimate DCF value of ~INR5/share

- **Market share:** RJio's abundant network capacity and perishable product will keep its pricing irrational over next 6-8 quarters. We expect RJio to attract 84m subscribers (7% subscriber market share) by FY19E, and its high ARPU of ~INR250 to help it garner revenues of INR217b (10.1% revenue market share).
- **Profitability:** Given its high operating costs, we expect EBITDA to breakeven in FY20E and generate 7.5% project IRR over the license period until FY30E. RJio's

Telecom Battle of survival



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stretched capital employed of INR1,500b compared to Bharti's INR1,200b and Idea's INR700b would keep the return ratios under pressure. Under our DCF model, we derive an equity value of INR5/share.

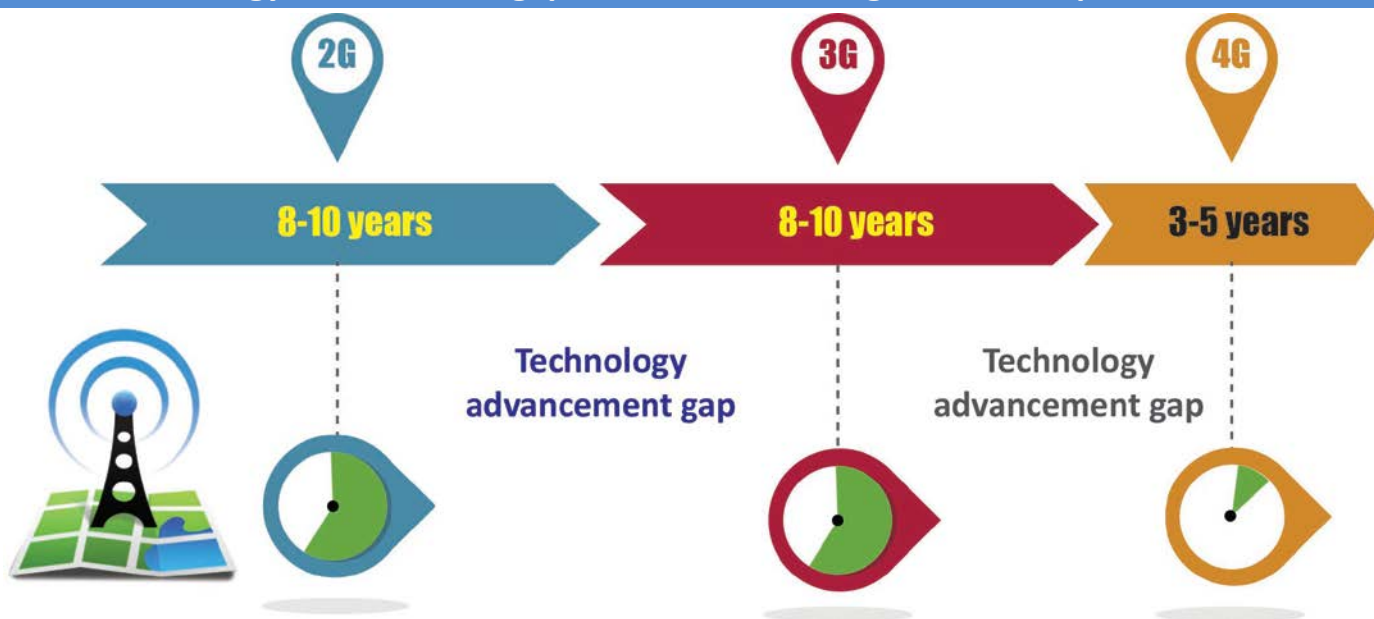
Battle of capacity and capital

- The Indian telecom industry has become a battlefield for capturing market shares with capacity and capital. We believe RJio's high ARPU price plans should improve overall industry ARPU. However, it will be a challenge for existing operators to accommodate the heavy traffic even if they match RJio's high-value price plans. RJio's heavy investment in spectrum/network and vacant cell sites makes it challenging for existing operators to contest in a highly capital-intensive industry. In our view, Bharti is the only other operator that can match RJio's capacity (spectrum and cell sites). Marginal operators, as well as Idea and Vodafone remain the most vulnerable (in that order) to market share loss, given their weak spectrum portfolio and network footprint.

Our view: Near-term freebies to impact telecom earnings; Bharti looks promising over longer term

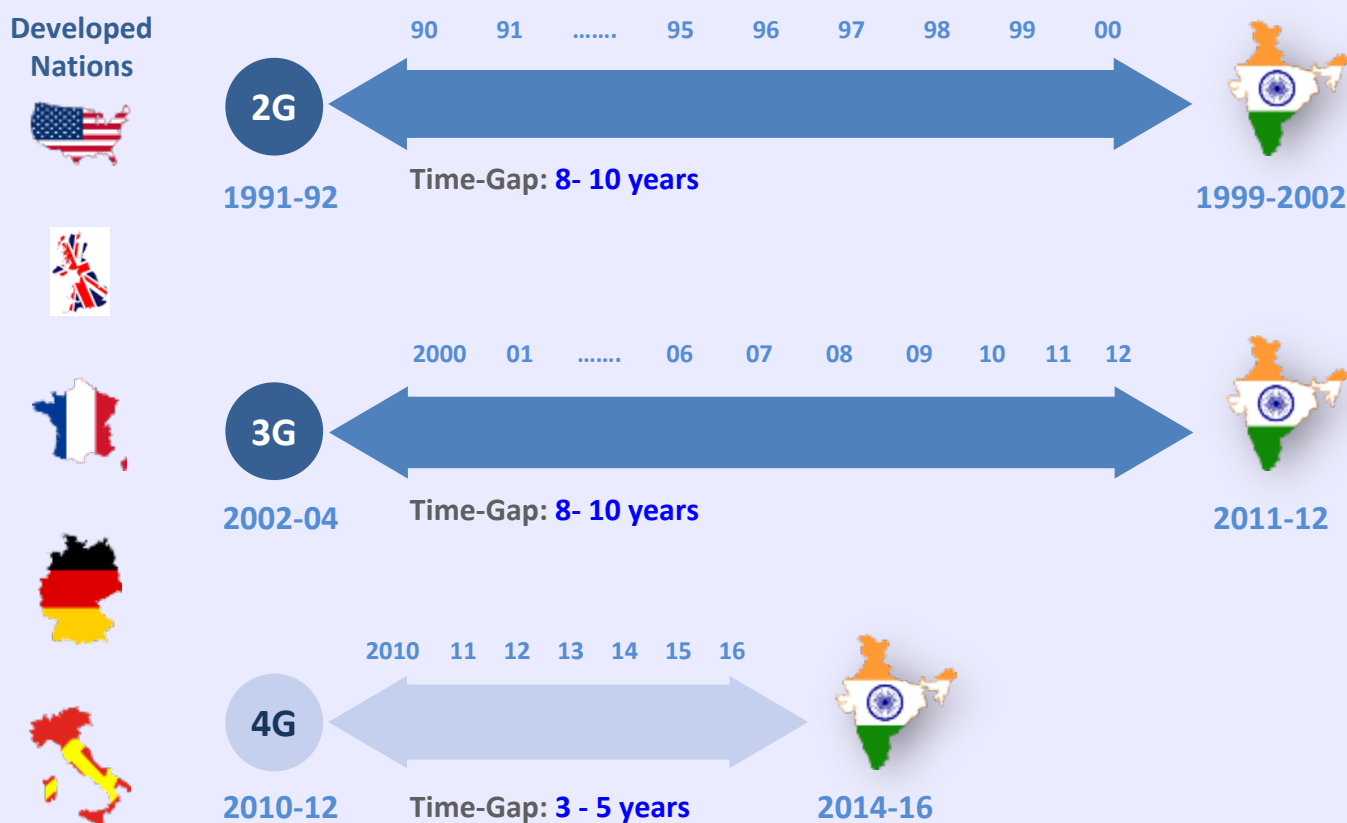
- RJio's free welcome offer should dilute voice and data traffic. Post the welcome offer, RJio's ARPU-centric price plan introduces an element of uncertainty to our traditional price and volume driven model, and may weigh on Bharti and Idea's stock price. Following 6-8 quarters of disruption, the need for incremental investment will drive rationality in the market. RJio's high ARPU price plans remain long-term positive for the industry. We continue believing that Bharti should benefit over the long term from its network preparedness and strong competitive positioning. Vodafone's 4G execution capability in many European countries and over USD7b recent equity investment should help it manage competitive pressure. We believe Idea remains vulnerable given its weak competitive footing.
- **Cut in estimates:** We cut Bharti's consolidated revenue and EBITDA estimates for FY17-19 by 6-9% and 7-12%, respectively. Similarly, Idea's revenue and EBITDA estimates for FY17-19 are lowered by 6-9% and 17-23%, respectively. This is led by expectation of voice/data traffic dilution to RJio (which should benefit from the second SIM phenomenon), even as telcos arrest the traffic shift by lowering prices. We must admit that our estimates remain extremely fluid and fragile, given the likely multiple rejig in strategy and offerings hereon.
- **Bharti – maintain Buy with TP of INR 410; Idea – maintain Sell with revised TP of INR75:** We believe Bharti stands to benefit following the 6-8 quarters of uncertain market scenario. We maintain our target price for Bharti at INR410 and retain Buy. On the other hand, Idea's no. 3 position remains vulnerable due to its weak competitive footing and stretched balance sheet. We have lowered Idea's TP to INR75, maintaining our Sell rating.
- **Bharti Infratel – key beneficiary in current scenario; Buy with revised TP of INR 435:** We expect the exits of marginal operators and the end of the ongoing spectrum auction to improve market conditions and drive long-term sustainable tenancy growth as serious operators will continue to expand. Concerns about tenancy renewals should also be addressed over next six months. We expect tenancy-led revenue CAGR FY16-19E of 8%. EBITDA should grow at 9% CAGR over FY16-19E with tenancy driving 60bp margin improvement. We maintain our Buy rating on Bharti Infratel on SOTP basis with a revised TP of INR435. Our DCF-based valuation implies 11.5 EV/EBITDA on FY19E.

India's technology advancement gap shortens, extending investment period



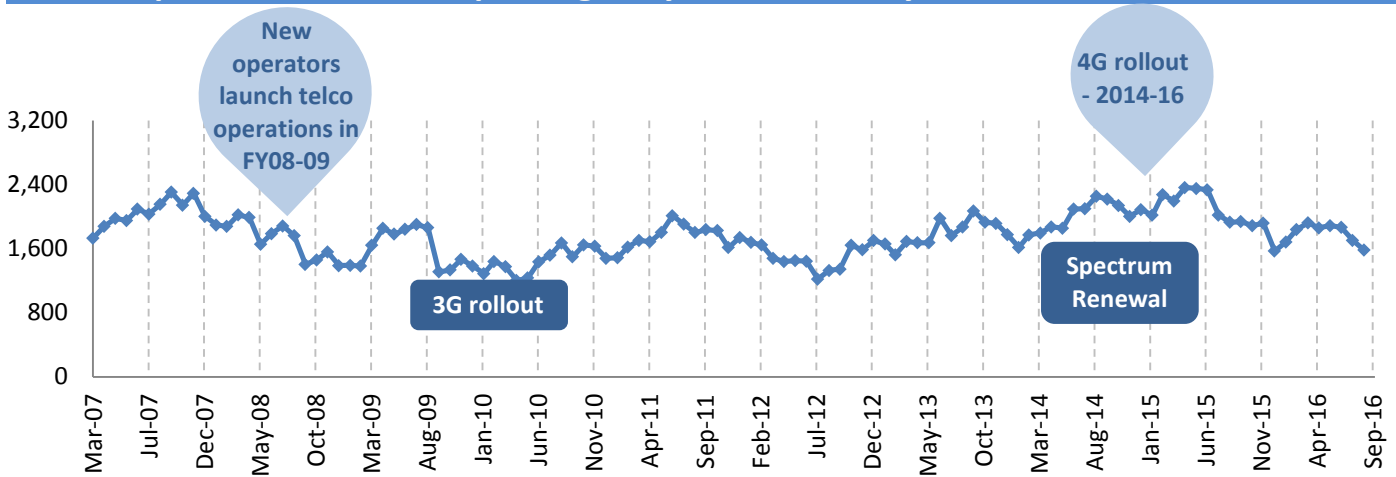
Technology advancement gap between 2G and 3G was 8-10 years, giving telecom companies sufficient time to monetize their 2G investments.

India's technology gap v/s developed nations reduces

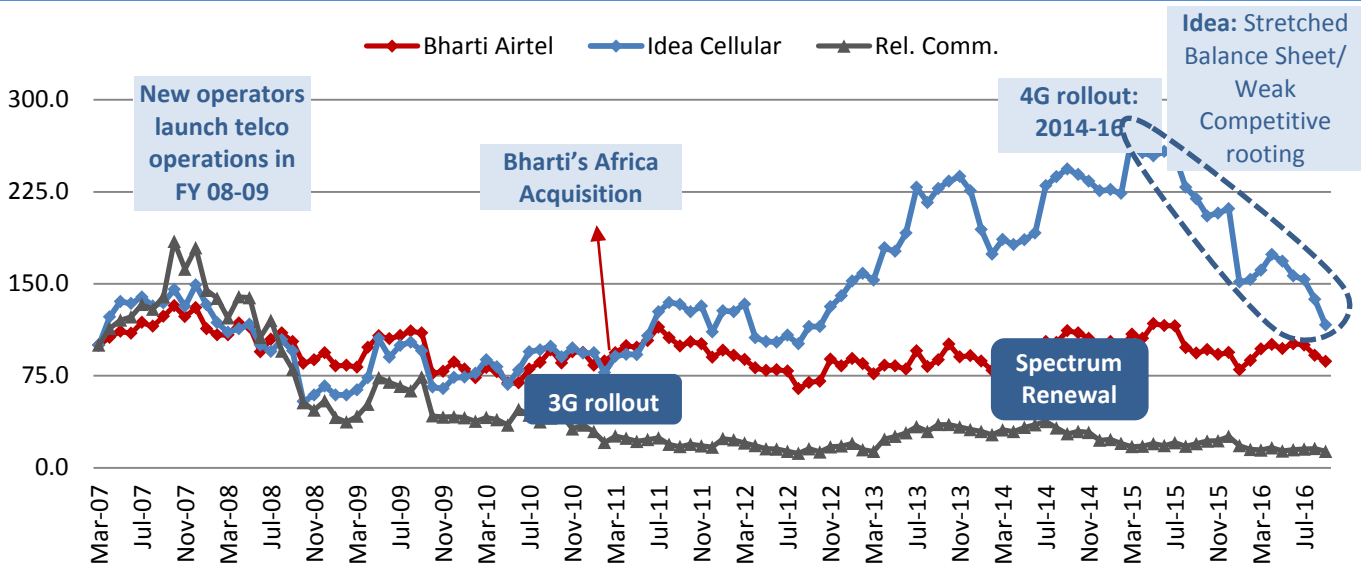


India's time gap for technology upgradation v/s developed nations reduced from 8-10 years (2G-3G) to 3-5 years (4G). This has left little time to monetize 3G investments, thereby hurting return ratios.

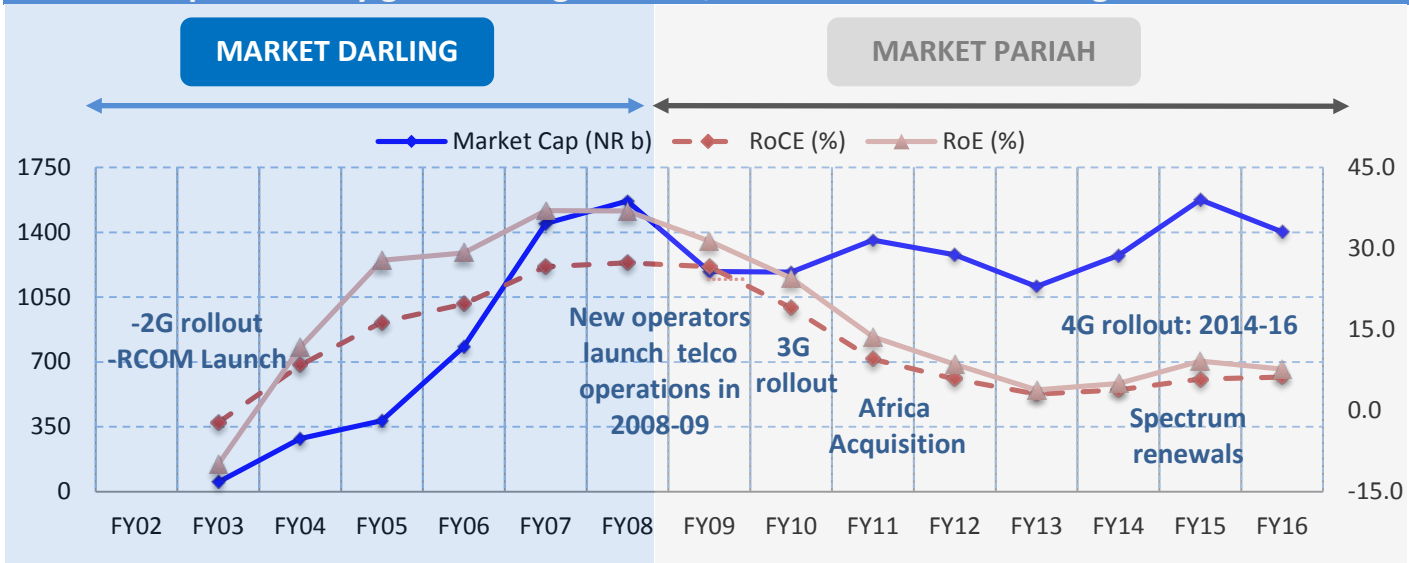
India's top 3 telcos' market cap changed by -9% in last 10 years



None of the telcos have created value for investors



Bharti – reaped healthy gains during 2002-08; 2008-16 remained a drag



Telecom industry snapshot: 2017 resembles 2002 period

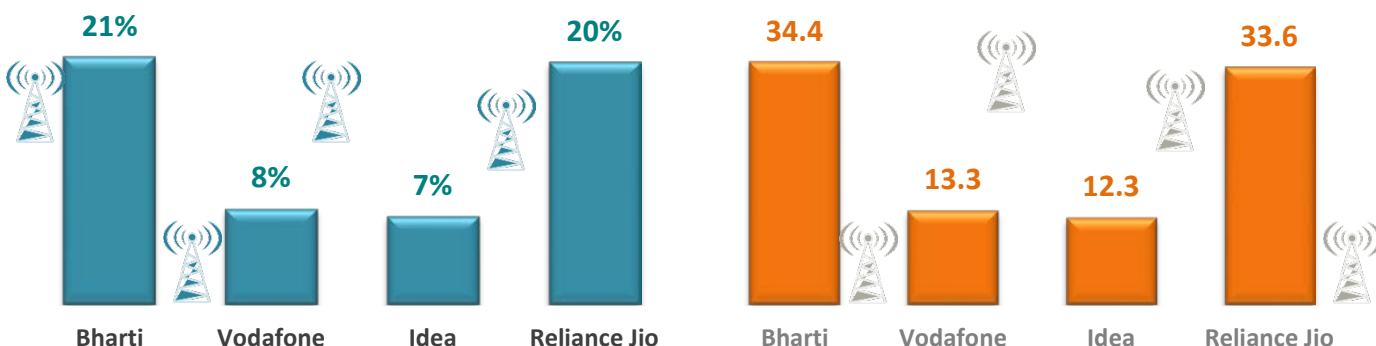
	2001-02	Five years post 2002	2016-17	Next five years...
	Voice		Data	
Network Coverage	✓	↑	✓	↑
New Operator Launch	✓ (RCOM)	✓	✓ (RJIO)	✓
Pricing	↑	↓	↑	↓
Subscriber penetration	↓	↑	↓	2017 resembles 2002 – Can new operator and price decline trigger data traffic led growth and profitability?
Traffic growth	↓	↑	↓	
Usage/sub	↓	↑	↓	
Profit and ROCE	↓	↑	↓	

RJio launches its much-awaited telecom services

- | Structural change in wireless space; battle of the big boys
- | Mass-scale trial offering from 5-Sep; challenging four months for incumbents
- | Handset puzzle solved with low-ticket-size offering
- | Battle of capacity and capital; high-value data plans could be ARPU-accretive
- | Targeting 100m subscribers soon; we bake in 84m subscribers until FY19E

Disruptive conditions in the near term, but expect RJio to expand market in the long term

Bharti and RJio hold majority of current spectrum share Avg. spectrum/circle (Mhz)

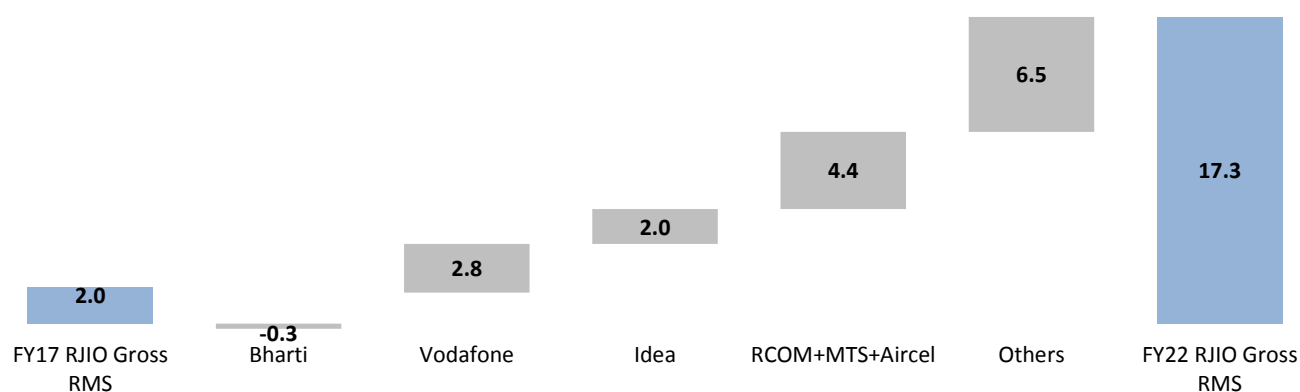


RJio's profitability – scenario analysis

FY19- 3 years from launch (INR b)

	Subs mkt sh.	Data revenues	Voice Revenue	EBITDA	EBITDA Margin	Break Even	IRRs	NPV/share @ 11%
Base	7%	216,670	-	-29,100	-13%	4th year - FY20	7.5%	-160
Bear	4%	104,109	-	-51,717	-50%	6th year - FY22	3%	-336
Bull	9%	385,661	-	59,159	15%	2nd year - FY19	16%	370

Majority of RJio's gross RMS coming from marginal players (%)



Telecom: Global Telecom Peer comparison

Company Name	MCap USD m	Revenue (USD m)				EBITDA Margin (%)				PAT (M)				PE (x)				EV/EBIDTA (x)				RoE (%)			
		CY15	CY16E	CY17E	CY18E	CY15	CY16E	CY17E	CY18E	CY15	CY16E	CY17E	CY18E	CY15	CY16E	CY17E	CY18E	CY15	CY16E	CY17E	CY18E	CY15	CY16E	CY17E	CY18
China																									
China Mobile	252,031	106,36	107,22	111,82	117,42	37.1	35.6	36.6	36.9	17,27	16,22	17,918	19,77	13.8	15.5	14	12.7	4.4	4.8	4.5	4.2	12	11.3	11.9	12.2
Malaysia																									
Axiata Group Bhd	11,482	5,117	5,129	5,483	5,942	38	38.2	38.9	38.5	657	486	563	631	21.7	23	20	18	9.2	8	7.3	6.9	11.5	8.5	9.7	10.6
DiGi.Com Bhd	9,493	1,779	1,685	1,730	1,754	43.1	42.8	42.8	42.7	443	411	417	415	24.3	23.3	23.1	23.1	14.4	13.6	13.2	13.1	285.8	302.7	298.9	303.5
Maxis Bhd	11,189	2,213	2,084	2,107	2,157	51.4	50.5	49.9	49.5	447	457	454	457	29.4	24.8	24.6	24.7	13.5	12.5	12.5	12.5	39.1	42.1	40.8	41.6
Thailand																									
Advanced Info Service	13,464	4,540	4,435	4,583	4,747	46	40.1	42.4	43.2	1,145	891	902	919	11.5	15.2	14.8	14.6	7.1	8.9	8.1	7.7	82.3	65.7	66.2	62.6
Total Access Communication	2,053	2,552	2,468	2,489	2,480	31.8	31	32.4	33.8	172	94	99	131	12.1	22.1	20.5	15.8	3.9	3.8	3.6	3.5	19.7	11.7	12.5	15.7
Indonesia																									
XL Axiata Tbk PT	2,070	1,710	1,762	1,904	2,027	35.9	38.7	39.4	39.7	-2	30	89	128	0	62.6	21.5	14.2	7	4.8	4.4	4.1	-0.2	2.9	5.8	7.7
Indosat Tbk PT	2,332	2,001	2,225	2,439	2,597	42.7	43.2	43.2	42.9	-98	71	148	204	0	30	15.5	10.4	4	4.3	3.9	3.7	-10	7.1	12.1	16.8
Telekomunikasi Indonesia Perse	30,268	7,660	8,768	9,797	10,682	49.8	50.9	50.6	51.1	1,158	1,436	1,653	1,868	19.7	20.7	17.9	16	6.4	7.3	6.6	6	21.7	22.8	23.3	24
Taiwan																									
Far EasTone Telecommunications	7,514	3,186	3,063	3,132	3,227	25.5	27.6	29	29.4	376	372	393	412	19.2	20.2	19.1	18.2	9.9	9.7	9	8.6	15.9	16.3	17.4	18.1
Taiwan Mobile Co Ltd	11,978	3,803	3,759	3,901	4,053	27.5	28.6	28.7	28.5	514	492	516	537	17.4	19.4	18.6	17.9	10.3	12.5	12.1	11.7	26.2	25.6	26.2	27.3
Philippines																									
Globe Telecom Inc	5,571	2,637	2,767	2,954	3,180	37.9	39	38.9	38.5	363	348	370	411	15.4	16.2	15.3	14.1	6.8	6.9	6.5	6.1	28.9	27.4	27.1	27.6
South Korea																									
LG Uplus Corp	4,479	9,544	10,150	10,379	10,566	20.8	20.8	21.2	21.4	311	403	435	483	12.9	11.4	10.6	9.6	3.9	3.8	3.6	3.5	8.1	9.6	9.6	9.9
SK Telecom Co Ltd	15,599	15,151	15,519	15,848	16,086	27.4	27	27	27	1,343	1,350	1,268	1,335	10.3	11.1	11.9	11.3	4.3	4.8	4.7	4.6	10.1	9.4	8.5	8.8
Singapore																									
M1 Ltd/Singapore	1,662	842	822	830	827	29.5	30.5	30.4	30.2	130	126	124	119	14.2	13.2	13.3	13.7	8.5	7.7	7.6	7.7	44.2	40.5	37.9	34.7
StarHub Ltd	4,283	1,779	1,813	1,842	1,872	29.1	29.4	29.3	28.9	271	264	263	263	17.2	16.4	16.4	16.5	9.7	8.8	8.7	8.6	221.2	182.2	171.2	169
Australia																									
Telstra Corp Ltd	46,339	18,877	21,462	22,567	23,425	40.4	38.2	37.9	36.9	4,211	3,153	3,333	3,332	17.6	14.7	13.7	13.7	7.8	6.9	6.6	6.6	38.6	45.5	48	54
Hong Kong																									
SmarTone Telecommunications	1,773	2,366	2,452	2,472	2,485	14.8	14.1	14.3	13.8	103	107	109	121	18.4	16.3	16	14.7	5.3	4.9	4.8	5	19.5	19.6	19.3	19.4
Japan																									
NTT DOCOMO Inc	97,788	37,741	45,310	46,907	48,609	31.1	30.9	31.6	31.9	4,572	6,413	6,865	7,182	18.1	14.4	13.3	12.3	6.7	7	6.7	6.4	10.3	12.2	12.3	12.3
India																									
Bharti Airtel Ltd	19,119	14,760	15,472	16,683	17,943	35.2	36	35.8	36.2	839	812	966	1,176	25.6	23.4	20	16.5	5.9	6.1	5.7	5.2	8.6	7.9	8.5	10.9
Idea Cellular Ltd	4,509	5,495	5,866	6,326	6,812	36.4	34.2	34	33.9	471	196	229	268	12.9	22.1	20.5	16.7	6	5	4.7	4.4	12.6	5.2	5.6	6
Reliance Communications Ltd	1,904	3,287	3,434	3,622	3,656	32.7	33	33.4	33.2	104	101	138	159	18.2	19.3	14.1	13.1	7.8	7.3	6.8	6.8	1.8	2	2.6	3.2

Exhibit 1: Telecom sector EV/EBDITA (x)

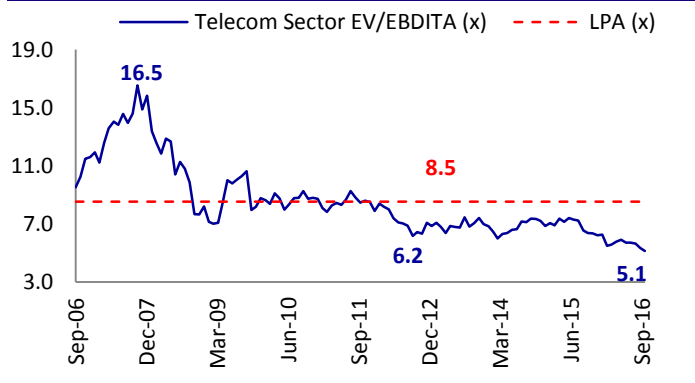


Exhibit 2: Telecom sector P/E (x)

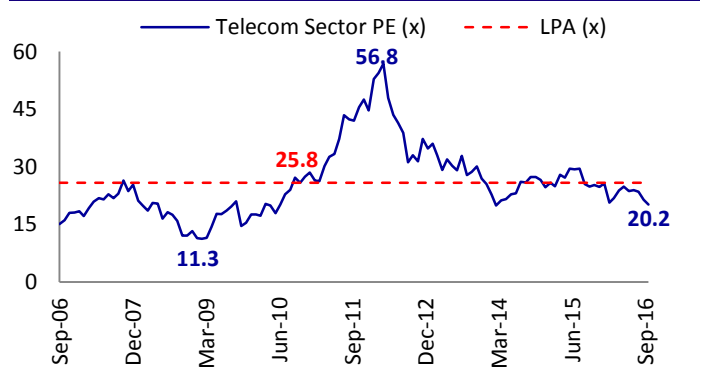


Exhibit 3: Bharti Airtel EV/EBITDA (x)

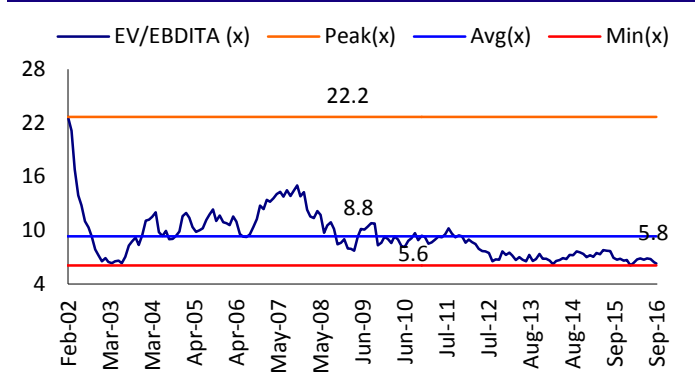


Exhibit 4: Bharti Airtel P/E (x)

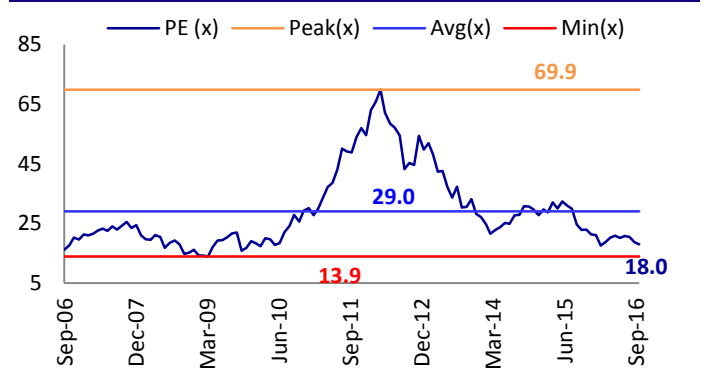


Exhibit 5: Idea Cellular EV/EBITDA (x)

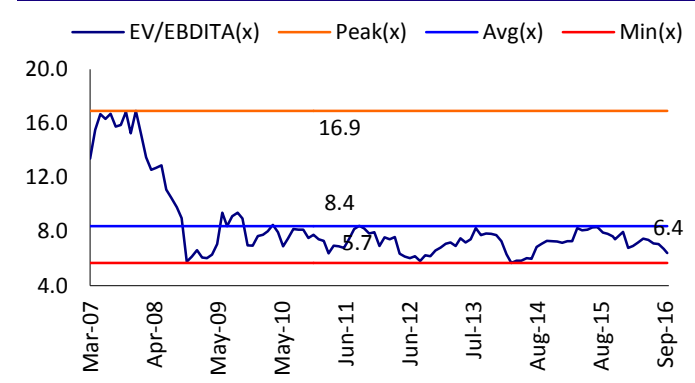


Exhibit 6: Idea Cellular P/E (x)

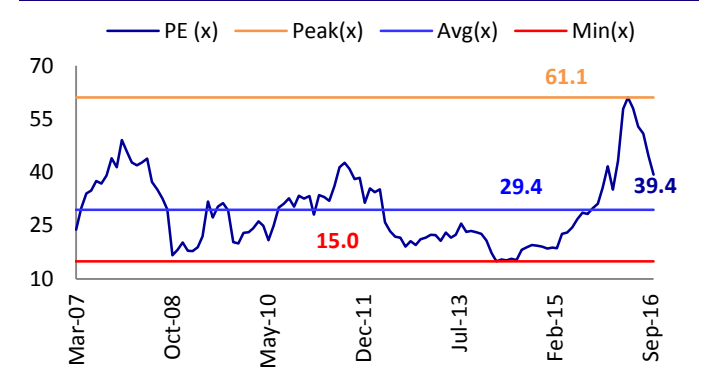


Exhibit 7: Bharti Infratel EV/EBITDA (x)

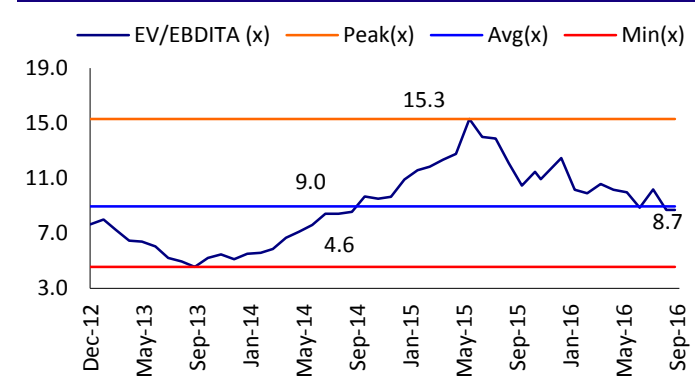
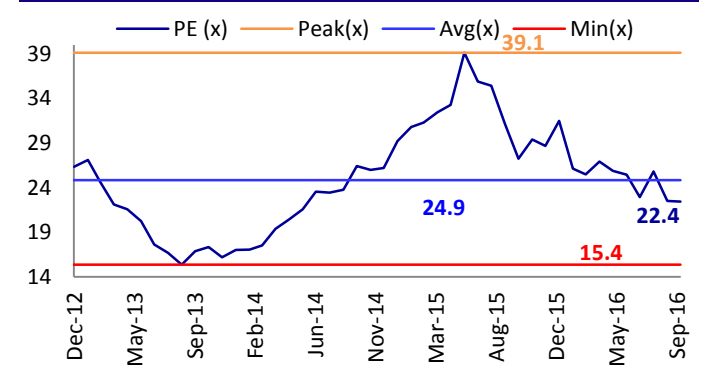


Exhibit 8: Bharti Infratel P/E (x)



Source: Company, MOSL

Source: Company, MOSL

RJio launches its much-awaited telecom services



RJio finally launched its wireless services on pan-India basis, nearly six years after acquiring spectrum in May-10. While the commercial launch is scheduled after Dec-16, Reliance announced free 'Welcome Offer' starting 5-Sept with its voice, data and digital services. The company also disclosed information about plans/prices that it would offer post the 'Welcome Offer' period.

Structural change in wireless space; battle of the big boys: RJio's big-bang launch clearly indicates that it will not do business as an ordinary operator or play second fiddle to any operator. RJio has changed the definition of aggressive pricing, with free voice at INR149/28 days in a market that is 75% constituted by voice revenues. This should dismantle voice customer segmentation above ARPU of INR149/28 days. RJio's price plans also indicate its belief and confidence in generating revenues from the INR300b data industry, which is much lower than its capital investment of INR1,500b. Overtime, RJio's data offerings with minimum monthly outgo of over INR400 will be ARPU-accretive for the industry. However, it will be a battle of capacity and capital, with RJio's free capacity and high data capability difficult to be matched by other operators.

Mass-scale trial offering from 5-Sep; challenging four months for incumbents: RJio's 'Welcome Offer' starting 5-Sep till Dec-16 – wherein users will have access to unlimited LTE data and national voice, video and messaging services free of cost – is incomparable and unimaginable. We believe RJio's welcome offer could shift significant traffic away from incumbents (driven by the second SIM phenomenon or JioFi). However, response to the commercial offerings post Dec-16 is the key monitorable and could potentially alter the competitive dynamics in the telecom industry.

Handset puzzle solved with low-ticket-size offering: Out of the total smartphones of about 300m, only 50-60m are LTE handsets which are used by less than 2% of the active subscriber base. RJio's LYF branded handsets will be available at prices starting from INR2,999 and JioFi at INR1,999, which might still look attractive for customers given the free services provided for four months under the welcome offer. Post 'Welcome Offer', the VoLTE-led uptick could decelerate.

RJio's INR149 plan – a game changer, could attract high-ARPU voice subscribers: Nearly 75% of the telecom industry's revenues are contributed by voice, with average industry voice ARPU at INR124/month, which is below RJio's 149/28 day free voice plan. However, the INR149 price plan dismantles the ARPU-based customer segmentation and seems attractive from the perspective of consumers who incur more than INR149/28 days toward voice offerings. This, in our opinion, could have a major impact on the voice business and force operators to rejig their voice/data mix of offerings. The telecom industry will have to align to RJio's data-centric offering to recover revenue loss of voice business.



Battle of capacity and capital; high-value data plans could be ARPU-accretive: Post the welcome offer, data price plans starting at ~INR400/28 days v/s Bharti/Idea's data ARPU at INR200/140 should be ARPU-accretive for the industry, with around 95-96% of subscribers comprising of prepaid users. However, RJio's high-ARPU, high-value price plan is a battle of capacity and capital. It will test existing operators' data capacity and will force high investments to accommodate incremental traffic volumes. Telcos' operating costs have limited link with incremental volumes. Thus, an operator like Bharti having high capacity and capital could match RJio's offering over time, but the larger pack of operators having weak data network (including Vodafone and Idea) would be unable to accommodate high data traffic.

RJio changes volume-pricing metrics to ARPU-sub metrics: RJio's current INR400-499/28 days data plans could lead to a 30% decline for incumbents if we look through the traditional lens of ARMBs. However, RJio's INR400 plus ARPU price plans could be volume accretive offsetting the price impact.

Free voice to cost INR54b annually for 100m subscriber base: Assuming 400 MOU (in line with Bharti) and 80% off-net calls for RJio's 100m targeted subscribers, the annual interconnect cost works out to be INR54b or ~INR50/sub/month cost. We think this could be dealt in two ways. (1) The recent TRAI consultation paper to eliminate IUC charge could lead to a hard-fought battle between telcos, and have a decisive implication from RJio's view. (2) With a cost of INR50/sub/month, RJio could initially look at it as customer acquisition investment. Gradually, it can steer up ARPUs to ~INR250 with on-net calls of ~50% to come closer to incumbents' 10-12% revenue.

Targeting 100m subscribers soon; we bake in 84m subscribers until FY19E, reaching EBITDA breakeven by FY20E: We expect RJio's subscriber base to reach 84m by FY19E (84% of management's 100m target with ARPU of INR251). With these workings, it should be able to generate revenue of INR217b but remain loss making at EBITDA level of INR29.8b. We expect RJio to breakeven in the third year (FY20) at EBITDA level, with IRR of 7.5% and DCF-led equity value of INR5 at 11% WACC and 2% terminal growth for FY17-30E.

Bharti, Vodafone's price plans ~20-50% expensive v/s RJio

Free voice plan has changed pricing dynamics: RJio's free voice at INR149/28 days, including 300MB of data, has targeted existing telcos' largest revenue pool i.e. voice. Average voice ARPU of INR140 and INR111 for Bharti and Vodafone, respectively, is well below RJio's price plan. However, its premium voice subscribers will now have a good option at a fixed price plan.

Data plans until INR999 are at premium of 0-20%: Eliminating voice consumption and comparing RJio's price plan purely on data subscription, Bharti and Vodafone's price plans are at about 20% premium at the peak. However, given RJio's handset requirements, other telcos could retain their subscribers with minor price plan adjustments.

Voice + data price plans until INR999 turn 11-50% expensive: After adding average voice ARPUs on price plans, Bharti/Vodafone’s offering turns out about 13%/11% expensive for a high ARPU INR999 plan, ~30% for INR650 plan and 40-50% for INR400-450 plans. Further, the low average of voice and data ARPU fails to explain vulnerability of the INR400-500 voice consumer, who would be paying significantly higher and may cut down the cost to zero with an unlimited voice offering embedded in RJio’s data plans. This should hurt telcos and they may have to revise their voice offering to arrest the churn and/or 2nd SIM-led traffic dilution.

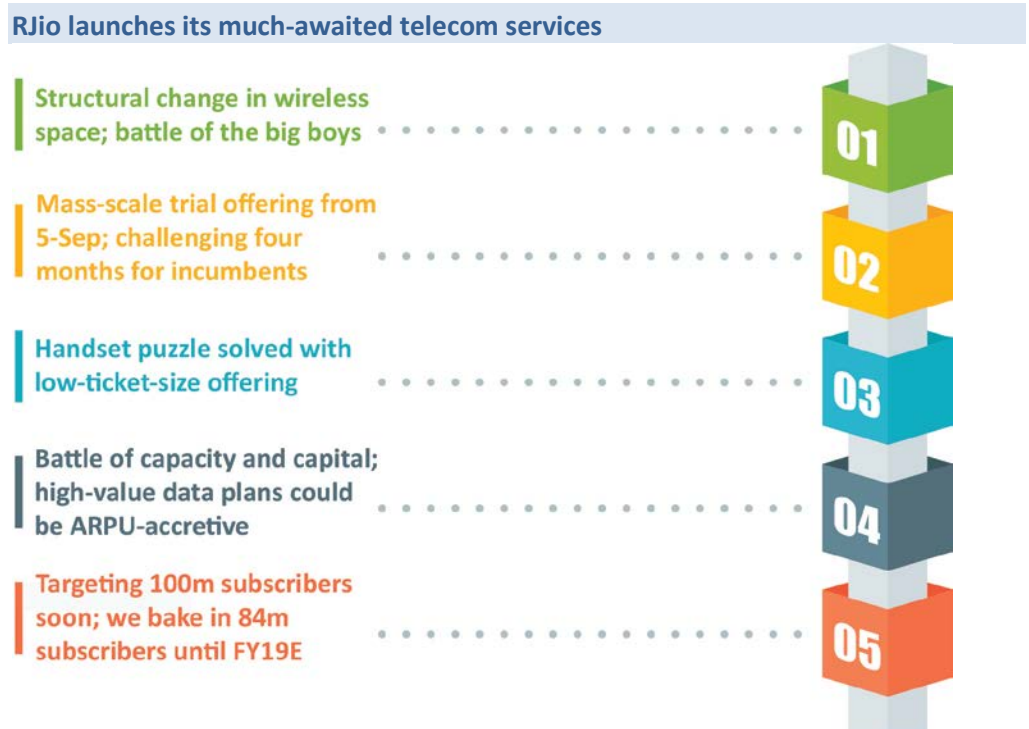


Exhibit 9: Operator-wise tariff comparison

Reliance JIO			Airtel			Vodafone		
Monthly Rental	Data Quota (GB)	Price/GB (INR)	Monthly Rental	Data Quota (GB)	Price/GB (INR)	Monthly Rental	Data Quota (GB)	Price/GB (INR)
149	0.30	497	80	0.2	400	100	0.3	333
499	4	125	250	1	250	250	1	250
999	10	100	450	3	150	450	3	150
1499	20	75	650	5	130	650	5	130
2499	35	71	1000	10	100	999	10	100
3999	60	67	2000	20	100	1499	15	100
4999	75	67	3999	Revised offer to be launched soon		0	0	0
			4999		3999	40	100	
						4999	60	83

Source: Company, MOSL

Exhibit 10: Bharti's tariff card @ 20-50% premium v/s RJio

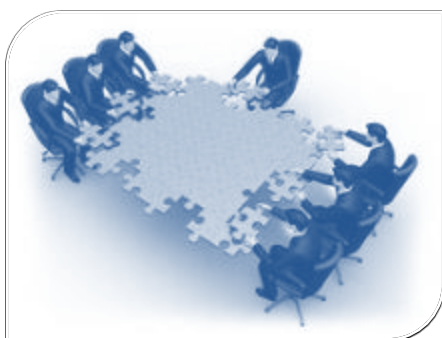
Pack Type	MRP (INR)	Data Plan	RJIO tariff	RJIO's Data Plan	Equivalent Bharti Plan	Bharti's premium / (discount) over RJIO
4G/3G	455	3	299	2	368	23%
4G/3G	655	5	499	4	664	33%
4G/3G	755	6	999	10	1129	13%
4G/3G	855	7	1499	20	2118	41%
4G/3G	989	10	2499	35	3602	44%
			3999	60	6074	52%
			4999	75	7558	51%

Source: MOSL, Company

Exhibit 11: Vodafone's tariff card @ 10-50% premium v/s RJio

Pack Type	MRP (INR)	Data Plan	RJIO tariff	RJIO's Data Plan	Equivalent Vodafone Plan	Vodafone's premium / discount over RJIO
4G/3G	250	1	299	2	486	63%
4G/3G	450	3	499	4	711	42%
4G/3G	650	5	999	10	1110	11%
4G/3G	999	10	1499	20	2110	41%
4G/3G	1499	15	2499	35	3610	44%
	3999	40	3999	60	6110	53%
			4999	75	7609	52%

Source: MOSL, Company

**Key announcements in AGM**

- India will be among top 10 post Jio launch in mobile internet accessibility v/s 155th rank now.
- Jio currently covers 18,000 cities and 2 lakh villages, and will cover 90% of India's population by March 2017.
- 4G LTE devices now available starting INR 2,999. Jio has launched JioFi (personal router) for INR1,999.
- Jio customers will get complimentary (content) subscription worth INR15,000 for one year.
- Jio will be launched through Aadhar-based sign-up. Customers can get connection in 15 minutes.

Tariff plans; Simplicity of plans to attract subscribers

- Plans will begin from INR19/day. RIL will charge only for data usage and not voice.
- Customer should pay only for one service – voice or data. Jio customers will get voice free.
- Free data at night from 2-5am.
- To offer million wifi hot spots to users across India.
- 25% more data to students.
- VoLTE calls will not incur data charges from the price plans.

Jio welcome offer

- Free Jio service from 5-Sep to 31-Dec.
- Capacity to take 1 million customers per day.
- Fiber-to-home in select cities: speed-up to 1GB per second.
- Target to reach 100m subscribers at the earliest (wants to create a world record).



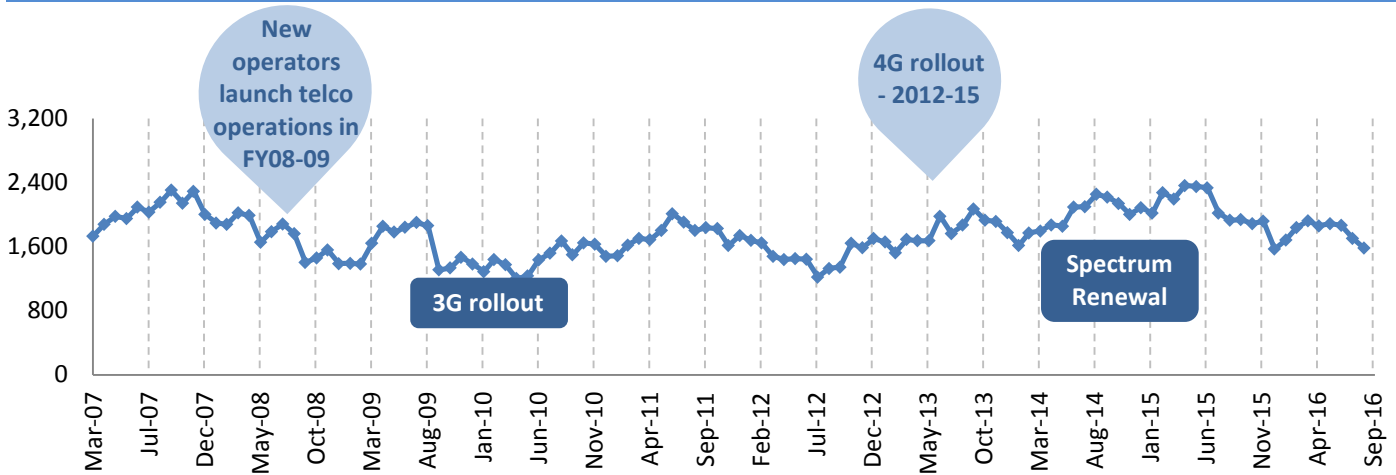
Industry landscape

Investors in telecom have not made money for last 9-10 years! Can this be reversed?

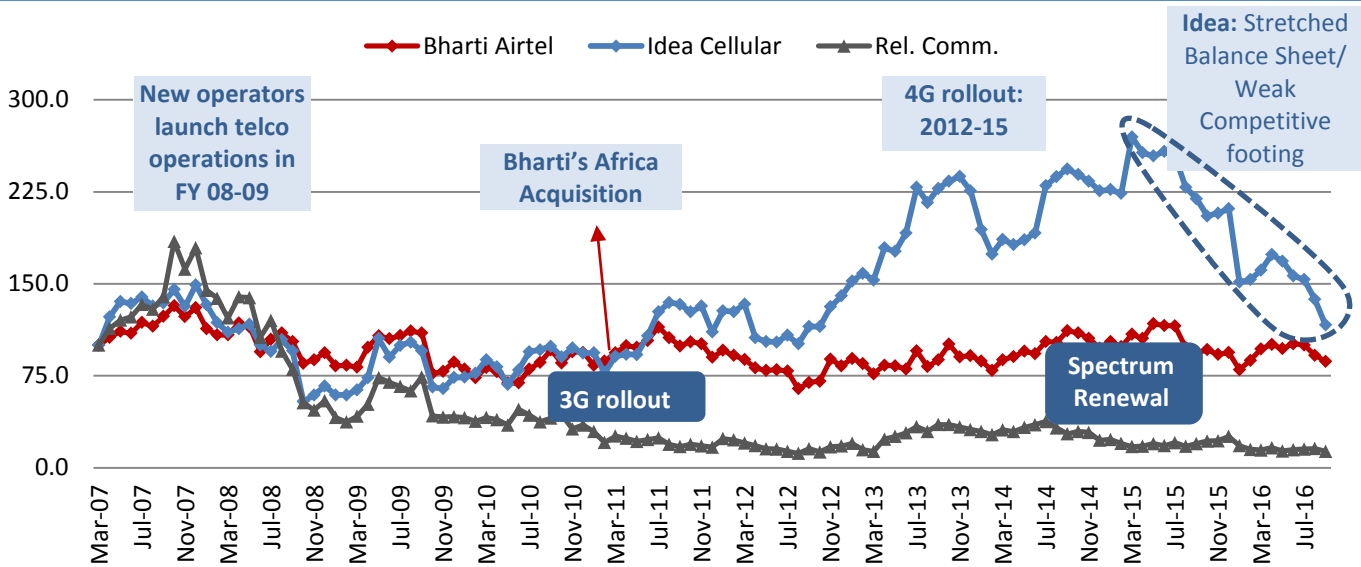


- After the golden period of 2002-08, the telecom industry has remained in doldrums for the past 8-10 years. FY08-09 marked the entry of new telecom operators, thereby increasing competitive intensity in the sector. 3G roll-out gained steam in FY10-11, and the industry doled out an investment of over INR1,000b. Bharti's Africa operations acquisition in FY10-11 only increased pressure on return ratios. FY12-15 marked the era of high regulatory intervention, starting with license cancellation and highly priced spectrum renewals, forcing the industry to cough up cumulative investment of over INR1,200b in FY14-15 auctions. A slew of capital-intensive events and high-competitive intensity in FY08-16 have reduced them to market pariahs.
- RJio's launch is further hurting the industry with irrational pricing. However, there are two key factors currently in favor of the telecom industry in comparison to FY08-16. First, unlike the last eight years of high capex toward spectrum renewals and fresh technology spectrum – 3G, large part of the investment phase has been concluded, especially for the leader in the telecom industry i.e., Bharti. Going forward, incremental spectrum and network investment should be largely demand-led, having limited impact on the balance sheet of a stronger player like Bharti. On the contrary, marginal operators may consolidate, while Vodafone and Idea would have to accelerate investment to catch up with Bharti and RJio, which will subsequently hurt their balance sheets.
- Second, increase in competitive intensity with RJio launch has a stronger resemblance with the FY03 period rather than FY08. Similar to data growth opportunity currently, in FY02, voice was at a nascent stage with huge growth prospects. This is unlike the FY08 phase, when multiple new operators were competing in a relatively matured voice market. We believe the next 1-2 years could be highly volatile, driven by operators' quest for market share. However, as RJio's capacity stabilizes, the data opportunity could resemble voice's high growth phase of FY03-08.

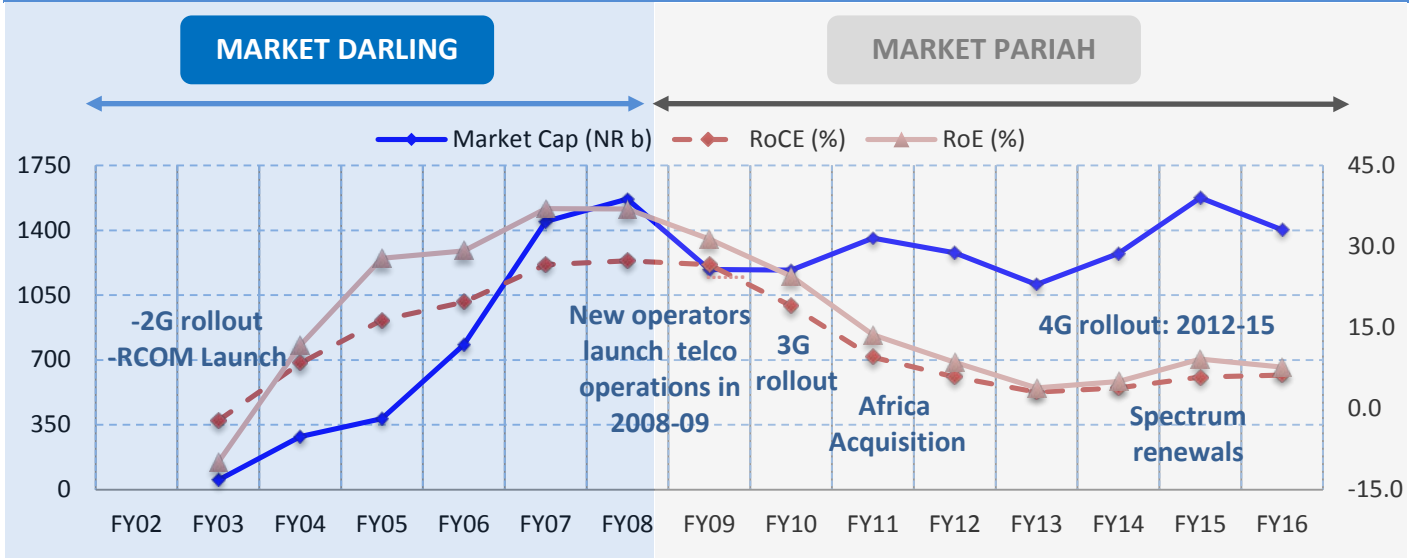
India's top 3 telcos' market cap changed by -9% in last 10 years



Change in market cap for top three telcos in India



Bharti - Reaped healthy gains during 2002-08; 2008-16 remained a drag



Hints of FY03-08 Renaissance? Data could drive long-term asset monetization phase

In the near term, RJio’s aggressive pricing is likely to create an unstable market environment; however, we see strong growth opportunity over next five years.

- Comparison of the current telecom industry situation with the 2002 period reveals many similarities. The year 2002 was the initial phase for subscriber penetration in the voice market, as against the current period where data is in its initial phase. During 2002, the sector was burdened by heavy capex toward network and license cost. Low voice traffic volume was further repressed by concerns about the deep-pocketed new operator Reliance Communication’s service launch.
- Drawing resemblance from the 2002 period, the industry now has been heavily burdened with high network and spectrum capex, low data subscriber base and weak data traffic. Besides, it is fraught with the launch of Reliance Jio Infocomm’s telecom services. In 2002, Reliance Communication’s launch triggered a steep correction in voice pricing, which in turn led to elasticity benefits driving steady subscriber penetration and traffic growth.
- FY03-08 remained the best phase in the telecom market with improving return ratios, supported healthy growth in market cap. Bharti clocked its near peak market cap of INR1,568b in FY08.
- With improving ecosystem – both smartphone and network, we believe the launch of RJio could trigger industry data growth. Operators with healthy data capacity should be able to benefit from data demand growth. We believe among the current operators, Bharti is best placed to take advantage of steep data growth with its wide data network and spectrum investments.
- Post the knee-jerk reaction in the initial 2-4 quarters driven by RJio’s aggressive launch, the industry should see data-led huge growth opportunity. As incumbents follow suit, increase in data demand could drive healthy asset monetization and RoCE improvements (in line with the previous period).

Telecom industry snapshot: 2017 resembles 2002 period



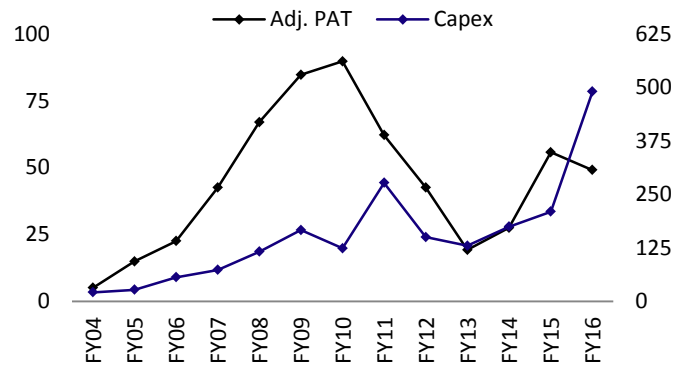
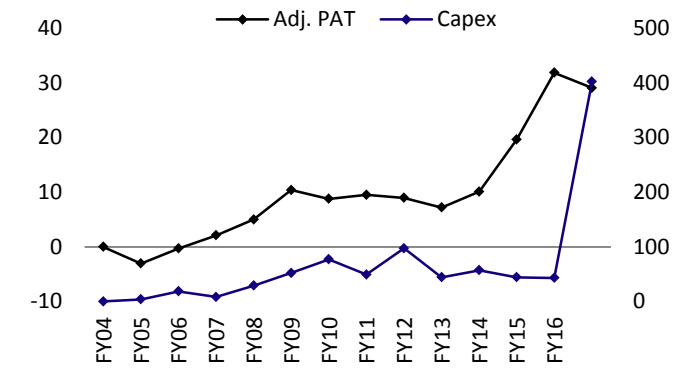
	2001-02	Five years Post 2002	2016-17	Next five years...
	Voice		Data	
 Network Coverage	✓	↑	✓	↑
 New Operator Launch	✓ (RCOM)	✓	✓ (RJIO)	✓
 Pricing	↑	↓	↑	↓
Subscriber penetration	↓	↑	↓	2017 resembles 2002 – Can new operator and price decline trigger data traffic led growth and profitability?
Traffic growth	↓	↑	↓	
Usage/sub	↓	↑	↓	
 Profit and ROCE	↓	↑	↓	

Exhibit 12: Bharti: Adj. PAT v/s capex



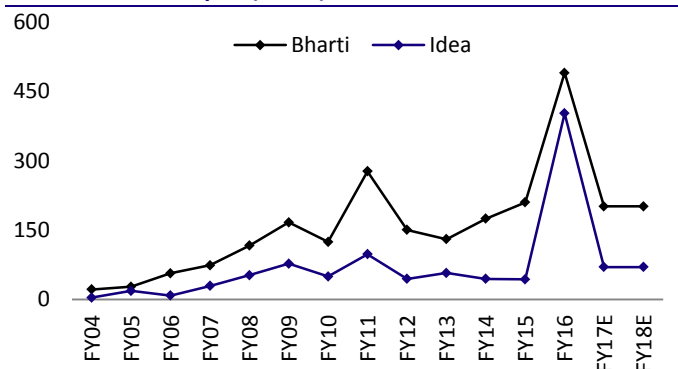
Source: Company, MOSL

Exhibit 13: Idea: Adj. PAT v/s capex



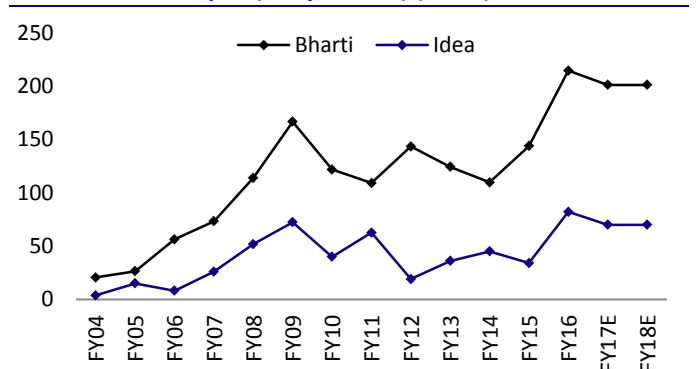
Source: Company, MOSL

Exhibit 14: Net capex (INR b)



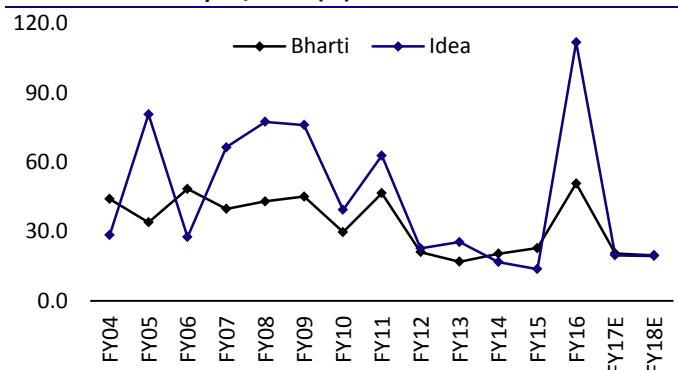
Source: Company, MOSL

Exhibit 15: Net capex (ex-spectrum) (INR b)



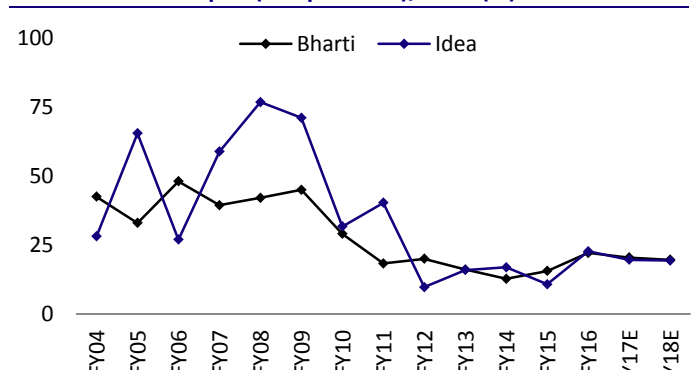
Source: Company, MOSL

Exhibit 16: Net capex/sales (%)



Source: Company, MOSL

Exhibit 17: Net capex (ex-spectrum)/sales (%)



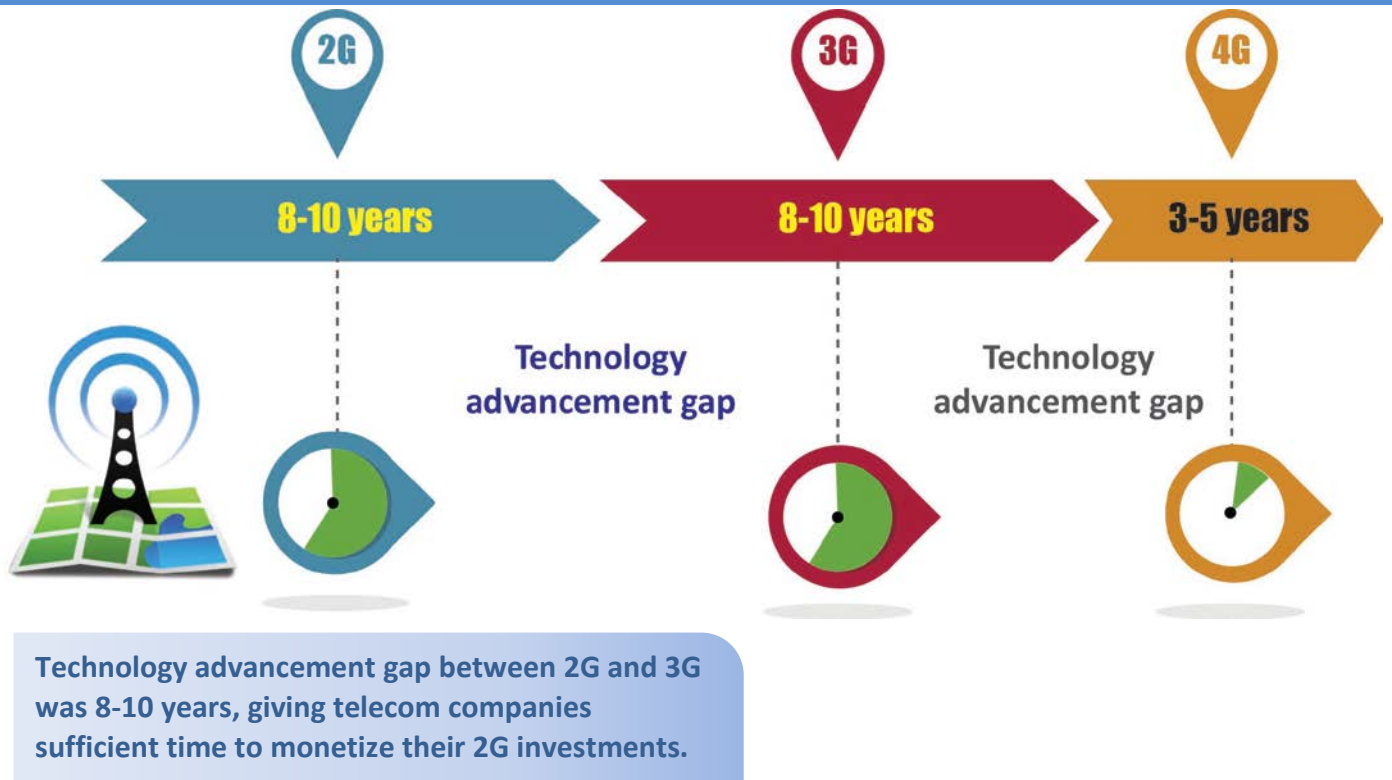
Source: Company, MOSL

India’s technology advancement gap shortens, extending investment period

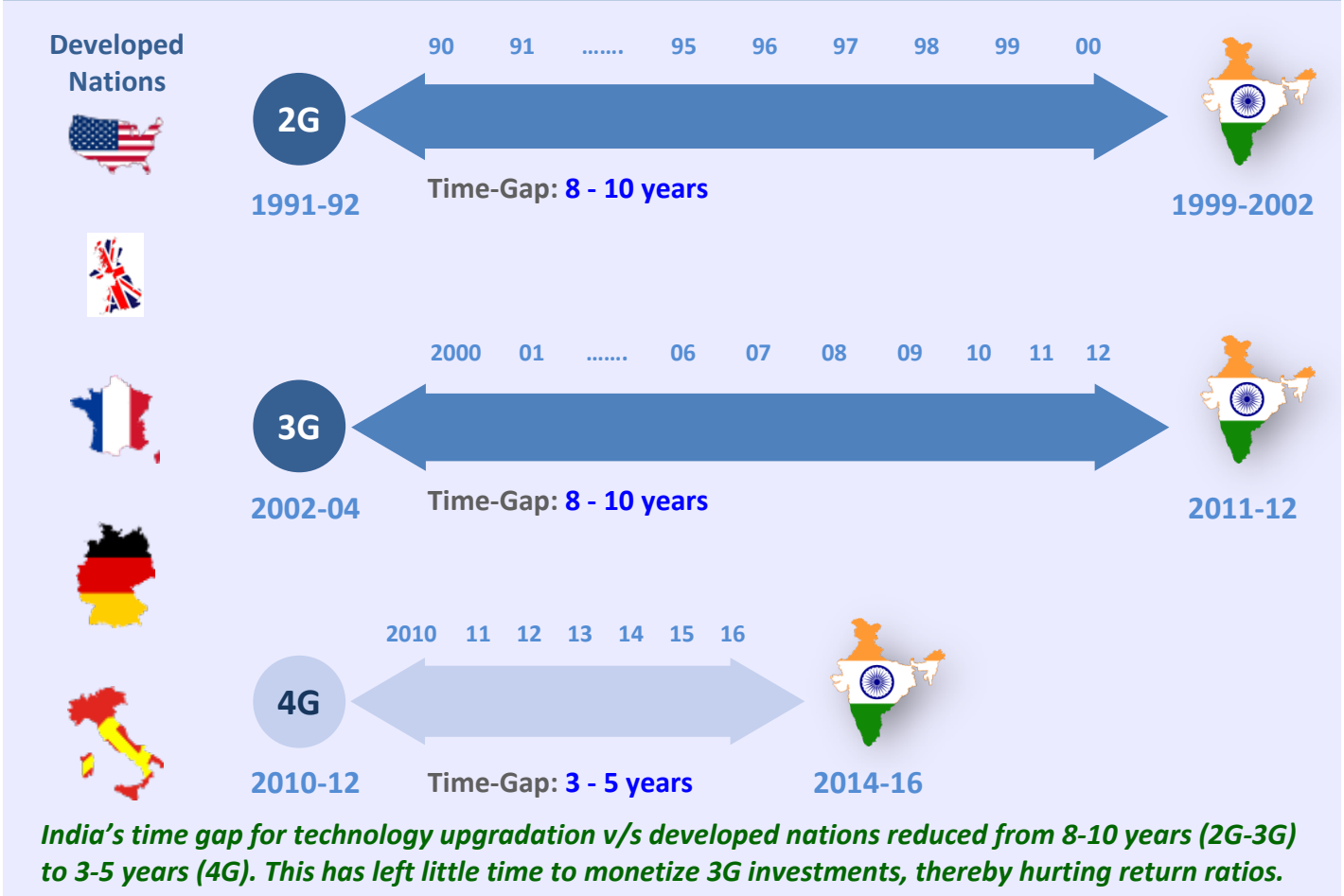
One of the key factors that has gone against the Indian telecom industry is the country’s 4G technology migration, which started much sooner than the previous technology advancements and thus hardly provided time to monetize 3G investments. Historically, India has been about 8-10 years behind developed nations like the US, UK and Europe in terms of technology advancement. This is evident from the previous 2G/3G network rollouts, which happened about 8-10 years after developed nations. However, 4G network rollout happened just after 3-5 years, thereby reducing the technology transition gap.

In India, the technology advancement gap between 2G and 3G was 8-10 years, giving telecom companies sufficient time to monetize their 2G investments. However, the technology advancement gap between 3G and 4G reduced to just 3-5 years (~2010 for 3G; ~2014-15 for 4G), triggered by the threat of RJio launch. This did not allow operators to monetize their 3G investments. The telecom industry post the 4G network investment will be able to focus on asset monetization as incremental investment hereon will be largely led by demand.

India’s technology advancement gap shortens, extending investment period



India's technology gap v/s developed nations reduces



Source: Evolution to LTE report, GSA, July 2016; www.telecompaper.com

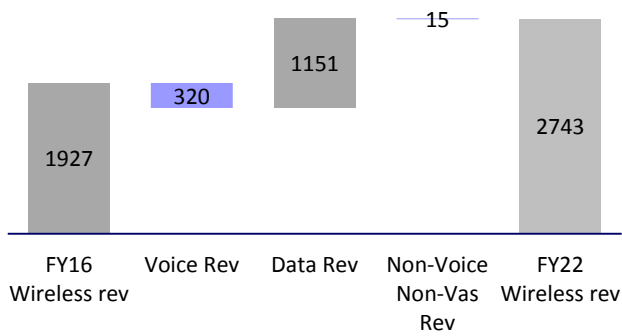
Gross industry revenue to be driven by data business

We expect the telecom industry to undergo a complete overhaul with the advent of RJio – the big boy. We outlay the sector's growth and specific vertical – voice and data, to gauge the dynamics of the industry as well as key gainers/losers.

The overall telecom industry grew at just 6% in FY16, after growing at over 10-12% over the last five years, due to the maturing voice market with low traffic growth and pricing pressure. Data market growth also decelerated to 35% in FY16, from the highs of 57% in FY15. RJio's low INR149/28 days ARPU voice offering should further deteriorate the voice business as all telcos are likely to follow suit to maintain their market shares.

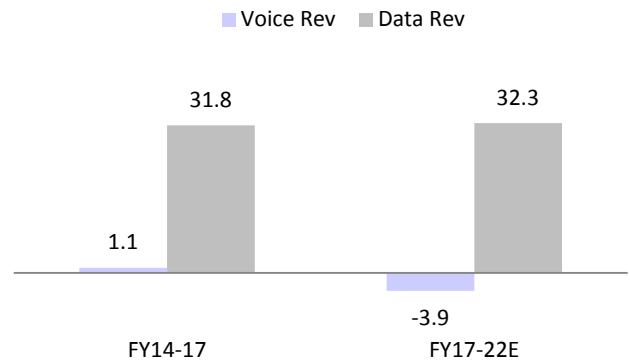
We expect the telecom industry to de-grow for the first time in more than 10 years by 2% in FY17E, as RJio's free offering will hurt the overall industry. However, in FY18E, it should recover with 4% growth. We expect gross revenue CAGR of 9% in the following three years (i.e., FY18-21), with incumbents likely to see gross revenue growth of 8%, while marginal players may see revenue decline of 4% during the same period.

Exhibit 18: Incremental analysis of wireless revenue (INR b)



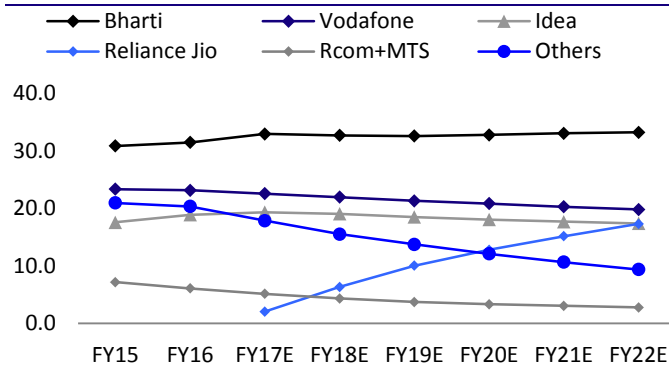
Source: Company, MOSL

Exhibit 19: Voice v/s data revenue growth (%)



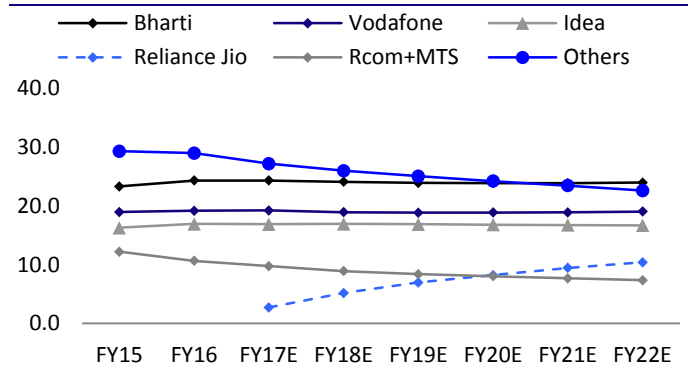
Source: Company, MOSL

Exhibit 20: Operator-wise gross revenue market share trends (%)



Source: Company, MOSL

Exhibit 21: Operator-wise subscriber market share trends (%)

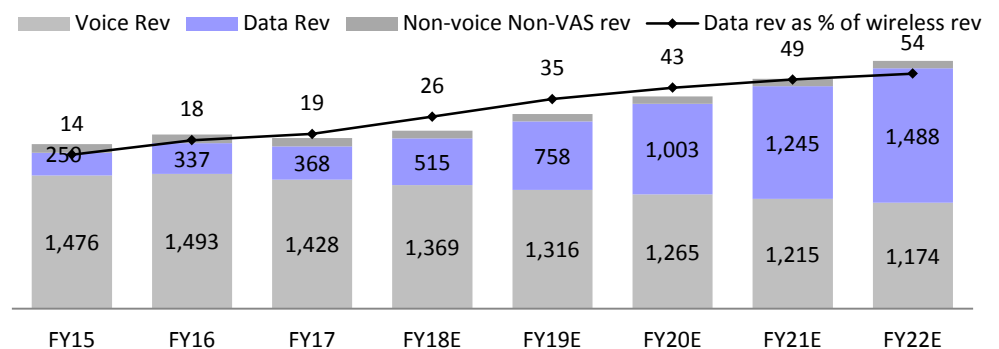


Source: Company, MOSL

Voice market to be on a downward spiral

We estimate the industry voice business to de-grow at 4% CAGR over FY16-21E, led by an 8% drop in voice ARPUs, partly offset by 4% industry subscriber growth. Subscriber growth – which would take total base to 1.27b with addition of 237m over FY16-21E (compared to 222m over FY11-16) – factors in the rise of second SIM users, with consumers looking to test RJio network without taking the risk of changing their primary service provider. Additionally, second SIM users of marginal players like RCom, TTSL, Aircel and others may also look to switch to RJio.

Exhibit 22: India telecom: Wireless revenue split (INR b)

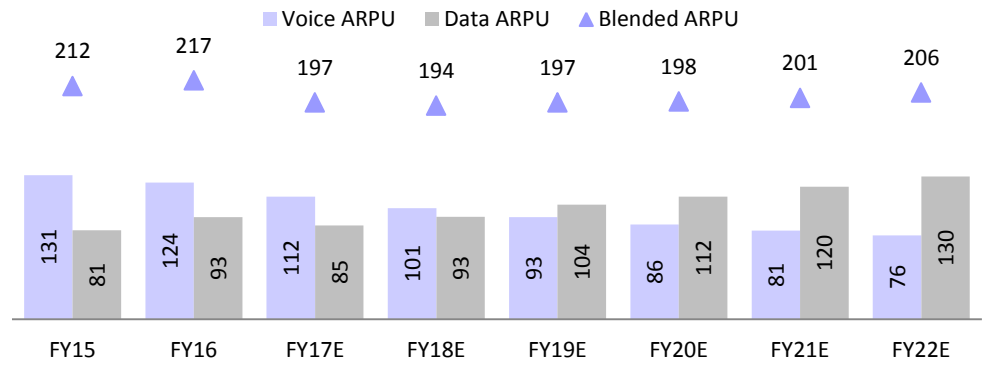


Source: Company, MOSL

Expect weak voice ARPU over next 2-3 years

The weak ARPU outlook is governed by cannibalization of voice as a higher proportion of users may subscribe to data services. This should reduce MOUs. Weak market conditions could also lead to subsequent voice price decline as operators may try to arrest traffic decline and protect market shares.

Exhibit 23: Voice and data ARPU trends (INR)



Source: Company, MOSL

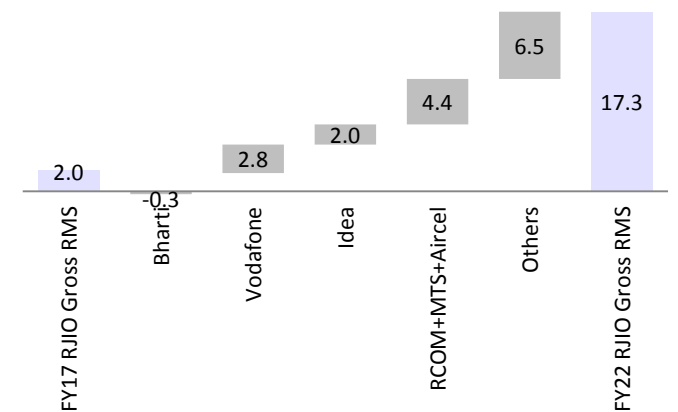
Voice RPM pressure to continue

We believe that incumbent operators may focus on market share protection in a weak market, thus leading to voice price decline. Subsequently, we expect voice revenue decline of 2% for incumbents over FY16-21E, largely contributed by RPM decline. Traffic growth should remain flat, with about 3-4% MOU decline, largely offset by subscriber growth.

Market share dilution to be higher for marginal players, Idea

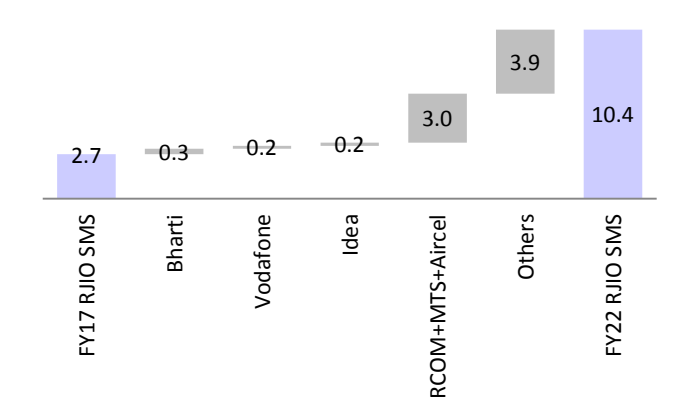
With the launch of RJio and its continued aggressive offerings, the key points to observe are: (1) whether RJio will be successful in penetrating the market and gaining market share and (2) whose market share would RJio take over the next five years.

Exhibit 24: Incremental analysis of RJio’s gross rev market share (%)



Source: Company, MOSL

Exhibit 25: Incremental analysis of RJio’s subscriber market share (%)



Source: Company, MOSL

We believe that given the advancements by incumbent operators, the gap between their network quality (especially, Bharti which has invested heavily in network and spectrum) and RJio’s perceived network quality has reduced substantially. This may leave only pricing as the key weapon for RJio.

The biggest impact would be felt by marginal players (sub-10% market share) like RCom pack (RCom, Sistema, Aircel), Tata Tele, Uninor and the PSU pack (BSNL/MTNL), which may not be able to compete on product/services as well as pricing, given their weak spectrum portfolio, network footprint and technology advancement. We think market share dilution will be higher for marginal players like RCom, Tata Tele as well as PSU operators which do not offer superior technology and coverage. Among other major operators, Idea could be affected the most given its weaker 4G/3G data footprint, while Bharti should also see some dilution.

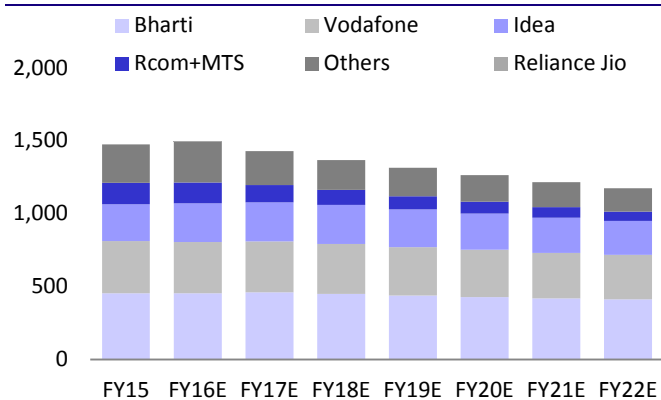
Our workings indicate that market shares of incumbent operators could drop by 440bp to 70.5%, while marginal players could see a market share drop of 10.9%-12.2%. This should allow RJio to gain market share of about 17.3% by FY22E. Among incumbents, Vodafone and Idea should see combined impact of 480bp. Our workings indicate that with 17.3%, RJio may be close to Idea’s 17.4% market share by FY22.

This addresses one of the key questions about the state of existing operators post RJio launch – the industry can accommodate four large operators: the top two spots are up for picking between Bharti and RJio, with Vodafone and Idea’s current state of operations putting them at third and fourth positions, respectively.

Operator market share in voice segment

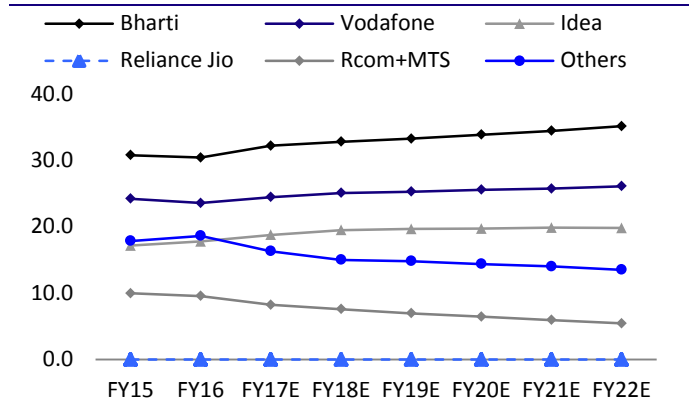
Unlike incumbent telcos’ voice contribution of 75%, RJio will offer voice free at a fixed ARPU (combined with data). Given RJio’s focus on data offerings, we have factored in nil voice revenue for the company. This is also due to the structure of the telecom industry which is likely to constitute about two-third of voice revenues.

Exhibit 26: Operator-wise voice revenue (INR b)



Source: Company, MOSL

Exhibit 27: Operator-wise voice RMS (%)



Source: Company, MOSL

Voice RMS – marginal players with low ARPU subs could be highly impacted

We have factored in nil voice revenue for RJio, given its focus on data with free voice offering at fixed ARPU (combined with data). However, there are two factors that may hurt the voice business: (1) RJio's complementary voice service with data, leading to a steep drain in the voice market and (2) cannibalization effect from data usage further hurting the overall voice market situation and thus pushing it on a downward spiral. We expect incumbent operators' combined voice market share to increase by 820bp (1.9% CAGR decline) over FY16-21E to 80%. Marginal players are likely to see a drop of 820bp in their market share to 20% over FY16-21E. Marginal players have a large base of second SIM users given their weak service quality and price being the only value proposition. Thus, marginal players could be the most vulnerable to RJio's complementary voice services.

Data business – the flag bearer

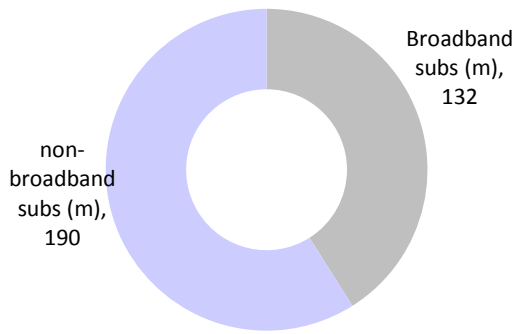
The last few quarters have witnessed a deceleration in data revenue growth, posing serious introspection on data market potential. We understand that data remains the focal point of all the digital development, and believe data growth will be triggered by:

1. **Pricing:** We think pricing will be key to data growth, triggered by RJio's launch. RJio's over 30-40% lower average ARMB v/s peers indicates likely steep fall in pricing in the industry. We think telcos have room to reduce price given two factors: (1) price elasticity of demand from India's low data usage/user as well as low data penetration level. (2) Our workings indicate that data margins are nearly double v/s voice margins, which offer room for price cuts.
2. **Handset ecosystem:** Over the last two years, smartphones as a share of total handset market has grown from mid-teen in CY13 to 45% as of June-16 quarter, with about 8m monthly shipments. However, smartphone shipment's proportion to total shipment is still low compared to China's two-third as well as that of other countries. With 4G/LTE ecosystem improvement, there were about 60-70m LTE devices (as of March), with monthly run-rate of 5m shipments. Further, Reliance's LyF branded low-ticket-size LTE handsets are driving growth.
3. **Need v/s availability – content development:** Telcos have been wary of data price decline as they are unsure of the content and ecosystem development, which can remain a chicken and egg story. RJio's launch has triggered price-led data volume expansion potential, which could be positive for the industry in the long term.

Data subscriber base – huge growth opportunity

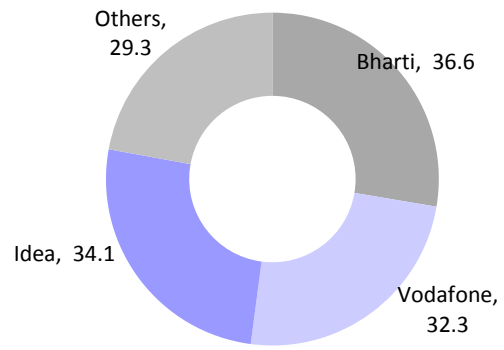
Low subscriber penetration and data usage/subscriber remain the key drivers of the data market. With 322m data subscribers, about 31% of the total subscriber base use data services. Again, out of this, only 132m (41% of total data subscribers) are broadband subscribers, while the rest are 2G subscribers, including very infrequent 2G users, which may not be accounted by incumbents. The top telcos account for two-thirds of 3G/4G subscribers.

Exhibit 28: FY16: Internet subscriber split (m)



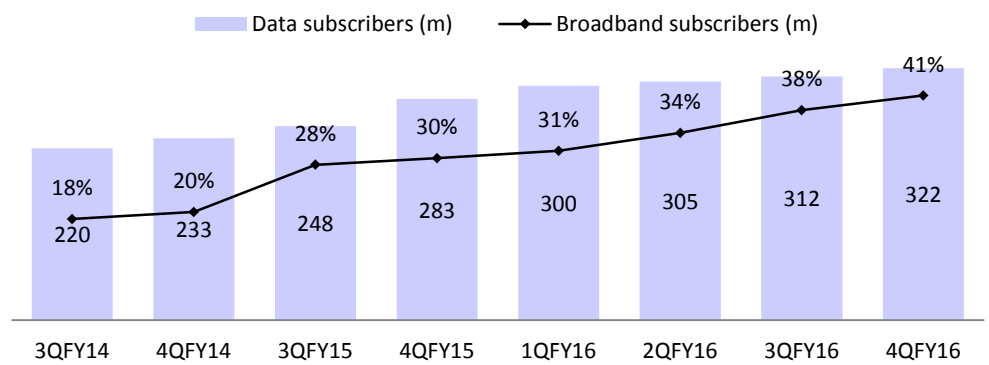
Source: Company, MOSL

Exhibit 29: Operator-wise broadband subscribers (m)



Source: Company, MOSL

Exhibit 30: Data/broadband subscriber trend

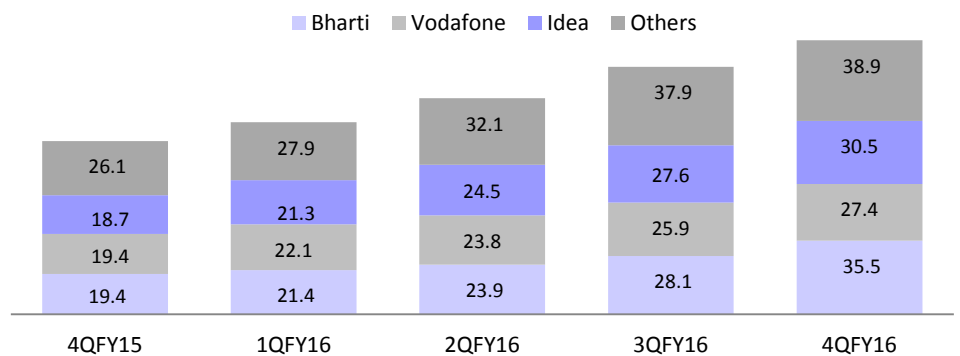


Source: Company, MOSL

Top 3 telcos account for ~71% of broadband subscribers

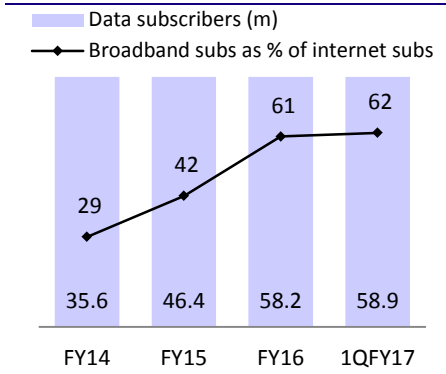
As per the TRAI’s 4QFY16 report, out of the total 132m broadband subscribers in India, about 71% are accounted by the top three companies, in line with the overall subscriber market share. Bharti leads with about 28% broadband market share, while Vodafone and Idea together hold about 50%. Idea holds the second-largest broadband market share with 34m subscribers. The remaining 22.1% is held by marginal players like Tata Tele, RCom and BSNL, amongst others. A high proportion of this includes CDMA-based dongles from Tata Tele and RCom operating at 800Mhz spectrum. With limited incremental investment by RCom and Tata Tele, they would be vulnerable to RJio’s broadband offering.

Exhibit 31: Operator-wise data subscriber trend (m)



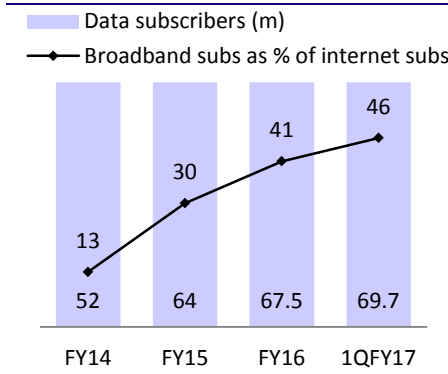
Source: Company, MOSL

Exhibit 32: BHARTI: Data/broadband sub trend



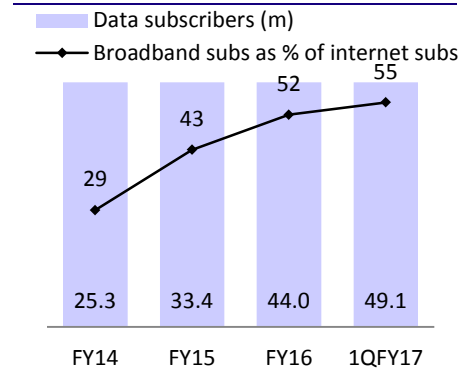
Source: Company, MOSL

Exhibit 33: VODAFONE: Data/broadband sub



Source: Company, MOSL

Exhibit 34: IDEA: Data/broadband sub trend

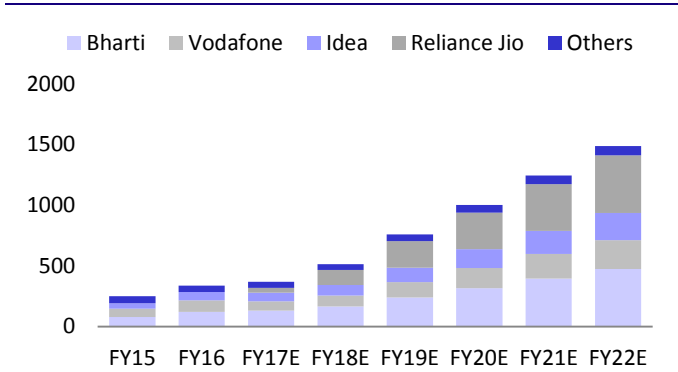


Source: Company, MOSL

Data market to reach 49% of overall wireless space over FY16-21E

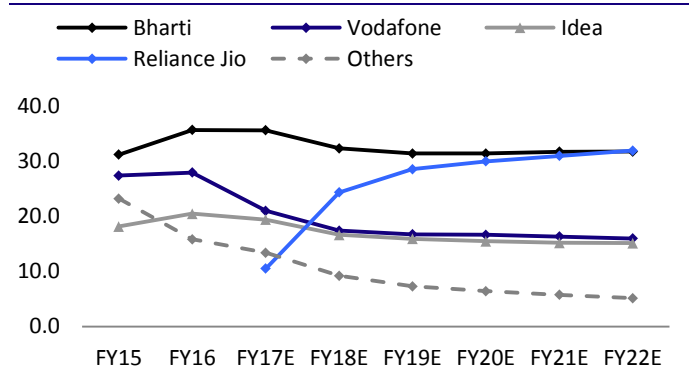
We expect data subscriber growth and data ARPUs to drive overall data growth. Data subscriber base should grow at a 23% CAGR over FY16-21E to 911m. Gross data ARPU stands at INR93 (calculated on data subscribers), which should grow at a 5% CAGR over FY16-21E to INR120. We expect the overall data market to grow at a 30% CAGR over FY16-21E, led by subscriber growth and volume-led higher data ARPU.

Exhibit 35: Operator-wise data revenue (INR b)



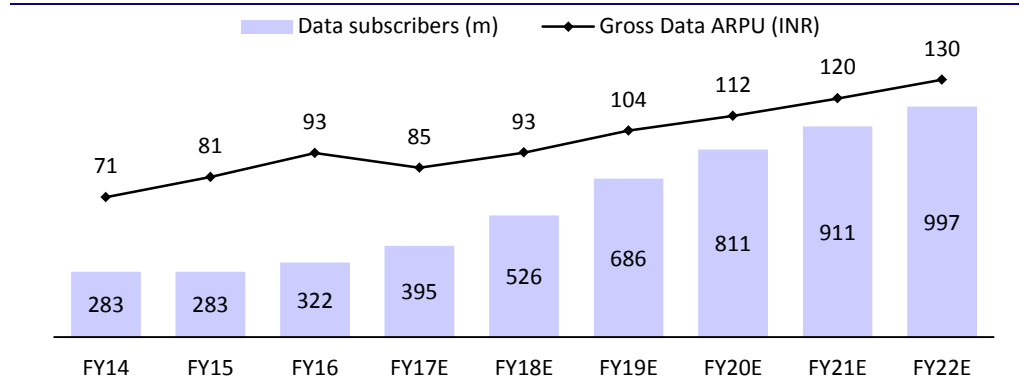
Source: Company, MOSL

Exhibit 36: Operator-wise data revenue market share (%)



Source: Company, MOSL

Exhibit 37: Data subscribers and gross data ARPU trends

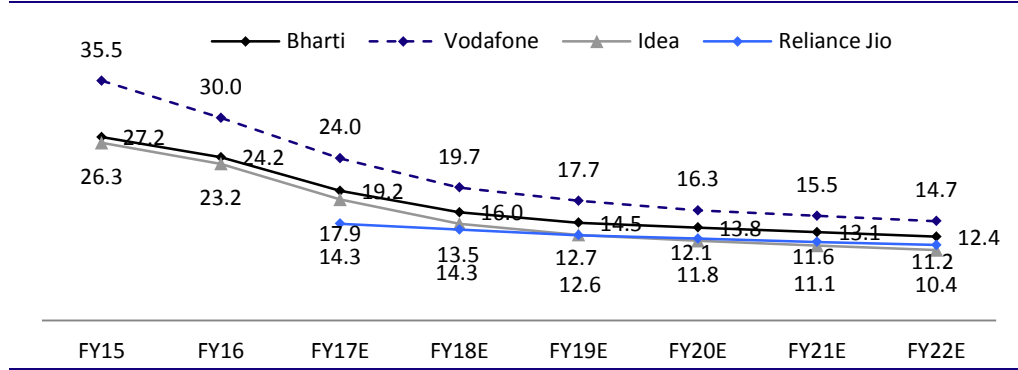


Source: Company, MOSL

Data pricing

Data pricing is expected to come down drastically. We believe this should drive price-led volume elasticity, improving data ARPU as well as subscriber growth. We expect Bharti/Vodafone/Idea’s pricing to drop by 48%/74%/50% over FY16-FY21E, reaching a base of INR0.12-15/MB from the current base of INR0.21-22/MB. However, cumulative data volume growth of 2-5x (led by subscriber growth as well as usage/subscriber growth) should increase data market size.

Exhibit 38: Operator-wise data ARMB (paise)



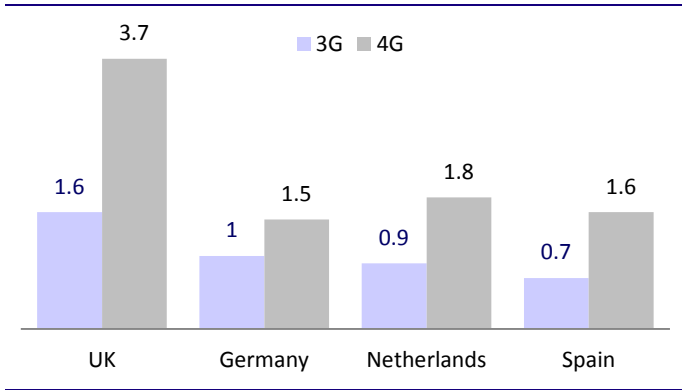
Source: Company, MOSL

Data usage/subscriber has strong propensity to grow

The shift from 2G to 3G and then 3G to 4G could lead to average 2-4x increase in data usage. Apart from higher data subscriber penetration, data consumption/user can be a strong growth driver. Developed countries have witnessed an increase in data consumption of about 2-4x due to technology upgrades from 2G to 3G and then to 4G. Better speed experience and wider content access at higher speed allow higher growth. Higher proportion of online SD/HD video streaming as well as online games triggers higher consumption. Additionally, it allows more data usage due to faster connectivity.

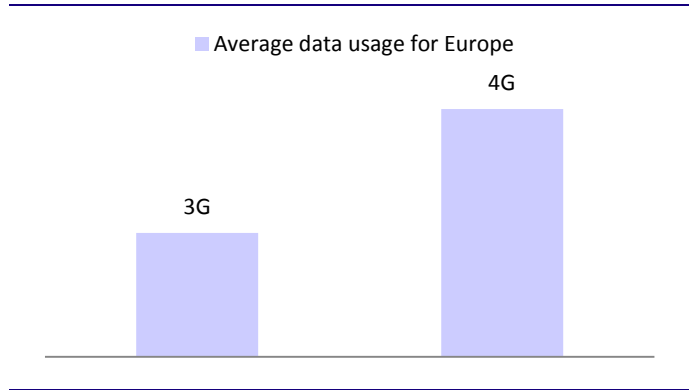
Operators are increasingly bundling video/audio streaming apps with their tariff offers, usually focused on 4G data and LTE capable devices to drive data usage. Overall, data consumption by video is expected to rise to almost three-quarters of total usage in 2019 in Western Europe, up from 56% in 2014.

Exhibit 39: 4G stimulating data demand, average monthly usage (GB)



Source: Vodafone Presentation (Q1FY17)

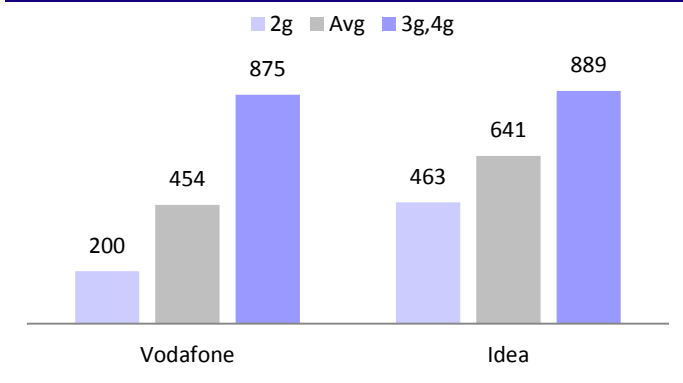
Exhibit 40: Average data usage for Europe as of September 2015



Source: Vodafone Presentation (Q1FY17)

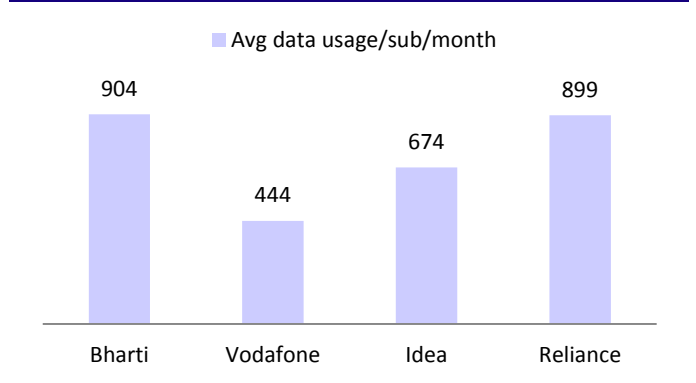
This can be a strong growth lever of data volumes as subscribers switch from 2G to 3G. This is also evident in India’s case – Vodafone and Idea have seen 3G/4G usage at about 2x of 2G usage, thus allowing average data consumption/user to grow at about 10-12% annually over the last five years.

Exhibit 41: Vodafone India and Idea’s data usage up on 3G/4G (mb)



Source: Vodafone 1QFY17 Company financials

Exhibit 42: Avg. data/user/month (MB)



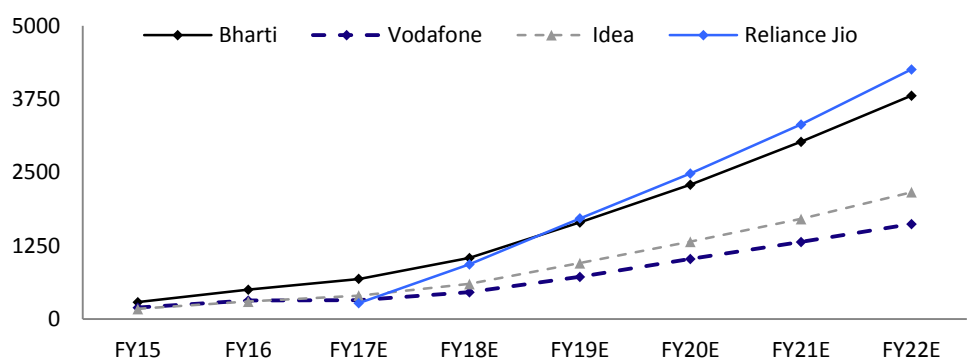
Source: 1QFY17 Company financials

With over 50% of industry data subscribers on 2G (FY16 data subscribers: 322m), there is strong potential for data traffic to grow. Most of incremental smartphones shipped are 3G/4G and this ecosystem development will support data usage/subscriber growth.

RJio launch should be positive in long run, triggering data traffic growth

Growing handset ecosystem, improving local content coupled with RJio-led industry data price decline should trigger data growth, which has slowed over the last 4-5 quarters to just 20% (1QFY17 annualized). Industry participants, especially Bharti, should benefit from the launch of RJio over the next 4-5 years. However, this could be with a lag of two quarters. The next 2-3 quarters may impact peers led by the steep data price decline and voice cannibalization. With a lag of about six months, we expect incumbents to start seeing price elasticity benefits as data volume growth from existing and new users may start accelerating. However, RJio’s high data offering will test existing operators’ capacity to accommodate heavy data traffic. Over the next five years (i.e. FY16-21E), we expect the data industry to grow at a 28% CAGR.

Exhibit 43: Operator-wise data traffic trends (b MBs)

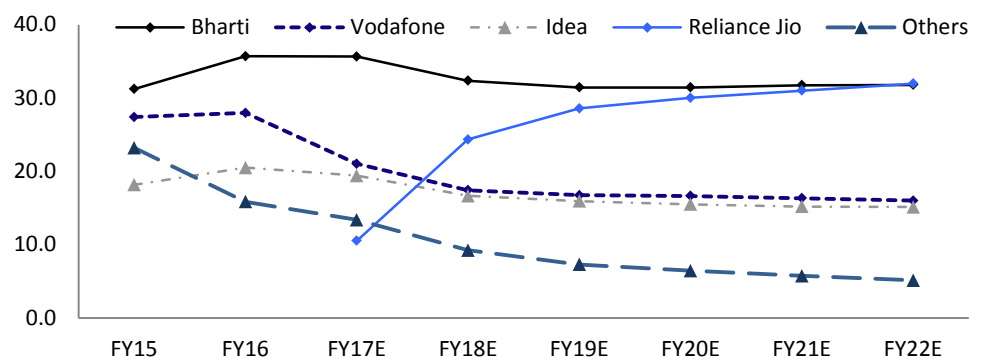


Source: Company, MOSL

Operator market share in data segment

We believe RJio should lead data growth, implying data market share loss of incumbents. However, given that overall data revenue is expected to continue growing at an accelerated pace, incumbents should see healthy data revenue growth despite market share loss. Our workings indicate that RJio should command about 33.6% revenue market share and 9.4% of overall subscriber base over the next five years. We expect incumbents to achieve a 20% CAGR over FY16-21E with 24.2pp market share loss to 60.4%. Our workings have factored in all of RJio’s revenue within data, given its data-centric price plans. Marginal players may see steeper revenue impact from RJio launch, given their weak data offering, as well as low network and spectrum footprint. We expect marginal players’ revenues to grow 6% over FY16-21E, with a market share loss of 950bp to a meager 6%.

Exhibit 44: Operator-wise data revenue market share (%)

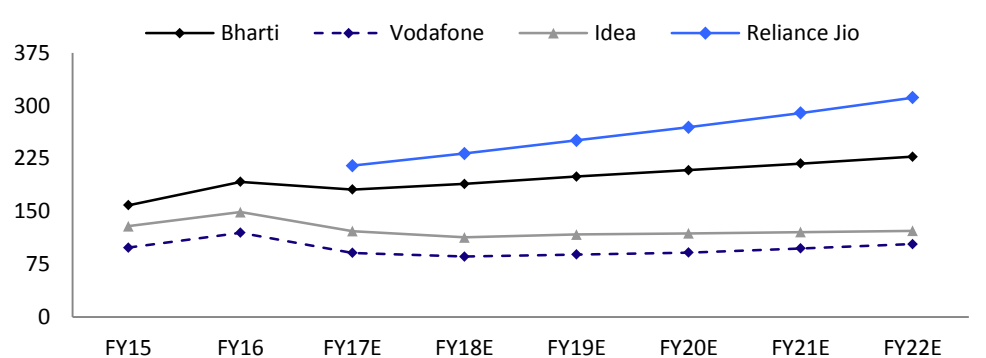


Source: Company, MOSL

Strong case for ARPU increase led by data usage/user

By FY21E, Bharti and RJio should have higher data ARPU of INR178 and INR290, respectively, with flat ARPU for Bharti and RJio’s ARPU base growing from INR210. RJio’s ARPU is significantly higher as we have allocated entire revenue toward data, unlike other operators. Bharti and RJio’s ARPU is ahead of industry ARPU of INR112 in FY21E. This is due to two factors. (1) Better consumer profile with a higher share of 3G/4G subscriber base consuming over 1GB data/month will increase overall demand. (2) We think Bharti and RJio’s better spectrum portfolio and wider data network should allow them to accommodate more data traffic. Thus, it can test price elasticity gains of data volume growth to increase data absorption unlike other smaller operators that could be stuck with network capacity utilizations.

Exhibit 45: Operator-wise data ARPU (INR)



Source: Company, MOSL

Data margin at ~2x of voice margin and strong price elasticity

While the risk of significant erosion in data yield remains high post the launch of RJio, data margin at prevalent pricing is at about ~2x of voice margin, assuming constant voice revenues. This indicates three things.

First, even as the proportion of data revenues increases, it may provide support, as witnessed in the case of both Bharti and Idea's consistent improvement in wireless margins over the last 3-4 years.

Second, this also reduces the impact of steep data rate decline on overall margin over the long term as data and voice businesses stabilize.

Third, high data margin allows operators to test data price elasticity in a market which has less than 10% 3G/4G data subscriber penetration. Also, average data usage per subscriber at sub-1GB is far below global 3G/4G data consumption of over 1.5GB, thus increasing the potential for data volume growth.

Some of the key factors that allow data margin to hover at about ~2x of voice margin are as follows:

Access cost: One of the key factors that reduces variable data cost is that there is limited access cost attached with data volumes. Typically, the voice segment incurs access cost of about 17-18% as per interconnect regulation. On the contrary, there is no regulatory interconnect cost on the data business. Our workings have assumed 2% data access cost to factor the 3G ICR arrangement between telcos to seek data coverage in circles where they do not hold own 3G network. With the ramp-up of own network, this may reduce.

Low network cost: Incumbent operators leverage their existing voice network significantly to implement the data network.

1. Nearly 80% of the 3G sites are on existing 2G sites, which incur incremental site operating cost of only 20% charged as loading while offering equivalent incremental capacity compared to the existing site. This reduces both passive rental as well as energy cost of the sites significantly. So any revenue over and above 20% of the existing site revenue directly flows to the bottom line.
2. Technology developments like Single RAN and carrier aggregation multiply capacity on the existing site without adding any incremental operating cost on the same. Thus, high data consumption pockets which already have high density voice coverage could be utilized to upgrade the network and data capacity with limited incremental network cost, thus allowing high capacity utilization levels and margin. Further, 3G/4G should provide higher capacity and garner higher volumes without any steep cost increase.

Low SUC: Bharti holds 2300Mhz spectrum across 10 circles, which is charged only 1% spectrum usage charge compared to 5% on existing spectrum. This provides steep regulatory cost savings. Our discussions with TRAI and DOT indicate that there is little way to bifurcate revenues among multiple frequencies charged at different SUC rates. Further holding 20Mhz of 2300mhz spectrum should provide huge capacity to offer data services, thus reducing SUC costs.

Operating leverage: The data segment can leverage the large sales and distribution network, which is already established by incumbents. This allows benefits in terms of employee, distribution and marketing costs. However, with free voice announced by RJio, reducing voice ARPU could put pressure on overall margins in the near term.

Exhibit 46: Voice v/s data margin bifurcation (incl. 2G data revenue also, while sites are only 3G/4G)

	Total	Voice	Data	Non voice Non data
Revenue (INR)	359,772	261,461	69,163	29,148
BTS (nos)	159,775.5	119,600	40,175.5	159,776
Average Sub (mn)	166	166	44	166
Traffic (min b)		785,975	297,920	
Realization (INR)		0.32	0.23	
Revenue/BTS (INR)	187,645	182,178	143,461	15,202
Opex per BTS				
Interconnect (INRmn)	46,477	45,169	1,308	-
	13%	17%	2%	0%
License fee & SUC (INRmn)	41,508	31,114	6,916	3,478
	12%	12%	10%	12%
Network (INRmn)	84,275	64,584	10,595	9,095
	23%	25%	15%	31%
Cost/BTS/month (INR)	43,955	45,000	21,977	4,744
SG&A + Employee	50,332	41,834	6,916	1,581.49
cost/sub INR	302	251	157	10
as a % of revenue	14%	16%	10%	5%
Total opex (INRmn)	222,591	182,701	25,736	14,154
EBITDA (INRmn)	137,181	78,760	43,427	14,994
EBITDA margin (%)	38%	30%	63%	51%

Source: Company, MOSL

The IUC could see a sharp revision - a major risk for top 3 telcos

TRAI's August 2016 consultation paper to review IUC is an indication of possible reduction in IUC, which will be vigorously challenged by large telcos – the IUC charge revision in FY15, which is yet sub judice, is a case in point. However, there are two things to observe.

IUC a declining trend, both in India and globally: Since it was established, IUC has been reduced four times from the highs of INR0.50/min to INR0.14/min, indicating its downward trend. Globally too, IUC has reduced over 50% in many developed markets like Australia, UK, and other European countries. TRAI's recent consultation paper to review IUC is a possible indication towards IUC reduction.

TRAI exploring zero IUC charge: Globally, despite the prominence of IP calling and voice becoming less relevant, nowhere has IUC been reduced to zero. TRAI, in its consultation paper, has hinted that IUC could be charged on BAK (Bill and Keep) model, implying zero charge, led by two factors – (a) potential growth of VoLTE/IP-based calling, which has increased the variability in estimating costs, and (2) need for support deployment of efficient network technologies.

Will IUC be reduced or cut to zero? While there is a possibility of further IUC reduction, given its inclination to promote IP-based calling, TRAI may not cut it to zero due to the steep operational impact for majority of the operators. TRAI's observation during previous IUC workings in 2011 indicated that any steep changes in IUC could be in 3-year phases to avoid any knee jerk impact.

Can RJio sustain free voice calling?: We see IUC reduction as a potential risk over the next 1-2 years for the incumbent large telcos due to its high on net calls termination.

If the current heat over IUC discussion derails, RJio's strategy to provide free voice may not be sustainable over the long term.

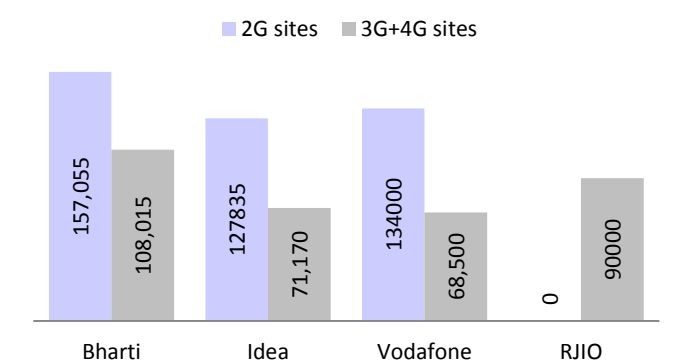
RJio- Throwing rationality to the wind

- RJio to become the world’s first telecom operator to have full IP-based LTE network with no fallback on 2G/3G network, allowing it to offer full-fledged high-speed 4G services without any legacy network backlog.
- RJio’s current holdings in 800Mhz/1800Mhz/2300Mhz give it enough capacity to handle impending data explosion. In terms of coverage, the existing spectrum holding along with a cell site base of ~90k is still less than Bharti’s 157k/75k 3G/33k 4G sites and may not be sufficient for pan-India coverage.
- RJio’s significant delay in commercial launch has waded the 4G novelty factor. Subscribers will now rate RJio on quality of speed.
- Our 84m subscriber estimates by FY20 indicate a breakeven in the third full year of operations and 7.5% project IRRs.

High capacity but weak coverage

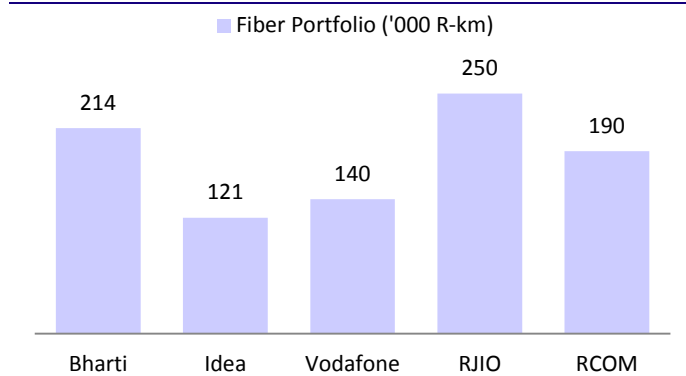
RJio is the first operator in the world to have full IP-based LTE network with no fallback on 2G-3G network. This allows the company to offer full-fledged high-speed 4G network with no legacy network backlog. However, RJio’s network launch with just about ~90,000 cell sites combined with 2300-1800-800Mhz spectrum may not be sufficient for a pan-India footprint. This compares with incumbents like Bharti operating with over 1,50,000 2G and 75,000 3G cells over and above the 4G sites. Our channel check indicates that RJio continues to add more sites, but the first phase will not have substantially higher quantum of sites. Further, many pockets (which are currently voice-only regions) may not be viable for 4G operations, and given RJio’s pure 4G-based network, it could have a patchy network. This could make it difficult for RJio to penetrate in smaller towns in the country.

Exhibit 47: Top 4 operator-wise cell sites



Source: Company, MOSL

Exhibit 48: Top 5 operator-wise fiber portfolio



Source: Company, MOSL

Distribution channel

SIM card distributor and retailer mapping is largely over with about 2.5 lakh mom and pop stores, in comparison to 4 lakh SIM distributors and 8 lakh recharge voucher sellers. Currently, SIMs are provided only through Reliance Retail outlets. The rest of distribution, including modern retail as well as mom and pop store, should start in 15-20 days.

Three-pronged product offerings

For VoLTE device users: A VoLTE device user can use RJio's both data and voice services seamlessly on any smartphone.

LTE device users (subscribers who may not own a VoLTE handset but have an LTE device and may not be willing to change handset):

LTE device users would be able to use RJio's 4G data, but may not be able to use VoLTE directly through the handset. Earlier this was understood as a big concern, making RJio subscribers depend on existing service providers to make voice calls. With the launch of Jio Join services, RJio subscribers can now seamlessly make voice calls by downloading the Jio Join application, which allows it to call any mobile number.

Non-LTE device users (consumers with non-LTE handset who may want to experience RJio without the hassle of changing device):

The subscriber can buy a JioFi device – a portable WiFi device and connect the phone to the WiFi device for data usage. For voice calling, s/he can download Jio Join application and connect the app to the JioFi device. This would allow the user to make voice calls to any subscriber (RJio and others) using JioFi SIM number. Additionally, the user can also receive calls from any other user with the same JioFi number. JioFi at one point of time can be connected with only one Jio Join application.

Product

Handset launch: Currently, 13 handsets are launched across four umbrella brands (Flame, Wind, Water and Earth) with prices starting from INR4,000-19,000. Every 15 days, a new handset is launched. RJio should have about 25-30 Jio handsets by Dec-16. Incremental handsets will be launched in the premium range. JioFi device is priced at INR1,999.

JioFi is like any portable WiFi device offered by incumbent telcos. The key advantage for RJio is that unlike other telcos, data can only be accessed on LTE handsets, which are witnessing increasing penetration from the current low levels. Thus, this product helps addressing the non-LTE device user market.

Jio Join application, available on play store, is conceptually an extremely novel product, which (unlike other IP-based voice-calling products like WhatsApp – only app based calling) allows subscribers to make and receive calls from any subscriber (RJio or non-RJio user) using the RJio SIM no. For an LTE user, the Jio Join application can be linked to the RJio SIM in the phone, while for a non-LTE user, the Jio Join app can be linked to the JioFi device. This allows subscribers to both make and receive calls through Jio Join specific number without using VoLTE handset but retaining RJio SIM no.

Positive and Negatives of Test Outcomes

Positives

Addresses low VoLTE/LTE penetration rate: Both JioFi and Jio Join could allow RJio to address the key concern of VoLTE/LTE's low penetration for data as well as voice usage.

Second SIM phenomenon: Many non-VoLTE/LTE subscribers, who may use RJio service purely for data use, could possibly also use it for voice calling through the Jio Join app.

Battery life: JioFi has an average six-hour battery life.

Negatives

Service lag; HD voice calling, not a big difference: The product has many glitches in terms of voice lag (nearly 2-5 seconds), far inferior than normal IP-based voice calling. Marketed as HD voice calling, we actually found RJio voice calling subnormal and patchy.

Weak product knowledge of front-end channel: Our experience with RJio retail was not very great, with none of the executive having complete detail on the product and service, especially on the Jio Join and JioFi's integration and number compatibility.

Ordinary speed results: Our speed test results (across multiple locations of Mumbai) provided sharp speed variations from 6mbps to 25 mbps (average 12-14 mbps) and 2-4mbps indoor speed. Incumbents like Bharti and Vodafone offer nearly 70-80% of RJio's outdoor speeds and far higher indoor speed. This could be attributed to RJio's 1800Mhz/2300Mhz led rollout. Incremental rollout on 800Mhz could solve this issue.

Distribution reach

1. Reliance Jio has 1,071 Reliance centers across the country, with 35 centers in Mumbai. These will be selling both handsets and wireless services.
2. Distribution of handsets and services are separate. Wireless services will be provided via about 4,000 distributors (4x of Reliance centers), while handsets will be available via 400 distributors (40% of Reliance centers).
3. RJio's handset distribution is better than the bigger handset sellers like Samsung due to its wide Jio center reach and distributors, which has led them to reach 8-9% share of smartphone market in just few quarters. However, risk of huge inventory loss on reducing smartphone prices makes this segment vulnerable.

Unlimited voice plan - Has RJio underestimated the cost overrun related to IUC?

Unlimited voice could significantly increase RJio's MOU and payout: RJio's unlimited voice offering could result in a steep increase in its minutes of use (MOU). We expect its INR149 price plan (pseudo voice plan) offering unlimited voice usage to garner higher traction among low ARPU (average revenue per user of below INR150) voice subscribers, largely impacting marginal players. Subsequently, the current average MOU of 300-400 could cross 600-800 (implying 20-25 minutes of voice daily), due to high elasticity on low ARPU voice subscribers.

Global MOU may not be a correct reference

In the developed market, MOU are at 200-300 and do not change substantially with change in pricing. In countries where 3g/4g subscription has reached above 50% of overall subscribers, voice offerings are embedded in high ARPU price plans (like RJio price plans), making it difficult to segregate voice and data to gauge the pricing, but perceived value is largely for data. However, India could see a different scenario, since 3g/4g subscription is low, with a large voice-only market pool.

RJio's IUC charge/subscriber/month could range from INR50 to INR100 (20-50% of estimated ARPU)

Assuming 90% on-net calls, since RJio is a new operator, at INR0.14/min termination charge, at about 400 MOU, the IUC cost/subscriber could work out to be INR50. However, if MOU goes up to 600-800, the IUC cost/subscriber could reach INR75-100. This works out to be a high 35-45% of our estimated INR225 ARPU, leaving little room for profit. For incumbents, access cost is 8-10% of revenue, about one-fourth RJio's cost.

Smaller operators may see steeper impact

While RJio's free voice could also hurt existing operators, due to the absence of ARPU-based subscriber segmentation, the impact on operators could be difficult to gauge. However, since high ARPU subscribers are sticky and quality conscious, the impact could be higher for small operators that hold single-digit market share.

Can RJio sustain free voice calling

We see IUC reduction as a potential risk over the next 1-2 years for the incumbent large telcos due to its high on net calls termination. If the current heat over IUC discussion derails, RJio's strategy to provide free voice may not be sustainable over the long term.

Data-focused revenue model dismantles traditional voice-led business models

RJio’s pure IP-based network holds 90,000 cell sites. The company’s focus remains the data market, which has low penetration and improving ecosystem. Thus, we believe there is huge growth opportunity. The current industry revenue is composed of 25% revenues from data and 75% from voice, given most operators are primarily voice-offering companies. In the case of RJio, we have factored in complete revenues from data offerings, as it has mentioned that voice remains free and there is no voice-only plan. RJio product offering would be high-speed data, with voice as an additional offering. This sets RJio apart from any other traditional telecom company globally. We expect RJio to offer about INR232 ARPU.

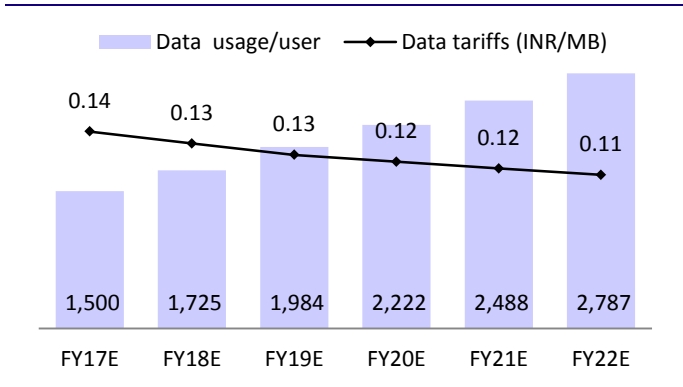
High data consumption to drive overall ARPU

RJio being a new entrant should likely drive traffic growth due to two factors. First, with empty capacity in the beginning, it would drive price elasticity of demand to increase traffic volume. Second, being a 4G operator which drives data usage/user by about 2-3x should further augment data consumption. We expect RJio’s data usage/user at about 1.5GB, which is double compared to incumbent operators’ average data usage/user. Subsequently, we expect overall ARPU at INR210, marginally better than Bharti’s INR193 and higher than other telcos on account of its 4G offerings.

Expect aggressive pricing to target market share

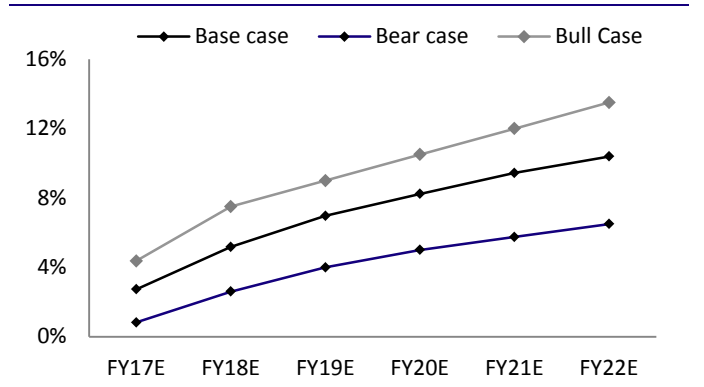
The previous instance of new operator launch in 2008-09 indicates that telcos remain aggressive until they reach close to 60-70% capacity utilization as they prioritize volume over profitability to monetize perishable traffic volumes. We believe this may force RJio to remain irrational on pricing until it reaches about 60-70% capacity utilization. With pan-India launch, our base-case factors in 11% subscriber market share over the first five years of operations by FY21, driven by free voice and data ARMB of below INR0.15/MB. This is currently at about 30-40% discount to data pricing of INR0.20-22/MB offered by incumbent operators. Free voice offering at INR149/28 days (minimum plan) will be the major game changer, dismantling the telcos’ subscriber segmentation above INR149 ARPU.

Exhibit 49: Favorable data demand elasticity, with 50% pricing discount



Source: Company, MOSL

Exhibit 50: Expect high market share focus with free capacity



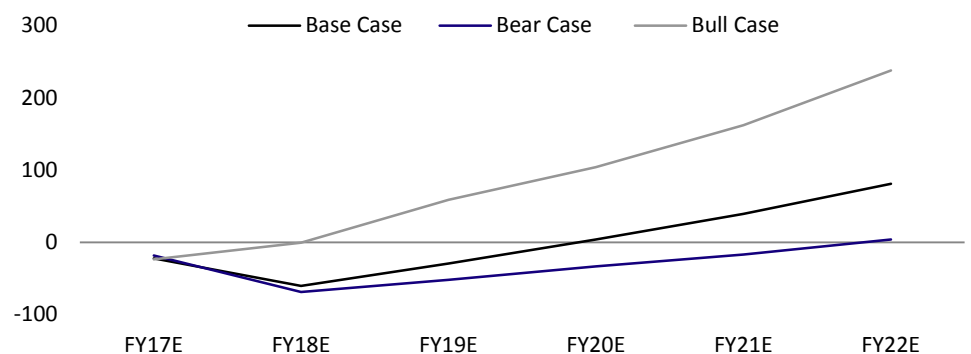
Source: Company, MOSL

With data being the only proposition, RJio should garner 100% revenue from data, unlike just 25% by other telcos. We believe RJio would remain a data provider garnering about INR210 data ARPU with about 1.5GB usage, i.e. nearly double data usage/user compared to current usage. Voice offered on VOLTE network may not be its mainstay, with weak network and low value proposition.

Expect EBITDA breakeven by FY20; estimate DCF value of ~INR5/share

Our base case expects RJio to turn EBITDA breakeven in its third full year of operation as it would leverage its fixed cost, led by network cost, subscriber acquisition/servicing cost and employee cost.

Exhibit 51: Base-case EBITDA breakeven in three years



Source: Company, MOSL

High investment may lead to IRRs at 7.5% below WACC, with negative project NPV

RJio’s total investment of about INR1,500b in the last five years even before the launch of operations is a major drag on profitability. We believe this will be the biggest dent on its returns. Our base-case suggests project IRR of about 7.5%, factoring in 30% steady-state margin by FY24, led by 10% subscriber market share. We have factored in INR232 ARPU, growing at 8% CAGR over the next six years, better than the industry leader Bharti’s ARPU of INR203

Our post tax project NPV at 11% WACC works out to be INR -160/share. This is due to high investment which has led to 7.5% IRRs. Our DCF-based valuation at 11% WACC and 2% terminal growth offers equity value/share of INR5.

1. Scenario analysis

	FY19- 3 years from launch (INR b)							NPV/share @ 11%
	Subs mkt share	Data revenues	Voice Revenue	EBITDA	EBITDA Margin	Break Even	IRRs	
Base	7%	216,670	-	-29,100	-13%	3rd year - FY20	7.5%	-160
Bear	4%	104,109	-	-51,717	-50%	5th year - FY22	3%	-336
Bull	9%	385,661	-	59,159	15%	2nd year - FY19	16%	370

Source: Company, MOSL

2. Base-case scenario

Period	Base Case			
	3 years	5 years	10 years	End of license period 14 years
Subs mkt Share	7.0%	9.5%	13.6%	15.1%
Subs base	84	120	186	212
Voice Revenue	-	-	-	-
Voice ARPU	-	-	-	-
Voice RPM	-	-	-	-
MOU	331	365	407	411
Voice Traffic	285,768	485,716	881,424	1,029,975
Data Revenue	216,670	386,018	824,811	1,116,369
Data ARPU	251	290	380	445
Data RPM	0.13	0.12	0.10	0.10
Data Usage.user	1,984	2,488	3,752	4,561
Data traffic	1,713,960	3,314,570	8,136,286	11,442,044
Total Revenue	216,670	386,018	824,811	1,116,369
Network Cost share	49%	40%	32%	33%
Spectrum and license costs	11%	11%	11%	11%
Access and Roaming Charge	17%	14%	9%	8%
Employee Expenses	9%	6%	5%	5%
Selling and admin costs	19%	14%	10%	10%
Ad exp	8%	5%	3%	3%
EBITDA Margin	-13%	10%	29%	30%
NPV @11%				-518,064
Per Share NPV				-160
IRR				7.5%

Source: Company, MOSL

RJio – a substitute to existing marginal operators due to second SIM phenomena

As RJio's key proposition is data services, customers are likely to choose it as a second service provider (second SIM phenomena) in the initial period of launch, driven by three key issues:

1. Current ecosystem of VoLTE handset.
2. Risk of network volatility.
3. Risk to change mobile number until MNP gets activated

Challenges RJio likely to face in the market:

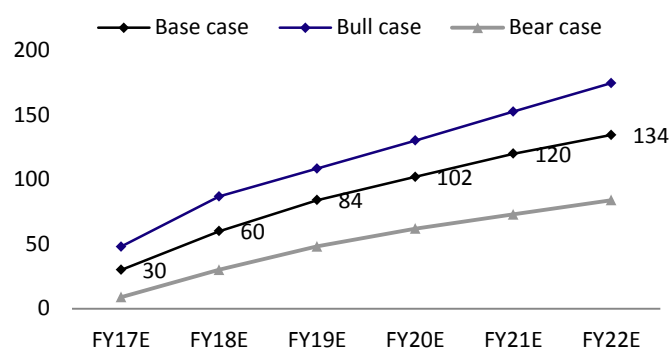
1. **Low penetration of VoLTE handsets in the system:** Current user base of LTE handsets remains weak at about 60-70m; maybe even smaller for VoLTE. Considering the magnitude of launch, the subscriber base requirement remains high in order to recover the heavy investment (twice the size of Idea's current balance sheet size and about 1.5x the size of Bharti). RJio's own handset sales have caught steam with it being third-fastest handset seller on a monthly basis. However, in comparison to total subscriber base and monthly subscriber addition requirement, it remains weak. We feel over time (after about eight quarters), this concern should fade as majority of new handsets (introduced at USD ~50-100 average selling price) will be VoLTE-enabled, but it will be a challenge to convert the existing subscriber base. Further, non-VoLTE handsets may allow voice calling through Jio Join, but it may not be seamless. With most RJio customers likely to be data consumers, this could be addressed.

2. **Peer network gap:** RJio’s delay in launch over the last five years has allowed incumbents, especially Bharti, to bridge large portion of the gap between technologies. Bharti offers 4G in most of the metro and Tier I towns. Thus, there is little reason to switch, except for the price factor.
3. **Technology:** Majority of the developed countries, where operators upgraded to 4G, saw a steep migration of the ecosystem toward 4G-enabled audio/video content, which forced operators to their upgrade network in order to normalize consumer data experience. On the contrary, India’s content library can largely be serviced with 3-5mbps speed, thus leaving little value of speed upgrades over that base. Thus, in India, many cities and towns may be comfortable with 3G speeds, provided there is a well-covered network.

RJio to reach 84m+ subscriber base by FY19 with subscriber share of ~7%:

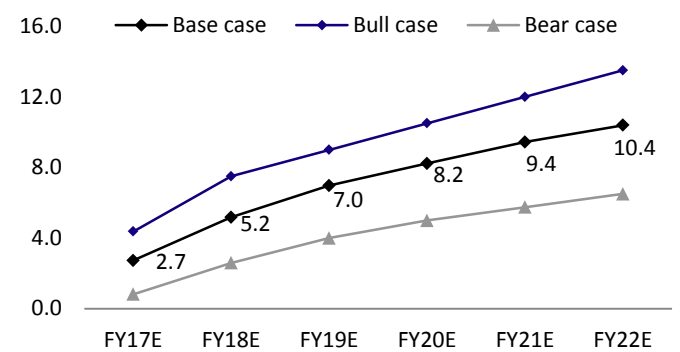
Our base case suggests RJio should reach ~84m subscriber base with a subscriber market share of ~7% by FY19. It would garner over 70% of the share from RCOM, MTS, Aircel and other marginal players. The revenue market share loss of Top 3 telcos is 5.5pp over FY17-22E, largely led by the growing second SIM phenomena in India. The market share impact on marginal players is expected to be 10.5pp.

Exhibit 52: Base case: Subscriber base (m)



Source: Company, MOSL

Exhibit 53: Base case: Subscriber market share (%)



Source: Company, MOSL

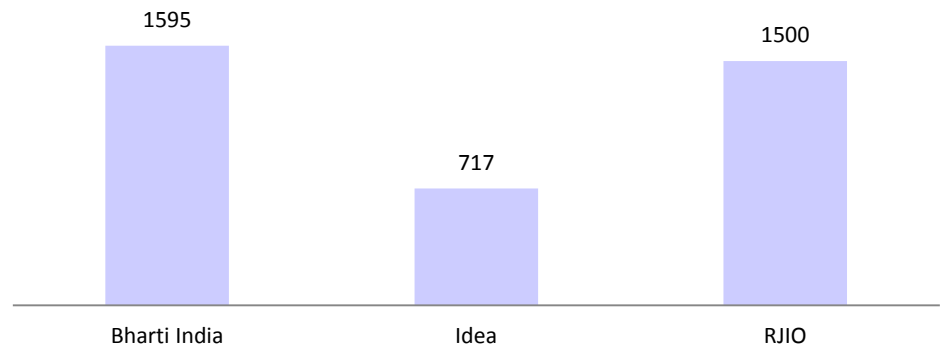
Marginal operators, Idea and Vodafone should be impacted:

While the large second SIM phenomena is expected to keep subscriber share loss to the minimum for the top three telcos, the impact on gross RMS is starker. Bharti is likely to lose 130bp, while Vodafone/Idea should lose 210bp gross market share over FY17-22E. ~10.5% of the 18.1% expected gross RMS of RJio in FY22E is expected to come from RCOM, MTS, Aircel and other marginal operators. This is because RJio’s aggressive pricing strategy is expected to ensure supremacy in the second SIM market – the Holy Grail for marginal players.

RJio’s pre-operational capital investments stretched at INR1.5t:

With over 2x of Idea’s capital employed and inching closer to that of Bharti’s, RJio’s pre-operations capital investments stands tall at INR1.5t.

Exhibit 54: Capital employed: RJio 2x of Idea’s pre-operations (INR b)

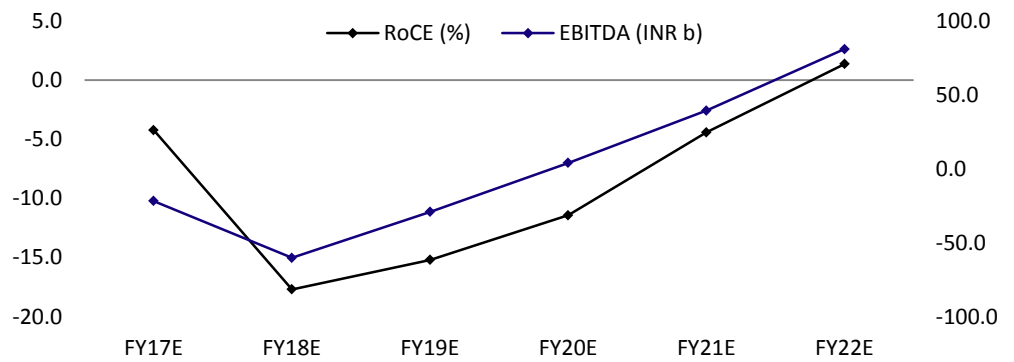


Source: Company, MOSL

RJio: FY20 to mark EBITDA breakeven; return ratios to follow suit

Our base case builds EBITDA break-even in FY20 (FY21E EBITDA: ~INR37b). RoCE is expected to hit positive territory in FY22 as we expect RJio to take ~5 years to recoup its colossal pre-operational capital investments.

Exhibit 55: RJio: FY20 to mark EBITDA break-even; return ratios to follow suit



Source: Company, MOSL

Exhibit 56: Abridged Profit & Loss statement (INR m)

Abridged P&L	FY17E	FY18E	FY19E	FY20E	FY21E	FY22E
Data ARPU (INR/month)	215	232	251	270	290	312
Data Traffic (m MB)	67,500	931,500	1,713,960	2,479,529	3,314,570	4,254,116
Data Usage/sub/month (MB)	1500	1725	1984	2222	2488	2787
Data revenue (INR b)	9675	125388	216670	300856	386018	475532
Data RMS (%)	3.0	29.4	33.2	34.6	35.5	36.5
Total subscribers	30	60	84	102	120	134
ARPU (INR/month)	215	232	251	270	290	312
Total traffic (m MB)	81000	1101600	1999728	2867102	3800286	4827419
Total revenue (INR m)	9675	125388	216670	300856	386018	475532
Gross RMS (%)	0.5	6.9	10.9	13.9	16.6	19.0
Tower Rental Cost	10125	73585.2	106602	130577	154448	181162
% of Sales	105	59	49	43	40	38
Spectrum and license costs	1064	13793	23834	33094	42462	52309
% of Sales	11	11	11	11	11	11
Access and Roaming Charge	2475	22750	36339	46712	55321	57668
% of Sales	26	18	17	16	14	12
Employee Expenses	4125	17820	19246	21825	24042	26485
% of Sales	43	14	9	7	6	6
Subscriber acquisition/servicing and admin costs	9113	33510	41750	46622	52309	57478
% of Sales	94	27	19	15	14	12
Ad exp	5000	24000	18000	18000	18000	19440
% of Sales	52	19	8	6	5	4
Total Expenditure	31902	185458	245770	296830	346581	394541
Consol EBITDA	-22227	-60070	-29100	4026	39437	80991
EBITDA margin (%)	-229.7	-47.9	-13.4	1.3	10.2	17.0

Source: Company, MOSL

Spectrum foot-print

RJio/Bharti dominate LTE spectrum holdings too

Bharti/RJio hold lion's share in 4G LTE spectrum

Bharti/RJio together (21%/28%) hold ~49% of the current LTE spectrum pool. Their 4G spectrum holding is over 6x that of Vodafone/Idea. However, Bharti's holdings (212Mhz) in the 1,800Mhz band, which is globally more prominently used for 4G (courtesy its more evolved infrastructure and device ecosystem), is almost double that of RJio. We believe RJio's spectrum sharing/trading deals with RCOM are expected to cushion the shortfall. We believe RJio would prefer owning more spectrums in the 1,800Mhz band to reduce dependence on RCOM.

Vodafone/Idea hold meager 8% share in current LTE spectrum pool

Vodafone and Idea have remained laggards in terms of 4G/LTE spectrum acquisition with a meager 8% share. The no. 2 and 3 telcos will have to significantly increase their 4G holdings to participate meaningfully in the imminent data explosion.

Exhibit 57: Operator-wise 3G/4G spectrum holdings (Mhz) and share (%)

	3G	4G/LTE	3G (% share)	4G/LTE (% share)
Bharti	210	552	22.0	21.1
Vodafone	158	145	16.5	5.6
Idea	119	60	12.4	2.3
Reliance Jio	-	739	-	28.3
Others	469	1,117	49.1	42.7

Source: TRAI ,MOSL

LTE spectrum holdings well balanced across category circles

Bharti/RJio with ~20%/26% share in the 2825Mhz LTE spectrum pool are well covered in most of the relevant circles to offer 4G services. RJio holds 28%/25%/26%/26% in Metros/A-circles/B-circles/C-circles. Bharti holds 23% in metros and 19% each in A circles/B circles/C circles.

Exhibit 58: Operator/category-wise 3G/4G spectrum holdings (MHz)

	Metro		A' Circle		B' Circle		C' Circle		Total	
	3G	4G/LTE	3G	4G/LTE	3G	4G/LTE	3G	4G/LTE	3G	4G/LTE
Bharti	28	89	48	132	59	184	76	147	210	552
Vodafone	38	24	37	38	67	43	15	40	158	145
Idea	10	-	39	25	60	25	10	10	119	60
Reliance Jio	-	111	-	166	-	260	-	202	-	739
Others	54	163	94	270	165	422	157	263	469	1,117
Total	130	387	218	631	351	934	258	662	956	2,614

Exhibit 59: Category-wise share in 3G/4G spectrum

	Metro		A' Circle		B' Circle		C' Circle		Total	
	3G	4G/LTE	3G	4G/LTE	3G	4G/LTE	3G	4G/LTE	3G	4G/LTE
Bharti	22%	23%	22%	21%	17%	20%	29%	22%	22%	21%
Vodafone	29%	6%	17%	6%	19%	5%	6%	6%	16%	6%
Idea	8%	0%	18%	4%	17%	3%	4%	2%	12%	2%
Reliance Jio	0%	29%	0%	26%	0%	28%	0%	31%	0%	28%
Others	41%	42%	43%	43%	47%	45%	61%	40%	49%	43%

Source: TRAI, MOSL

INR368b spectrum hole to be filled

Idea/Vodafone could be most active in upcoming auction

Idea needs to spend about INR151b at reserve price, while Vodafone and Rjio require INR85b and INR99b in the forthcoming 2016 auction. Bharti's need-based investment could be the least at INR31b. For the top-3 telcos in the ecosystem, we have assumed minimum requirement of 10Mhz in each circle in the 900Mhz/1800Mhz/2100Mhz bands for 3G and 4G coverage, and an additional 5Mhz for voice. For Rjio, we assume minimum 10Mhz of own spectrum (excluding RCom) in the 800-1800Mhz band, which can be used for both voice and data. 2300Mhz is excluded, given its usage as capacity band. Any telco falling short of this yardstick is expected to acquire spectrum in the respective circles in the forthcoming 2016 auctions.

Bharti

We expect Bharti to spend ~INR25.4b, two-thirds of which is expected to go toward acquiring 1,800Mhz, largely in Maharashtra to augment its 4G offering.

1. **Maharashtra – a bone of contention; competition to remain high:** Bharti, with its relatively superior holdings, still has a few spectrum holes to fill. Bharti holds 18.5% gross RMS in Maharashtra, which is a large circle in terms of revenue contribution, operates 4G on 2300mhz as its current 8.2Mhz holding in the 1,800Mhz band is not sufficient to service subscribers' voice + data needs in the circle. We believe **this circle might see increased bidding, considering Vodafone and Reliance Jio too might eye at least a 5Mhz block each to fill their spectrum holes in Maharashtra** (Maharashtra has 13.4Mhz to offer at a reserve price of INR3.18b per Mhz). **No 3G in Kerala, but bidding intensity expected to be low in the circle:** Bharti does not offer 3G services in Kerala, where it holds ~14.9% gross RMS. But we believe the geography is not expected to see increased bidding from competitors. Sufficient availability of the 2,100Mhz band, with major operators (Vodafone/Idea/Reliance Jio) being adequately covered for 3G services in Kerala, should allow Bharti to secure 3G services at reserve price.

Vodafone

Multiple spectrum holes to require INR85b spectrum outlay

1. **Five 10-15% market share circles have no 3G-4G services:** Vodafone's lower markets like AP, MP, HP and J&K (~10% gross RMS each) and Bihar (RMS is 14.4%) are expected to be focus areas, with 9% revenue contribution but no 3G or 4G services. Vodafone would be forced to acquire spectrum to protect its turf. However, any increase in reserve prices due to a bidding war in any of these circles could further increase its spectrum spend.
2. **No 4G in Maharashtra:** Vodafone holds a meager 1Mhz spectrum in the 1,800Mhz band and no 2,300Mhz band spectrum in Maharashtra. Vodafone holds 26% market share in a large market like Maharashtra where both Bharti and Reliance Jio also need spectrum. Maharashtra has 13.4Mhz to offer at a reserve price of INR3.18b per Mhz. This should push Maharashtra's reserve price in the event of intense bidding by Vodafone to acquire 1800Mhz spectrum.
3. **No 4G in high market share circles like TN, Haryana, UP West, Rajasthan, WB and North-East:** Vodafone enjoys 20%+ gross RMS in TN, Haryana, UP West, Rajasthan, 36.7% in West Bengal, and 16.6% in North-East. However, its lack of spectrum holdings in the 1,800Mhz band is expected to have a bearing on its 4G

footprint in these circles, and consequently, its bidding decisions for these circles. Vodafone does not have enough 1,800Mhz spectrum holdings to offer both voice and 4G services in North-East too.

Idea

INR151b spectrum requirement – spectrum insufficient in 16/22 circles for either 3G or 4G, or both; Idea needs the maximum quantum of spectrum in the forthcoming auctions

1. **No 3G or 4G in Rajasthan, Bihar, Mumbai, West Bengal:** Idea holds 10% plus market share in all these circles (together contributing 13%), but does not have either 3G or 4G, which may force Idea to participate. Mumbai is a large market and cannot be ignored. Since 1800Mhz spectrum is limited in Mumbai (only 4.8Mhz), it may lead to intense bidding, thus increasing the risk of high acquisition cost or non-availability.
2. **No 4G in high market share circles like Gujarat, UP West, UP East and HP:** Being high market share circles, Idea may be interested to hold 4G spectrum to compete and protect market share against Bharti and RJio, promoting advance technology. Also UP (E) has only 5.4Mhz of 1,800Mhz spectrum available, which could be critical from future requirement perspective.
3. **No 4G in Delhi and Kolkata:** Idea holds 12% and 8% market share in Delhi and Kolkata, respectively. Kolkata is a large market, where only 4Mhz of 1,800Mhz spectrum is available, which makes it critical for future requirement.
4. **No 3G in TN, Orissa and North East, but could see limited bidding:** There is a possibility that few of Idea's circles like TN, Orissa and North East (with low market share and having 4G) may not see interest from Idea, which could save about INR19.7b from our INR 151b expectation. However, this could be more than offset by any increase in reserve price from the current levels.

Reliance Jio

INR99b investment to smoothen coverage gaps without RCom dependence

1. **No owned spectrum in 800-1800Mhz band in Punjab and UP (W):** With no owned spectrum in 800-1800Mhz band, both Punjab and UP (W) may be high priority for RJio. We expect INR17b for about 10 Mhz spectrum requirements.
2. **RJio's owned holdings in 800 MHz + 1800 MHz band < 10Mhz in 12/22 circles:** RJio's owned spectrum in 12/22 Indian circles is less than 10Mhz. There is no compulsion to bid for spectrum in these bands, considering RJio has 2300Mhz for capacity as well as spectrum sharing/trading deals with RCom. Given Reliance's philosophy of seeking strong competitive position, if it explores independence from RCom's spectrum and its own 2,300Mhz band for 4G services, it may bid for the 1,800Mhz band in the 11 circles, incurring about INR82b investment.

Exhibit 60: Bharti's spectrum investments requirement (INR m)

Circles	Bharti				Total
	1800mhz	2100mhz	2300mhz	2500mhz	
Delhi					0
Mumbai					0
Kolkata		5,800			5,800
MH	15,900				15,900
Gujarat					0
AP					0
Karnataka					0
Tamil Nadu	0				0
Kerala		8,850			8,850
Punjab					0
Haryana					0
UP W					0
UP E					0
Rajasthan					0
MP					0
WB					0
HP					0
Bihar					0
Orissa					0
Assam					0
NE					0
J&K	650				650
Total	16,550	14,650	0	0	31,200

Source: dot; MOSL, Company

Exhibit 61: Vodafone's spectrum investments requirement (INR m)

Circles	Vodafone				Total
	1800mhz	2100mhz	2300mhz	2500mhz	
Delhi					0
Mumbai					0
Kolkata					0
MH	15,900				15,900
Gujarat					0
AP	10,692	13,600			24,292
Karnataka					0
Tamil Nadu					0
Kerala					0
Punjab	3,850	4,550			8,400
Haryana					0
UP W	4,800				4,800
UP E					0
Rajasthan	4,550				4,550
MP	3,818	6,150			9,968
WB	2,300				2,300
HP	800	1,000			1,800
Bihar	3,100	4,300			7,400
Orissa		1,900			1,900
Assam	2,000				2,000
NE	550				550
J&K	650	550			1,200
Total	53,010	32,050	0	0	85,060

Source: dot; MOSL, Company

Exhibit 62: Idea's spectrum investments requirement (INR m)

Circles	Idea				Total
	1800mhz	2100mhz	2300mhz	2500mhz	
Delhi	19,950				19,950
Mumbai	14,304	23,050			37,354
Kolkata	5,960				5,960
MH					0
Gujarat	11,900				11,900
AP					0
Karnataka		16,400			16,400
Tamil Nadu		17,200			17,200
Kerala					0
Punjab					0
Haryana					0
UP W	4,800				4,800
UP E	5,750				5,750
Rajasthan	4,550	7,000			11,550
MP					0
WB	2,300	2,600			4,900
HP	800				800
Bihar	3,100	4,300			7,400
Orissa		1,900			1,900
Assam	2,000	2,300			4,300
NE		600			600
J&K	650				650
Total	76,064	75,350	0	0	151,414

Source: dot; MOSL, Company

Exhibit 63: Reliance Jio's spectrum investments requirement (INR m)

Circles	Reliance Jio						Total
	800 Mhz	900 Mhz	1800mhz	2100mhz	2300mhz	2500mhz	
Delhi			19,950				19,950
Mumbai							0
Kolkata							0
MH			15,900				15,900
Gujarat			11,900				11,900
AP			10,692				10,692
Karnataka			7,770				7,770
Tamil Nadu	9,000						0
Kerala			1,660				1,660
Punjab			7,700				7,700
Haryana			2,350				2,350
UP W			9,600				9,600
UP E			5,750				5,750
Rajasthan							0
MP							0
WB			2,300				2,300
HP							0
Bihar			3,100				3,100
Orissa							0
Assam							0
NE							0
J&K			650				650
Total			99,322	0	0	0	99,322

Source: dot; MOSL, Company

Exhibit 64: Gross Revenue Market Share (%)

Circles	Bharti	Vodafone	Idea	Reliance Jio
Delhi	34.1%	27.3%	12.0%	0.0%
Mumbai	23.8%	33.4%	10.3%	0.0%
Kolkata	26.6%	33.6%	7.6%	0.0%
MH	18.5%	26.0%	33.1%	0.0%
Gujarat	16.3%	37.8%	22.8%	0.0%
AP	41.0%	10.3%	24.7%	0.0%
Karnataka	48.4%	13.9%	11.4%	0.0%
Tamil Nadu	33.2%	23.6%	6.2%	0.0%
Kerala	14.9%	22.6%	41.9%	0.0%
Punjab	30.6%	18.0%	30.6%	0.0%
Haryana	17.8%	27.7%	27.1%	0.0%
UP W	21.0%	22.2%	31.7%	0.0%
UP E	28.3%	28.7%	14.1%	0.0%
Rajasthan	46.1%	22.0%	14.5%	0.0%
MP	23.1%	9.7%	41.8%	0.0%
WB	32.6%	36.7%	9.4%	0.0%
HP	44.9%	9.9%	13.3%	0.0%
Bihar	46.3%	14.4%	14.5%	0.0%
Orissa	41.5%	17.3%	5.8%	0.0%
Assam	36.8%	21.7%	5.3%	0.0%
NE	47.7%	16.6%	4.6%	0.0%
J&K	40.4%	9.6%	7.1%	0.0%

Source: dot; MOSL, Company

Not present in circles

4g LTE	
3g	
Both	

For Reliance Jio not present in circles (excluding 2300mhz)

Min 10Mhz of owned	
Min 5Mhz of owned	

Exhibit 65: Total spectrum investments required (INR m)

Bharti	31,200	11%
Vodafone	85,060	31%
Idea	151,414	54%
RJio	99,322	36%
Total	366,996	

Source: dot; MOSL, Company

Ecosystem development progressing well

1800Mhz, 800Mhz and 2100Mhz most compatible for LTE upgrades

The most widely used spectrum for LTE network deployments continues to be 1,800MHz (3GPP band 3), which is used in 246 commercially launched networks in 110 countries to represent over 47% of LTE network deployments. The next most popular band for LTE systems is 2.6 GHz (band 7) used in 121 networks. 800MHz (band 20) is by far the next most popular spectrum choice, being used by 119 LTE operators.

For 4G network rollout, while 1,800Mhz and 800Mhz have remained the most common bands for coverage, 2,600Mhz and 2,100Mhz are widely used capacity spectrum globally. 2,100Mhz is also the third most preferred spectrum band globally due to its device compatibility with 3G services. This makes 1,800Mhz, 800Mhz and 2100Mhz amongst the key spectrums in India. 2100Mhz, which is currently used for 3G, could be a vital spectrum due to the potential transition to 4G. Thus, operators may look to acquire 210Mhz due to its current 3G as well as future 4G capability.

Exhibit 66: Globally preferred LTE networks

Rank	Spectrum	Countries
1st	1800 MHZ	UK, France, Italy, Japan
2nd	2600GHZ	Germany, Italy
3rd	800MHZ/700mhz	UK, France, Germany, Italy, US, Japan,
4 th	2100mhz	US, Japan,
	1700mhz/1900mhz/2500MHZ /2300MHZ/	US, Japan, China, India

Source: GSMA, August 2016

Exhibit 67: Band-wise Device Ecosystem

LTE FDD	No. of compatible Devices
1800 Mhz band 3	3,227
2600 Mhz band 7	2,993
2100 Mhz band 1	2,613
800 Mhz band 20	1,809
800/1800/2600 tri-band	1,710
AWS band 4	1,365
850 Mhz band 5	1,334
900 Mhz band 8	1,253
1900 Mhz band 2	1,159
700 Mhz band 17	1,123
700 Mhz band 13	607
APT700 band 28	372
700 Mhz band 12	281
1900 Mhz band 25	271

Source: Evolution to LTE report, GSA, July 2016

Volte Global Deployment

While VoLTE is only used by RJio presently in India, it has started seeing good traction globally. 82 operators in 43 countries have commercially launched VoLTE-

HD voice service, and additional 146 operators are investing in VoLTE in 68 countries. We believe that differentiation between voice and data will fade in the long term as connectivity will be on IP. However, India may be far away from the transition period, given the priority toward data investments and no material value adds with VoLTE. The only reason for the shift could be that it would allow telcos to free spectrum assigned for GSM-led voice and use it for data.

Exhibit 68: Country-wise number of operators using Volte

Region	No of countries	No of Operators
Oceania	1	3
Europe	17	18
Asia	13	32
North America	2	9
Middle East	5	7
Africa	5	4
Total	43	73

Source: Status of the LTE Ecosystem, June'16

India's smartphone penetration low, but growing fast

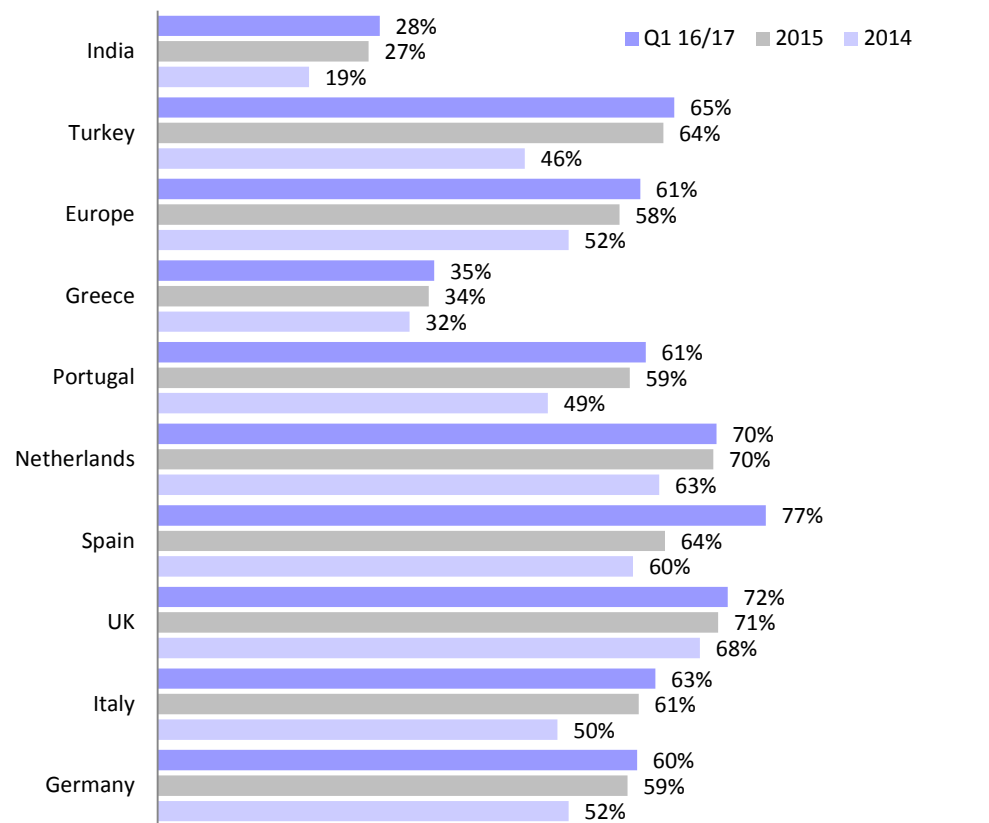
India's smartphone penetration is about 28%, compared to other regions where 4G/3G remains highly penetrated. Developed markets have smartphone penetration of over 60%. This has been a key deterrant to 3G/4G data absorption. While India's overall data penetration is about 31%, nearly 60% are using 2G data, which does not require a smartphone. Smartphone-led 3G/4G penetration can more than double data consumption per user.

Exhibit 69: Smartphones and Data Usage

Particulars	CY 11	CY 12	CY13	CY14	CY15	Q1,CY 16
Active Subs (VLR)	644.86	700.07	761.55	824.37	899.86	925.81
Data subscribers (mn)		143.2	219.92	248.06	311.7	322.21
<i>growth</i>			54%	13%	26%	3%
as a % of smartphone	0%	325%	265%	158%	130%	125%
3G,4G base (mn)			40.27	70.42	120	132.77
<i>growth</i>				75%	70%	11%
as a % of smartphones			49%	45%	50%	51%
as a % total users			5%	9%	13%	14%
as a % data users			18%	28%	38%	41%
Smartphone Base(mn)	28.94	44	83	157	239	259
<i>growth</i>		52.0%	88.6%	89.4%	52.0%	8.3%
as a % of active subs	4.5%	6.3%	10.9%	19.1%	26.6%	28.0%
Smartphone shipment (mn)	11.2	15.2	41.99	77.1	97.11	23.5
as a % of total handset	6%	7%	17%	30%	39%	44%
<i>growth</i>		36%	176%	84%	26%	-76%
Monthly Smartphone shipments(mn)	0.9	1.3	3.5	6.4	8.1	7.8
<i>growth</i>		36%	176%	84%	26%	-3%
Total handset shipment (mn)	183.4	221.6	247	257	249	54
<i>growth</i>		21%	11%	4%	-3%	-78%
Increase in base(mn)		15.06	39	74	82	19.8
Replacement(mn)		0.14	2.99	3	15	4
<i>% of shipment</i>		1%	7%	4%	16%	16%
as a % of smartphone				2%	6%	1%

Source: CMR,TRAI,CISCO,MOSL

Exhibit 70: Smartphone penetration in countries



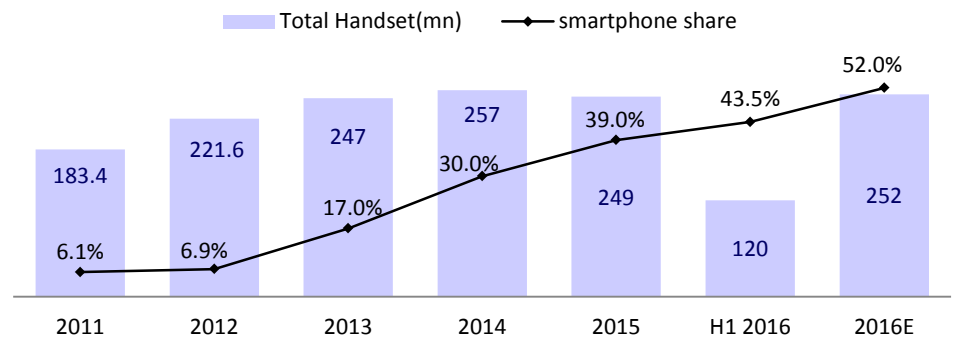
Source:Vodafone Presentation (Q1FY17), MOSL

Higher proportion of smartphone shipments should accelerate penetration

While smartphone sales as a proportion of feature phone increased from single-digit in FY11 to about 39% in CY15, and is likely to be about 52% in CY16, we think the smartphone base has reached a critical mass. This change should accelerate smartphone penetration as larger share of replacement will be toward smartphones.

Handset replacement cycle is about 18-24 months. If we assume feature phone subscribers move to smartphones, in ideal situation, smartphone penetration should accelerate. However, feature phone proportion of total handset shipments remained high over the years, indicating that feature phones were the 1st choice of replacements.

Exhibit 71: Handset shipments and smartphone share (%)



Source: Source:CMR, India Emerging Smartphone Brands, June 2016

Reducing average selling price of smartphones aiding growth

Average selling price of smartphones continues to reduce, enabling faster transition from feature phones to smartphones. This is indicative of the large base of about 162 brands with 468 models sold in CY15, thus intensifying competition. Emerging brands’ (launched FY13 onwards) share in total handsets grew from 3% in CY13 to 16% in CY15, and is estimated at 25% in CY16. These wider SKUs at lower range, emerging brands has further accelerated smartphone absorption rate.

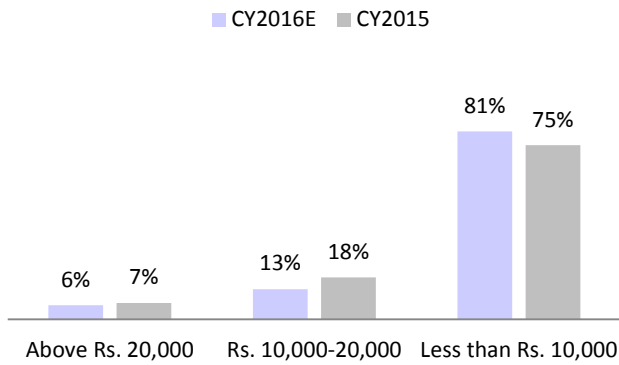
In CY15 and YTD CY16, 21 and 7 new brands were launched, respectively. The prominent emerging brands include Rjio’s JYF, and LeEco.

Exhibit 72: Prominent emerging brands launched since CY13

Brands	Year of Launch
Gionee	CY13
Panasonic	CY13
Maxx	CY13
DatawInd	CY13
Xiaomi	CY14
OnePlus	CY14
Oppo	CY14
Vivo	CY14
Asus	CY14
InFocus	CY15
LYF	CY15
Qiku	CY15
Meizu	CY15

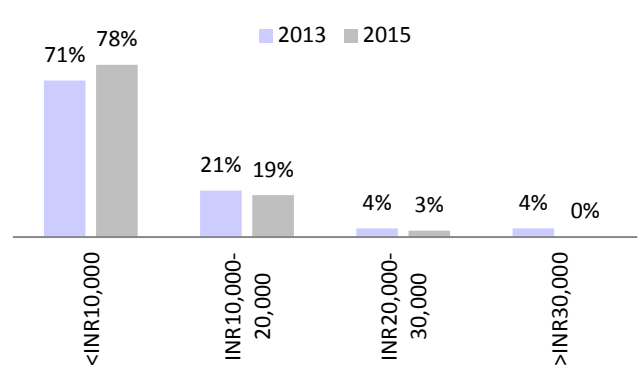
Source: Company, MOSL

Exhibit 73: Average selling price of smartphones



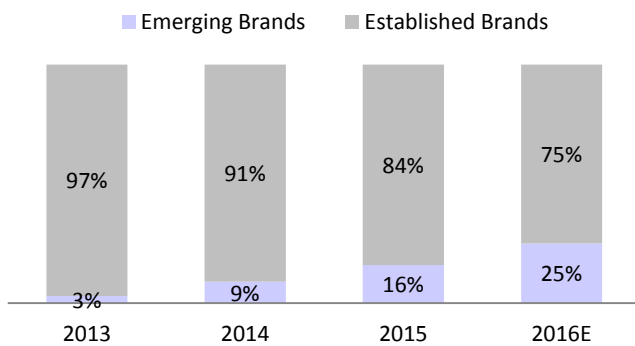
Source: CMR, India High End Smart phone Market, June 2016

Exhibit 74: Emerging smartphones by price bracket



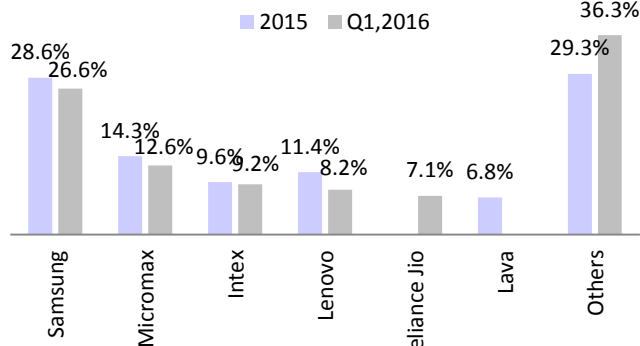
Source: CMR, India Emerging Smartphone Brands, June 2016

Exhibit 75: Emerging brands share increasing smartphone sales



Source:CMR,India Emerging Smartphone Brands, June 2016

Exhibit 76: Indian smartphone market share by vendor

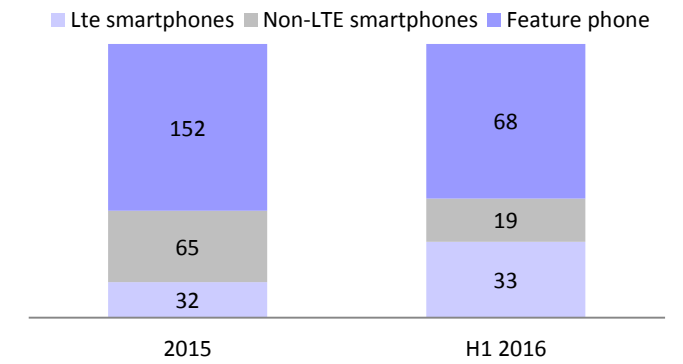


Source: IDC, May 2016

LTE devices making inroads

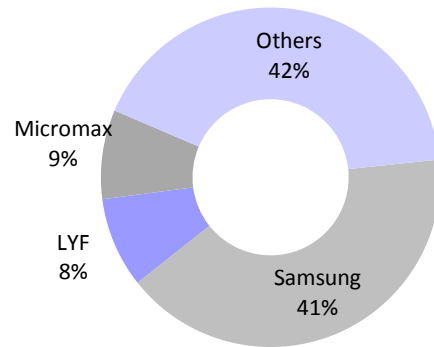
LTE devices are the first choice of smartphones as handset makers are widening the SKUs for LTE models. Also, telcos promoting 4G subscription are pushing consumers to adopt LTE-enabled handsets to upgrade services. Nearly 50m handsets are LTE-enabled in India. As of Q1CY16, about 63% of total smartphones sold are LTE-enabled, growing from 33% in CY15. This trend is likely to continue as we expect majority of new devices over the next few years to be LTE-enabled, supporting 4G ecosystem development. Among handset makers, Samsung, Lenovo and RJio’s recently launched LYF are driving LTE device uptick with wider models.

Exhibit 77: Share of LTE-enabled smartphones growing (m pieces)



Source:CMR Report,June 2016

Exhibit 78: LTE devices market leaders in India (H1 2016)

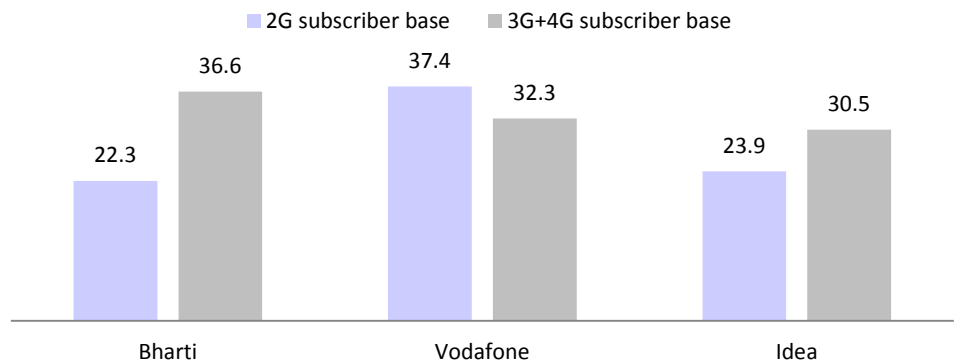


Source:CMR Report,Sept 2016

Over 50% of smartphone users not shifted to 3G/4G

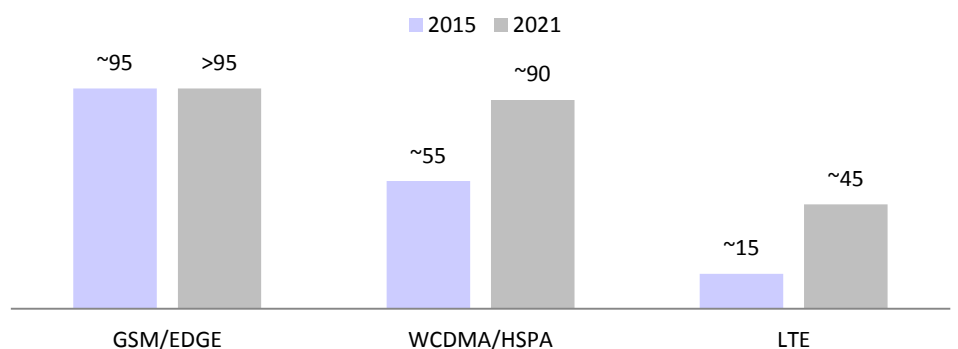
While smartphone penetration is yet to reach a sizeable base, nearly 50% of smartphone users i.e ~130m active VLRs (14% of VLR users) remain non-3G/4G users. We think this offers a reasonable base of subscribers for telcos to improve data absorption. Our discussion with management has indicated that this non-usage of 3G/4G data could be due to low relevance of data for smartphone users. While content development could play a role in increasing data consumption, we think India’s ARPU-centric subscribers could be attracted toward higher data usage through price elasticity of demand.

Exhibit 79: 2G and mobile broadband subscriber base (m)



Source: MOSL

Exhibit 80: Large portion of India yet to be covered with 3G/4G (%)

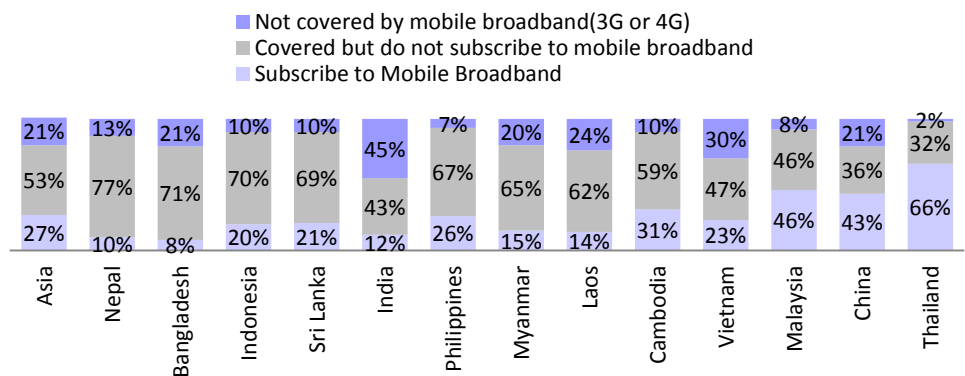


Source: Ericsson Mobility Report, June 2016

Data coverage needs to grow v/s other markets

According to Ericsson Mobility Report, 3G technology covered around 55% of India’s population in 2015. This is expected to increase to around 90% in 2021. LTE technology coverage, which was just about 15% in 2015, is expected to increase to 45% in 2021. We observe that 3G/4G coverage need not be across the entire circle, but has to be covered in targeted pockets of high-data consumption. Even within metros and tier 1 cities, prime locations need wider coverage v/s other areas. Thus, overall population coverage may remain low, but larger high-consuming pockets could provide higher data traffic growth. Yet we note that, compared to other markets where data penetration is high, India’s data coverage remains low.

Exhibit 81: Large portion of territory covered by broadband, but remains unsubscribed



Source:GSMA, Connected Society, 2016

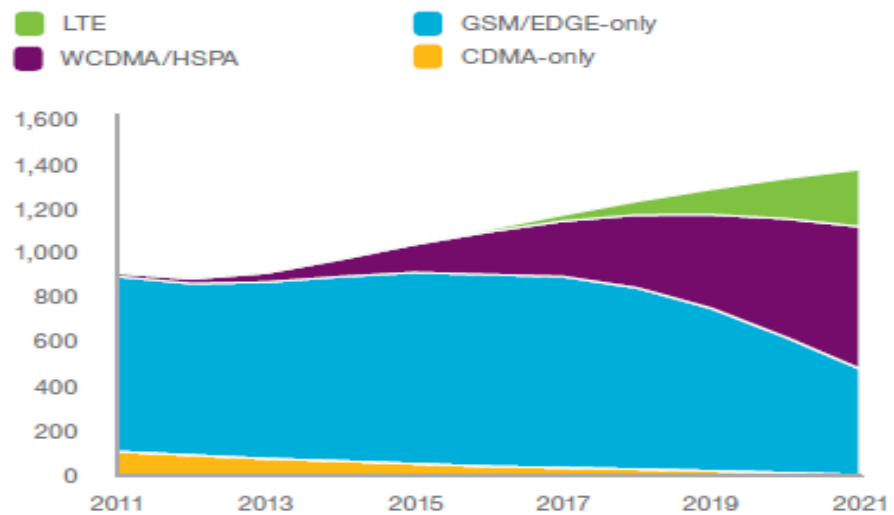
In India, 45% of the population is not covered by 3G/4G. Out of the 1.01b subscribers, 55% are covered but only 12% have subscribed for 3G/4G data. Furthermore, about 19% of subscribers are covered by 3G but use 2G data. This shows that there is huge potential for growth in 3G/4G data.

This is a concern shared by most of the Asian countries which have high data coverage but low data penetration rate. Thailand and China are the two countries which have higher proportion of data subscribers compared to the category of subscribers which are covered but not subscribed.

The issue of non-subscription to data services in India could be attributed to lack of relevance of online content as well as pricing. While pricing needs to come down drastically to improve demand elasticity, we think RJio-triggered price decline could support data growth.

Also, the increase of local content and educating consumers about the relevance of data usage should improve the penetration rate.

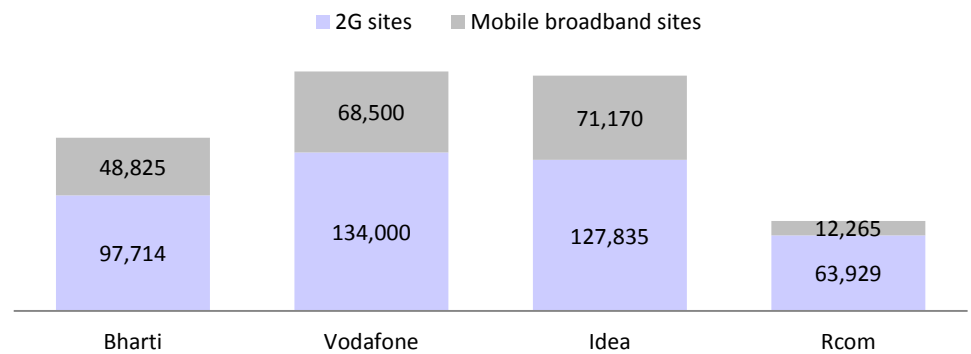
Exhibit 82: Ecosystem upgrading towards LTE



Source: Ericsson Mobility Report, June 2016

The LTE technology started gaining traction in 2015. As per Ericsson report, mobile broadband usage is set to increase dramatically with smartphone subscriptions and increase in mobile traffic (smartphone subscriptions and mobile traffic are expected to rise 4-fold and 15-fold between 2015 and 2021 to reach 810m and 4.5 ExaBytes (EB) per month, respectively).

Exhibit 83: Operator-wise 2G/mobile broadband sites in India (1QFY17)

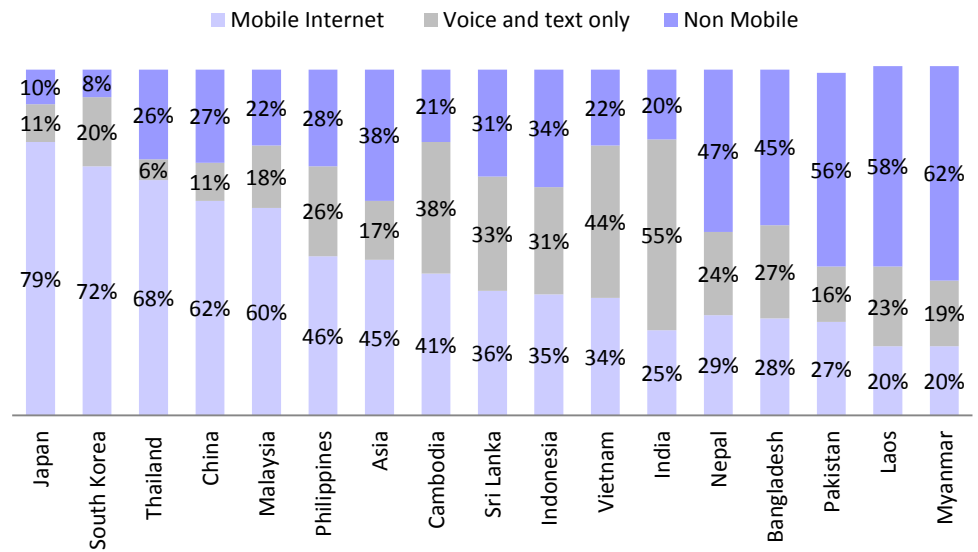


Source: MOSL

Mobile internet, voice and text and non-mobile subscribers in Asia

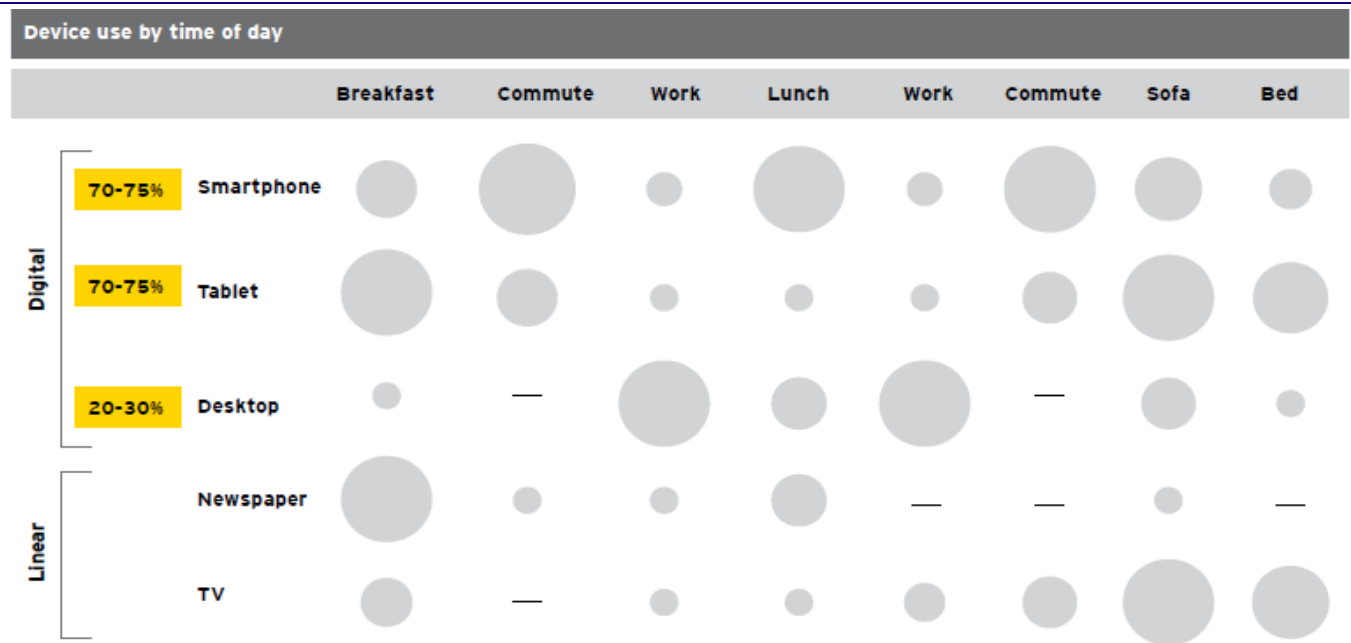
20% of the population in India does not own a mobile. Out of the rest 80%, only 31% use data services (2G, 3G and 4G). Even within this, 19% are 2G subscribers. The remaining 55% of the population use mobiles for only voice and text services. This offers huge potential to tap subscribers, subject to ecosystem development. While Japan and South Korea are model states with 70-80% data subscriber base out of the total population, even China (which started 3G just a year before India) has reached a substantially high rate of 62% data subscription.

Exhibit 84: Technology usage-wise global population split



Source:GSMA, Connected Society, 2016

Exhibit 85: Content ecosystem: Smartphone is used while commuting



Source:EY,Future of Digital Content Consumption in Inida, Jan 2016

As evident from the chart, people mostly use smartphones while travelling and during lunch, largely for browsing, social networking and watching online videos. Smartphones are least used for downloading content. On the contrary, desktop (which is largely used at workplaces) is used for downloading multiple files apart from browsing. This indicates that more than speed, customers prefer good network quality – most of the content can be accessed at less than 5mpbs speed, leaving little value for higher speed. However, speed or network variation could lead to inaccessibility, leading to bad consumer experience.

Barriers to internet usage in India

GSMA Intelligence consumer survey 2015 (study of common barriers for usage of internet) indicated that the lack of awareness and locally relevant content remained the key factor for lower usage of data in India. China was the only country in the survey where the key barrier for not using data was lack of digital skills. Surprisingly, none of the countries mentioned lack of network coverage as a major hindrance.

Exhibit 86: Coverage remains the least important reason for data’s non usage

Barrier	Lack of awareness and locally relevant content	Lack of digital literacy and skills	Affordability Barrier	Lack of network coverage	Security and trust barrier	Other
China	30%	89%	11%	0%	2%	15%
India	80%	21%	23%	3%	4%	9%
Indonesia	75%	10%	46%	2%	3%	12%
Philippines	51%	27%	13%	8%	1%	22%
Thailand	88%	23%	22%	1%	2%	3%
Vietnam	80%	20%	24%	0%	1%	12%
Asia	72%	24%	25%	3%	2%	12%

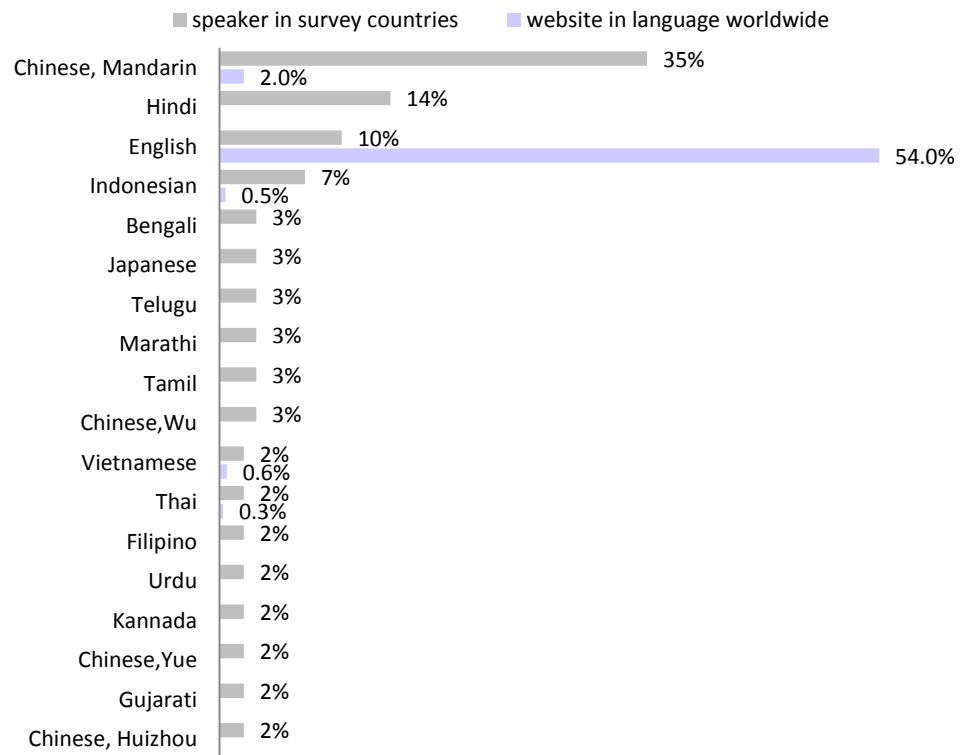
High perceived Barrier (Left side of the table) **Low perceived Barrier** (Right side of the table)

Source: GSMA

Lack of local content availability

The content and services provided on the internet do not reflect cultural and linguistic diversity of the world. For example, more than 50% of websites worldwide are in English, 2% are in Mandarin and less than 0.1% in Hindi. Readers’ preference for websites in local language was high, especially in China and India. Also, most of the content surfed in Asia is for entertainment purpose. This creates a misconception among non-users that internet is only for entertainment purpose and they fail to realize other utilities that internet can provide.

Exhibit 87: Most commonly spoken Asian languages v/s % of websites worldwide in language



Source: GSMA Intelligence Consumer Survey 2015

5mbps good enough for major data needs

One of the key factors promoted by telcos while promoting data services is the speed they offer. In reality, majority of the content requires much lesser speed but seamless connectivity. Most of the developed countries’ data connectivity moved from 3G to 4G after nearly 8-10 years of data consumption on 3G. During this phase, the content matured over time to high-quality HD and ultra HD, which required higher data speed. Subsequently, telcos migrated to better technologies like LTE-based 4G services.

Contrastingly in India, even before 3G penetration increased, the fear of RJio’s 4G launch pushed all operators to migrate to 4G. In reality, India’s local content (apart from You Tube videos) is far from maturing to HD and Ultra HD content as nearly 90% of content (including audio/video streaming) can be comfortably streamed on 3-5mbps of stable speed. The key deterrent apart from pricing is the quality of network, which does not allow seamless data connectivity for high-data-consuming content like audio/video streaming.

Exhibit 88: Speed requirement for video streaming

0.5 Mbps – minimum Internet speed for streaming
1.5 Mbps – recommended Internet speed for streaming
3.0 Mbps – recommended Internet speed for Standard Definition (480) streaming
5.0 Mbps – recommended Internet speed for High Definition (1080) streaming
25 Mbps – recommended Internet speed for Ultra High Definition (4K) streaming

Source: Netflix

Average global 4G speed above 25-30mbps

We conducted speed test across multiple geographies to understand 4G network speed. Typically, we observed speeds on average are significantly higher in outdoor locations at about 35-40mbps, while indoor areas, basement tunnel or city outskirts have about 50% lower speed at about 15-20mbps, in line with India. Average 4G data speed in those geographies was nearly 2-3x higher than India's 4G speed, with minimum data speed at upward of 15mbps. Also, speed variations there were relatively low, allowing seamless access to high-quality content like video streaming even while commuting. On the other hand, static locations in India have good data connectivity especially in larger cities, but while commuting, connectivity remains abysmal in comparison to other countries.

Exhibit 89: Average global 4G speeds (Indoor and Outdoor)

Moscow, Russia	56.92Mbps	Outdoor - Prime locations
Moscow, Russia	20.62Mbps	Indoors
Moscow , Russia	34.19Mbps	Outdoor - Prime locations
Moscow, Russia	19.38Mbps	Indoors
Al Ahmadi, Kuwait	99.48Mbps	Outdoor - Prime locations
Kuwait City, Kuwait	53.07Mbps	Outdoor - Prime locations
Dar es Salaam, Tanzania	3.87 Mbps	Outdoors
Dar es Salaam, Tanzania	2.72Mbps	Outdoors
Dubai	24.81 Mbps	Outdoor
Sydney, Australia	10.16Mbps	Indoor
Sydney, Australia	29.8 Mbps	Indoor
Singapore	23.24Mbps	Outdoor
Hartford, Connecticut, United States	18.67Mbps	Indoors
New Jersey, USA	21.7Mbps	Outdoor
New York, USA	17.7Mbps	Outdoor
New York, USA	16.36Mbps	Outdoor
Mumbai, India	4.29Mbps	

Source: Company, MOSL

Companies

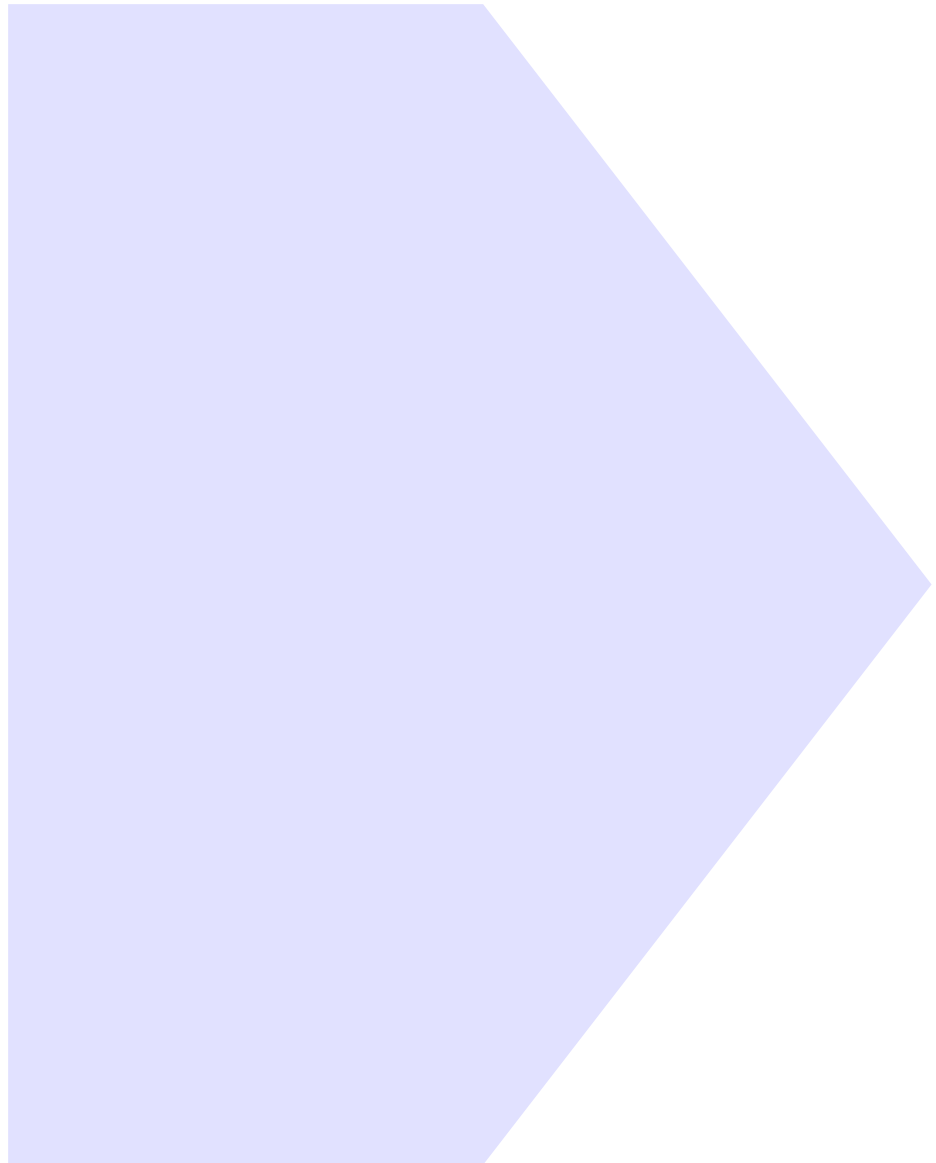
BSE Sensex: 28,243**S&P CNX: 8,738****October 2016**

Companies

Bharti Airtel 67

Idea Cellular 75

Bharti Infratel 82

Prices as of 3rd October 2016

Bharti Airtel

BSE Sensex
28,243S&P CNX
8,738

CMP: INR319

TP: INR410 (+30%)

Buy



Stock Info

Bloomberg	BHARTI IN
Equity Shares (m)	3,997.4
M.Cap.(INR b)/(USD b)	1,263/18.9
52-Week Range (INR)	385 / 282
1, 6, 12 Rel. Per (%)	-7/-16/-10
Avg Val. (INR m)	1,307
Free float (%)	33.3

Financials & Valuation (INR Billion)

Y/E Mar	2016	2017E	2018E
Net Sales	965.3	971.4	1,013.2
EBITDA	339.8	354.6	364.0
NP	49.1	52.7	45.6
EPS (INR)	12.3	13.2	11.4
EPS Gr. (%)	78.4	-5.6	-7.1
BV/Sh. (INR)	164.2	174.2	183.0
RoE (%)	7.7	7.8	6.4
RoCE (%)	6.2	6.2	5.7
DivPayout(%)	17.0	20.5	22.6
Valuations			
P/E (x)	26.0	24.2	28.0
P/BV (x)	1.9	1.8	1.7
EV/EBITDA(x)	6.4	6.1	5.8
Div. Yield (%)	0.7	0.7	0.7

Estimate change

TP change

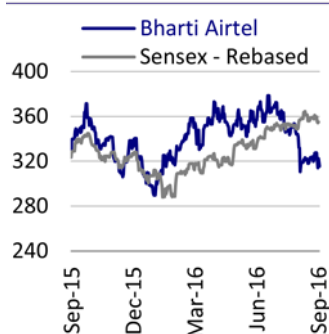
Rating change



Shareholding pattern %

As on	Jun-13	Mar-13	Jun-12
Promoter	43.6	45.8	45.7
Dom. Inst	8.2	8.6	8.4
Foreign	43.1	40.3	39.9
Others	5.2	5.4	6.0

Stock Performance (1-year)



Well invested to survive this turbulence

Ahead of the technology curve, which keeps it in good stead: Bharti's early 4G launch and wide data coverage remain its key strengths. The company's staggered 4G launch since 2012 (perceived to be ahead of ecosystem development) has helped it gain a first-mover advantage. Bharti has since then tested the network to eliminate network glitches. In the battle of network capacity, it is clearly well placed in the data market.

- **Highest spectrum in the industry:** Bharti's overall spectrum of 762Mhz is the highest in the industry, even ahead of RJio. In addition, it has about 108,000 broadband towers, i.e. 68% coverage v/s its 2G sites. This is nearly 18,000 more than RJio and about 1.5-2x higher than Vodafone and Idea, providing it wherewithal to compete in a capital-intensive spectrum starved market.
- **3G/4G across all circles with 68% coverage:** Bharti has commercially started broadband services across 22 circles with a deep 68% coverage: 3G in 21 circles and 4G in 22 circles.
- **2G fall back in addition to broadband coverage:** Bharti's 2G fall back option also allows it to offer seamless voice calling to about 69% of voice-only subscribers. These sites are in addition to the broadband sites that match RJio's cell sites.

High FCF generation; well-capitalized balance sheet: Bharti's consolidated annual operating cash flow of over INR330b holds it in a very good stead. Even after deducting overall capex of INR200b, it would hold strong FCF of ~INR130b and be sufficiently capitalized for INR85b of annual interest cost. Debt including deferred payment stands at INR960b as of Q1FY17, but its net debt to EBITDA at 2.4x remains comfortable. With majority of its spectrum investment completed, Bharti has limited spectrum-related capex, putting it in a better position v/s peers like Vodafone, Idea and other marginal players.

Africa – FCF positive foray, INR -90/share value factors in downside: With the announcement of sale of businesses in two African countries as well as tower sale, management clearly appears to check losses in Africa with a mandate to turn FCF positive. Our channel checks with African operators and market participants indicate that Bharti is exploring options to either exit or consolidate with another operator in circles where it does not expect to turn profitable. Bharti has turned FCF (EBITDA minus capex) positive with INR640m as of 1QFY17. We expect 50bp margin contraction in Africa until 4QFY18, valuing it at INR -90/share equity value, thus largely factoring in the negative.

Bharti holds 27% of broadband data subscribers; growing LTE handset base more favorable for RJio: Bharti had about 27% broadband subscriber market share (35.5m) in a total broadband market of 132m (as of 4QFY16). This broadband

subscriber base is minuscule at 14% of total active subscribers (60% of data overall subscriber base). We think these subscribers as well as incremental growth will be vulnerable in the near term, given RJio's free voice and data services until Dec-16 and low-priced 4G data services. With only about 50m LTE handsets in the industry, the pool remains small, but high proportion of LTE-based smartphone shipment could expand the market and threaten Bharti's data growth.

Competitive pricing to hurt earnings: RJio's four-month free voice and data offering could have a strong impact on subscriber churn as well as voice and data traffic market share. Bharti's price plans are about 20-50% higher v/s RJio's price plans. Also, RJio's voice price plan at INR149/28 days is above Bharti's voice ARPU of INR 139, but could attract many high ARPU voice subscribers. We believe this is just the beginning and there could be multiple pricing-led new offerings in the market across telcos, which could change the course of the business trajectory. We have revised down our India wireless revenue estimate by 6-9% over FY17-19E. Subsequently, our consolidated revenue and EBITDA estimates are revised down 6-9% and 7-12%, respectively, over FY17-19E. Our estimates remain fluid as we foresee multiple reactions by telcos to protect their market shares.

Stock factors in uncertain competitive environment: We maintain our TP of INR410/share despite the earnings cut, valuing the company on FY19E EBITDA. We believe, Bharti's strong competitive position should allow it to hold in good stead. The stock is trading at 5.8x consolidated FY18E EBITDA. Our SOTP values: 1) India wireless at 6x EV/EBITDA FY18E, 2) Tower business is valued at 20% discount to Bharti Infratel's fair value, 3.) Africa is valued at 3x EV/EBITDA FY19E. Pressure on earnings and market share should continue to keep the stock under pressure over the next 6-9 months, even as we believe Bharti is competitively positioned in the telecom market.

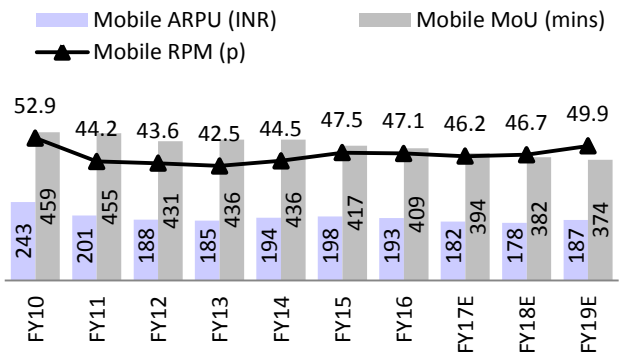
Exhibit 90: Bharti Airtel: SOTP-based on FY19

	EBITDA (INR b)	Owner- ship	Proportionate EBITDA (INR b)	EV/ EBITDA	Fair Value (INR b)	Value/ Share
India SA business (excl. towers)	320	100%	320	6	1939	485
Tower business (15% discount to fair value)		72%			488	122
Africa business	52	90%	46	3	139	35
Less net debt					918	230
Total Value					3485	412
Shares o/s (b)	4.0					
CMP (INR)						319
Upside (%)						29.2

Source: Company, MOSL

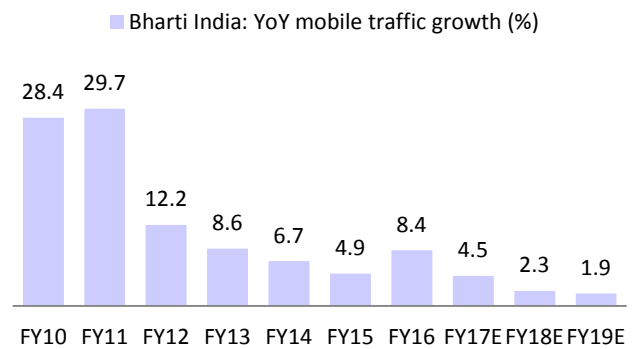
Story in Charts

Exhibit 91: Bharti: India mobile KPIs



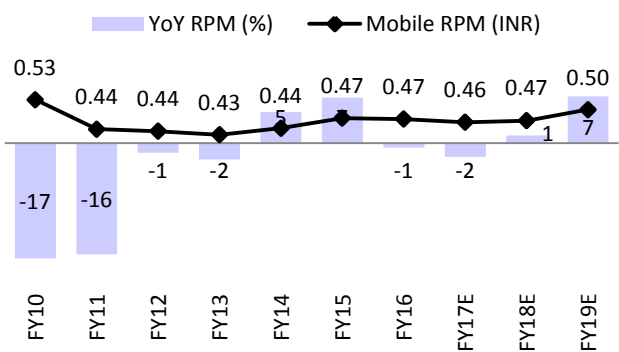
Source: Company, MOSL

Exhibit 92: Bharti India: YoY mobile traffic growth (%)



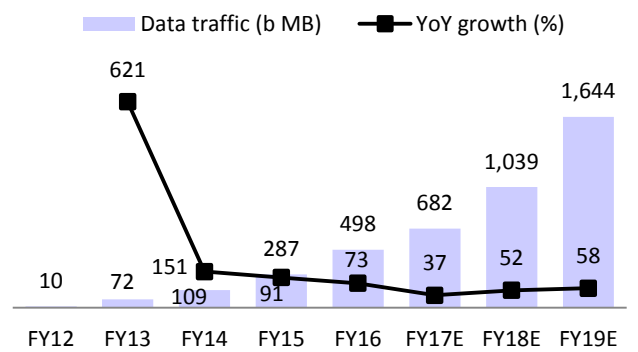
Source: Company, MOSL

Exhibit 93: Bharti India: Mobile RPM trend (incl. data)



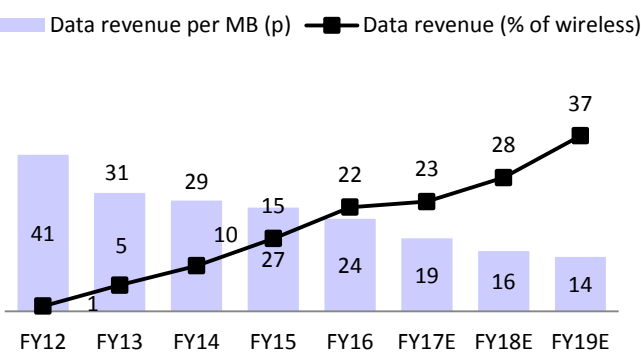
Source: Company, MOSL

Exhibit 94: Bharti India: Mobile data traffic



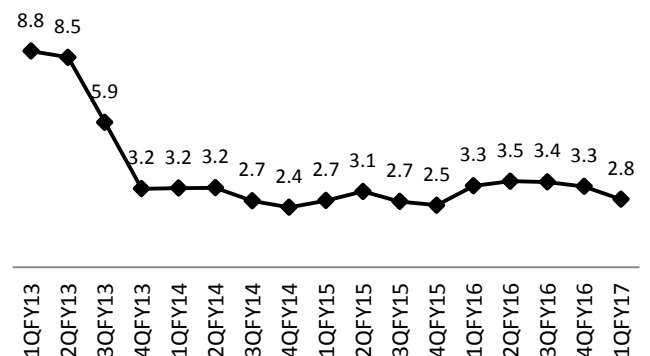
Source: Company, MOSL

Exhibit 95: Bharti India: Data revenue contribution and ARMB



Source: Company, MOSL

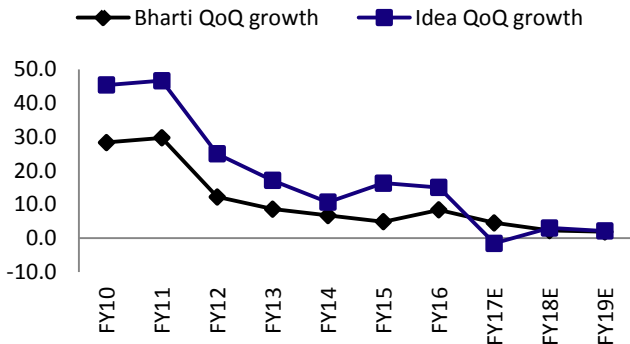
Exhibit 96: Bharti India: Mobile churn rate per month (%)



Source: Company, MOSL

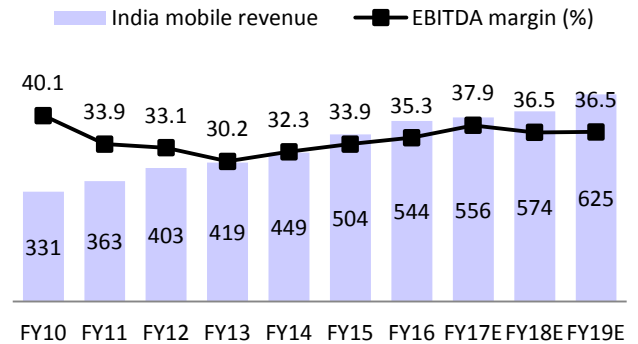
Story in Charts

Exhibit 97: Bharti v/s Idea: YoY India mobile traffic growth (%)



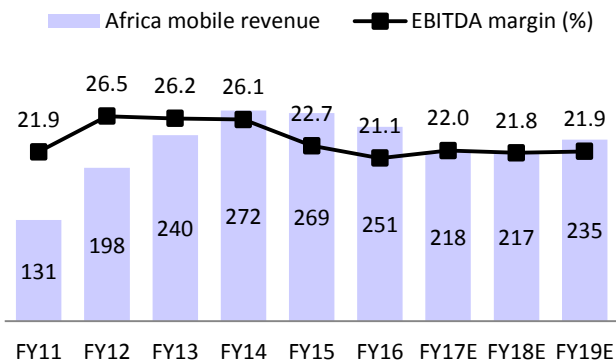
Source: Company, MOSL

Exhibit 98: India mobile revenue and EBITDA margin



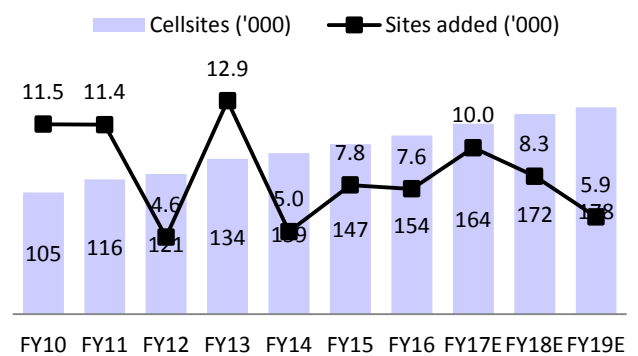
Source: Company, MOSL

Exhibit 99: Africa revenue and EBITDA margin



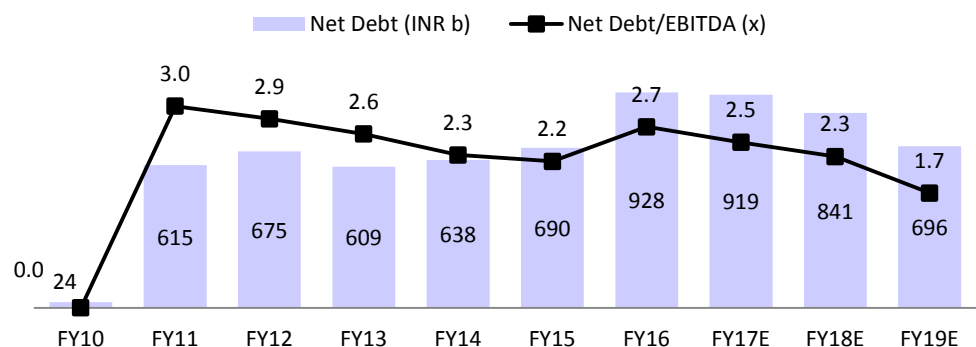
Source: Company, MOSL

Exhibit 100: Bharti: Mobile cell site base and quarterly additions



Source: Company, MOSL

Exhibit 101: Consolidated net debt and net debt/EBITDA



Source: Company, MOSL

Exhibit 102: Key assumptions and value drivers

Mobile segment	FY11	FY12	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
Mobile - India									
Subs (m)	162	181	188	206	226	251	267	280	289
YoY (%)	27	12	4	9	10	11	6	5	3
Total voice traffic (b min)	792	889	965	1030	1081	1171	1225	1252	1276
YoY%	30	12	9	7	5	8	5	2	2
Total data traffic (b MB)		10	72	151	287	498	682	1039	1644
YoY%			621	109	91	73	37	52	58
Average Rev Per User (INR/month)	201.1	187.8	185.1	193.9	198.1	192.9	181.9	178.2	186.6
YoY%	-17.2	-7	-1	5	2	-3	-6	-2	5
Minutes of Use/Sub/Month	455	431	436	436	417	409	394	382	374
YoY%	-1	-5	1	0	-4	-2	-4	-3	-2
Mobile RPM (INR)	0.442	0.436	0.425	0.445	0.475	0.471	0.462	0.467	0.499
YoY%	-16.5	-1	-2	5	7	-1	-2	1	7
Voice revenue per min (p)	38.3	37.3	35.3	36.8	37.4	34.1	33.0	31.3	29.5
YoY%	-19	-3	-5	4	2	-9	-3	-5	-6
Data revenue per MB (p)		41.0	31.0	29.0	27.2	24.2	19.1	15.8	14.2
YoY%			-24	-6	-6	-11	-21	-17	-10
Voice revenue (INR b)	303	331	341	379	404	400	404	392	376
YoY %	5	9	3	11	7	-1	1	-3	-4
Data revenue (INR b)		4	22	44	78	120	130	164	234
YoY %			445	95	79	54	8	26	43
Data revenue as % of total revenue		1	5	10	15	22	23	28	37
Mobile - Africa									
Subs (m)	44	53	64	69	76	81	72	78	84
YoY (%)	22	20	20	9	10	6	-11	8	8
Netadds per month (m)	0.7	0.7	0.9	0.5	0.6	0.4	-0.7	0.5	0.5
ARPU (USD/month)	7.3	7.1	6.3	5.6	5.0	4.0	3.6	3.6	3.6
YoY (%)		-3	-11	-11	-10	-21	-11	1	0
EBITDA margin (%)	21.9	26.5	26.2	26.1	22.7	21.1	22.0	21.8	21.9

Source: Company, MOSL

Exhibit 103: Business Mix

Revenue (INR b)	FY11	FY12	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
Mobile	363	403	431	467	520	561	572	591	644
Telemedia	36	37	36	39	44	25	28	30	33
Enterprise	41	45	53	63	67	97	112	126	142
Passive Infrastructure	86	95	50	51	54	56	60	63	67
Others (incl South Asia)	10	16	32	41	43	49	55	60	66
Africa	131	198	240	272	269	251	218	217	235
Total revenue	668	794	842	934	998	1039	1044	1088	1186
Eliminations and others	-73	-80	-73	-77	-77	-76	-73	-77	-85
Consolidated revenue	595	715	769	857	920	963	970	1011	1101
YoY%		20	8	11	7	5	1	4	13
EBITDA (INR b)									
Mobile	127	137	130	158	194	219	243	235	256
Telemedia	16	16	15	15	18	11	12	13	14
Enterprise	10	8	9	14	14	30	35	40	45
Passive Infrastructure	0	0	0	0	0	0	29	31	33
Others (incl South Asia)	(10)	(9)	(12)	2	5	8	10	12	14
Africa	29	53	63	71	61	53	48	47	52
Total EBITDA	172	204	205	259	292	321	378	378	413
Eliminations and others	-2	-4	-5	-6	-5	-7	-9	-9	-10
Consolidated EBITDA	170	201	200	254	287	314	368	368	402
YoY%	20.5	17.8	-0.2	26.8	13.0	9.4	17.4	0.1	9.3
Capex (INR b)									
Consolidated capex	277	150	130	175	210	490	201	201	201
YoY%	123	-46	-13	34	20	134	-59	0	0
Capex/Sales (%)	46.5	21.0	16.9	20.4	22.8	50.9	20.7	19.9	18.3

Source: Company, MOSL

Financials and valuations

Consolidated - Income Statement							(INR Million)
Y/E March	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
Total Income from Operations	769,045	857,461	920,394	965,321	971,377	1,013,235	1,105,149
Change (%)	7.6	11.5	7.3	4.9	0.6	4.3	9.1
Total Expenditure	536,891	580,865	608,118	625,477	616,741	649,191	701,592
% of Sales	69.8	67.7	66.1	64.8	63.5	64.1	63.5
EBITDA	232,154	276,596	312,276	339,844	354,637	364,044	403,557
Margin (%)	30.2	32.3	33.9	35.2	36.5	35.9	36.5
Depreciation	148,147	156,496	155,311	174,498	204,651	226,784	248,613
EBIT	84,007	120,100	156,965	165,346	149,986	137,259	154,945
Int. and Finance Charges	40,084	48,381	48,463	69,135	69,778	70,717	66,997
Other Income	423	6,385	6,588	10,513	11,137	11,137	11,137
PBT bef. EO Exp.	44,346	78,104	115,090	106,724	91,345	77,679	99,085
EO Items	0	538	-7,960	21,741	-3,536	0	0
PBT after EO Exp.	44,346	78,642	107,130	128,465	87,809	77,679	99,085
Total Tax	25,183	48,449	54,047	59,533	32,375	27,531	33,799
Tax Rate (%)	56.8	61.6	50.4	46.3	36.9	35.4	34.1
Minority Interest	-88	2,467	1,248	8,163	5,012	4,534	5,566
Reported PAT	19,251	27,726	51,835	60,769	50,422	45,614	59,719
Adjusted PAT	19,251	27,519	55,779	49,103	52,655	45,614	59,719
Change (%)	-54.8	43.0	102.7	-12.0	7.2	-13.4	30.9
Margin (%)	2.5	3.2	6.1	5.1	5.4	4.5	5.4

Consolidated - Balance Sheet							(INR Million)
Y/E March	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
Equity Share Capital	18,988	19,987	19,987	19,987	19,987	19,987	19,987
Total Reserves	484,229	577,573	599,577	636,314	676,409	711,696	761,088
Net Worth	503,217	597,560	619,564	656,301	696,396	731,683	781,075
Minority Interest	40,886	42,102	48,525	51,984	56,996	61,530	67,096
Total Loans	667,363	758,958	806,839	950,430	988,365	961,773	932,522
Deferred Tax Liabilities	-45,935	-45,777	-44,392	-32,382	-32,382	-32,382	-32,382
Capital Employed	1,165,531	1,352,843	1,430,536	1,626,333	1,709,376	1,722,605	1,748,312
Net Fixed Assets	1,286,663	1,406,145	1,501,440	1,817,263	1,813,829	1,788,261	1,740,865
Total Investments	77,098	155,308	170,357	114,498	114,498	114,498	114,498
Curr. Assets, Loans&Adv.	170,001	207,692	226,519	270,173	290,200	371,768	484,518
Inventory	1,109	1,422	1,339	1,692	1,358	1,823	1,647
Account Receivables	67,824	62,441	67,252	73,106	70,605	68,195	83,196
Cash and Bank Balance	16,078	49,808	11,719	37,087	85,050	138,664	255,952
Loans and Advances	84,990	94,021	146,209	158,289	133,187	163,087	143,723
Curr. Liability & Prov.	368,231	416,302	467,781	575,601	509,151	551,923	591,569
Account Payables	356,719	404,533	459,472	565,925	500,729	541,467	581,434
Provisions	11,512	11,769	8,309	9,676	8,422	10,456	10,134
Net Current Assets	-198,230	-208,610	-241,262	-305,427	-218,951	-180,154	-107,051
Appl. of Funds	1,165,531	1,352,843	1,430,535	1,626,333	1,709,375	1,722,604	1,748,312

E: MOSL Estimates

Financials and valuations

Ratios

Y/E March	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
Basic (INR)							
EPS	4.8	6.9	14.0	12.3	13.2	11.4	14.9
Cash EPS	41.9	46.0	52.8	55.9	64.4	68.1	77.1
BV/Share	125.9	149.5	155.0	164.2	174.2	183.0	195.4
DPS	0.9	1.8	2.2	2.2	2.2	2.2	2.2
Payout (%)	22.9	30.2	19.9	17.0	20.5	22.6	17.3
Valuation (x)							
P/E			22.9	26.0	24.2	28.0	21.4
Cash P/E			6.0	5.7	5.0	4.7	4.1
P/BV			2.1	1.9	1.8	1.7	1.6
EV/Sales			2.2	2.3	2.2	2.1	1.8
EV/EBITDA			6.6	6.4	6.1	5.8	4.8
Dividend Yield (%)			0.7	0.7	0.7	0.7	0.7
Return Ratios (%)							
RoE	3.8	5.0	9.2	7.7	7.8	6.4	7.9
RoCE	3.1	3.8	5.8	6.2	6.2	5.7	6.4
RoIC	3.3	4.2	6.5	6.5	6.3	5.9	7.2
Working Capital Ratios							
Asset Turnover (x)	0.7	0.6	0.6	0.6	0.6	0.6	0.6
Debtor (Days)	32	27	27	28	27	25	27
Leverage Ratio (x)							
Net Debt/Equity	1.1	0.9	1.0	1.2	1.1	1.0	0.7

Consolidated - Cash Flow Statement

(INR Million)

Y/E March	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
OP/(Loss) before Tax	47,853	78,643	107,130	128,465	87,809	77,679	99,085
Depreciation	148,148	156,496	155,311	174,498	204,651	226,784	248,613
Interest & Finance Charges	45,187	58,788	73,252	85,461	87,345	83,865	80,145
Direct Taxes Paid	-31,294	-35,039	-46,111	-59,533	-32,375	-27,531	-33,799
(Inc)/Dec in WC	19,634	17,533	-1,639	-41,273	-38,513	14,817	44,185
CF from Operations	229,528	276,421	287,943	287,618	308,917	375,615	438,228
Others	-1,829	-14,095	-11,925	46,224	0	0	0
CF from Operating incl EO	227,699	262,326	276,018	333,843	308,917	375,615	438,228
(Inc)/Dec in FA	-130,063	-174,659	-209,786	-490,321	-201,217	-201,217	-201,217
Free Cash Flow	97,636	87,667	66,232	-156,479	107,701	174,398	237,012
(Pur)/Sale of Investments	-56,568	-36,886	-11,649	55,860	0	0	0
Others	-130	-38,188	954	0	0	0	0
CF from Investments	-186,761	-249,733	-220,481	-434,462	-201,217	-201,217	-201,217
Issue of Shares	-579	67,956	0	0	0	0	0
Inc/(Dec) in Debt	-24,026	14,252	-72,451	143,591	37,935	-26,592	-29,251
Interest Paid	-34,339	-37,620	-33,887	-85,461	-87,345	-83,865	-80,145
Dividend Paid	-5,538	-6,735	-21,399	-10,327	-10,327	-10,327	-10,327
Others	17,203	-12,182	31,210	78,184	0	0	0
CF from Fin. Activity	-47,279	25,671	-96,527	125,987	-59,737	-120,784	-119,723
Inc/Dec of Cash	-6,341	38,264	-40,990	25,368	47,963	53,614	117,288
Opening Balance	7,652	1,311	39,575	11,719	37,087	85,050	138,664
Closing Balance	16,078	49,808	11,719	37,087	85,050	138,664	255,952

E: MOSL Estimates

Idea Cellular

BSE Sensex
28,243S&P CNX
8,738

CMP: INR81

TP: INR75 (-6%)

Sell



Stock Info

Bloomberg	IDEA IN
Equity Shares (m)	3,600.5
M.Cap.(INR b)/(USD b)	288/4.3
52-Week Range (INR)	160/ 79
1, 6, 12 Rel. Per (%)	-15/-36/-51
Avg Val. (INR m)	776
Free float (%)	57.8

Financials & Valuation (INR Billion)

Y/E Mar	2016	2017E	2018E
Net Sales	359.8	360.9	371.2
EBITDA	127.8	107.9	108.2
NP	29.1	-3.4	-6.5
EPS (INR)	8.1	-1.0	-1.8
EPS Gr. (%)	48.1	-110.8	-122.1
BV/Sh. (INR)	71.6	70.6	68.8
RoE (%)	11.9	-1.3	-2.6
RoCE (%)	6.8	2.6	2.0
Payout (%)	8.9	6.4	6.8

Valuations

P/E (x)	10.0	-84.9	-45.2
P/BV (x)	1.1	1.1	1.2
EV/EBITDA(x)	5.5	6.6	6.4
Div. Yield (%)	0.7	-0.1	-0.1

Estimate change



TP change

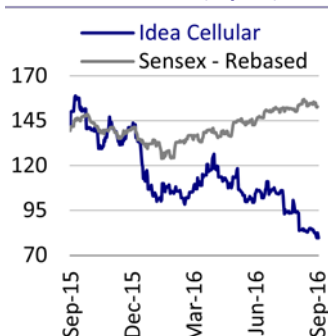
Rating change



Shareholding pattern %

As on	Jun-13	Mar-13	Jun-12
Promoter	43.6	45.8	45.7
Dom. Inst	8.2	8.6	8.4
Foreign	43.1	40.3	39.9
Others	5.2	5.4	6.0

Stock Performance (1-year)



Head I loose, tail you win

Behind the investment curve: Idea's broadband investment has been marred by its weak spectrum portfolio. Idea holds overall 271Mhz spectrum (12.3Mhz/circle), which is about one-third the size of Bharti. Idea's expectation of low consumer response for 4G and ecosystem concerns put it behind the investment curve.

Network cost: Idea's (3G+4G) broadband sites stand at 71,000, about 50% lower than Bharti and 25% lower than RJio. Our concern stems from the fact that Idea does not have 3G or 4G in nearly 5 circles, and has 4G network in only 10 circles, leaving gap in multiple high revenue share circles. This makes Idea highly vulnerable to competition.

Spectrum investment: Idea remains in a precarious situation: if it spends heavily to fill spectrum gap, it would incur heavy capex, and if it does not spend, then it will further deteriorate its competitive footing in the telecom market. Idea should require about ~INR151b if it plans to fill all 3G/4G gaps with minimum of 5Mhz contiguous spectrum at reserve price.

Weak balance sheet, high leverage further cause of concern: Idea's balance sheet grew nearly 2.4x in the last three years – FY13-16E, but it has not yet fulfilled its investment requirements. With a weak network footprint and its spectrum investment in the upcoming auction, capital employed is likely to go up by about 20% and debt should go up by about 35% to INR 550-600b, leading to net debt to EBITDA of over 5x. It will further require network rollout investment, which may increase the already high capex of INR70b. A faster-than-expected technology transition from 3G to 4G has hurt Idea the most in the telecom sector. We think Idea will have to dilute equity for incremental investment given its high leverage position.

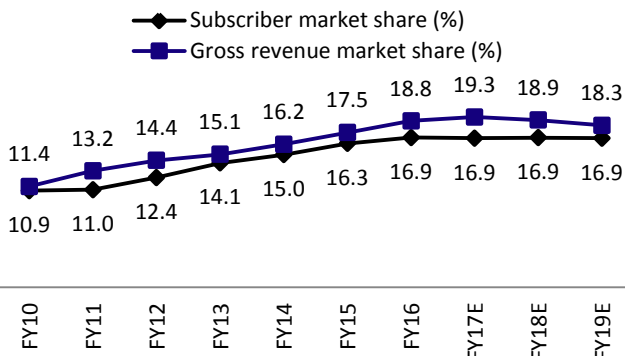
Weak competitive footing: Idea's lack of 4G/3G coverage leaves it in a weak competitive footing, especially in some of the large circles and high market share circles. Even if Idea invests heavily to fill the network gap with Bharti and RJio, we think it still is about 6-8 quarters behind the market. In a highly competitive market, this could lead to Idea losing both subscriber and revenue market share, thus hampering its future earnings potential. Idea should likely face difficulty in dealing with RJio's capacity-led competition as it offers high-value, high-ARPU price plans.

Earnings vulnerable given RJio-led competition: We have cut our revenue estimates by about 6-9% over FY17-19E and subsequently our EBITDA estimates are revised down 17-23% over FY17-19E. This is due to pricing and traffic issues in both voice and data businesses, given RJio's free voice and high-value data offerings. Our estimates remain fluid as we expect the environment to remain extremely volatile due to high competitive intensity.

Revising down TP to INR75; maintaining Sell: We continue to maintain our negative stance and reduce our TP to INR75, led by earnings cut. Idea's weak competitive footing and stretched balance sheet expose it to various market risks.

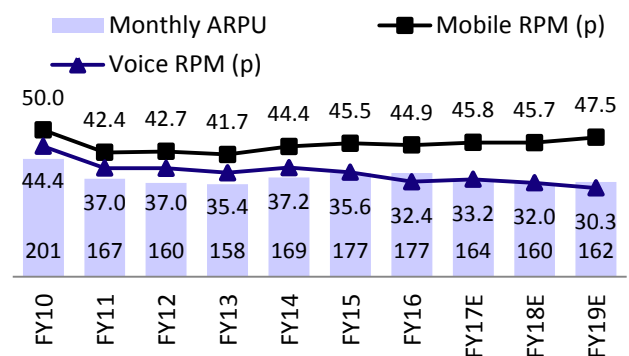
Story in Charts

Exhibit 104: Idea: Subscriber and revenue market share (%)



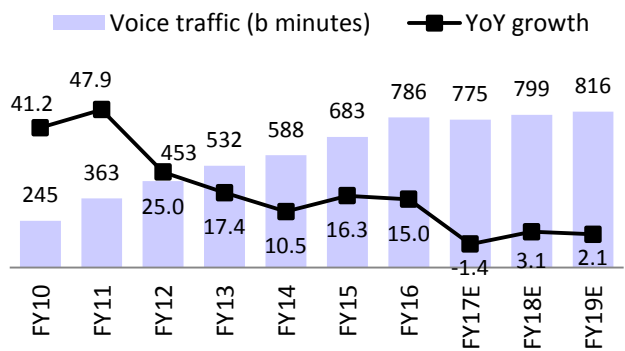
Source: Company, MOSL

Exhibit 105: Idea: ARPU and RPM trajectory



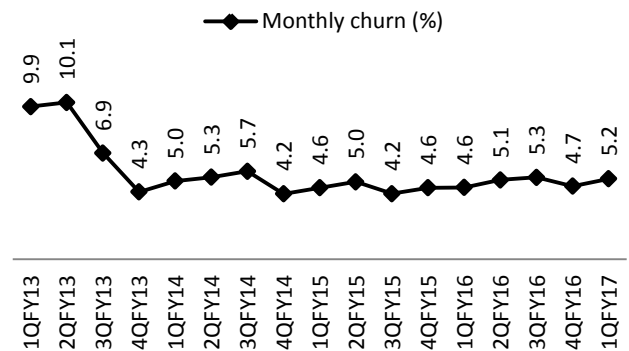
Source: Company, MOSL

Exhibit 106: Voice traffic and YoY growth



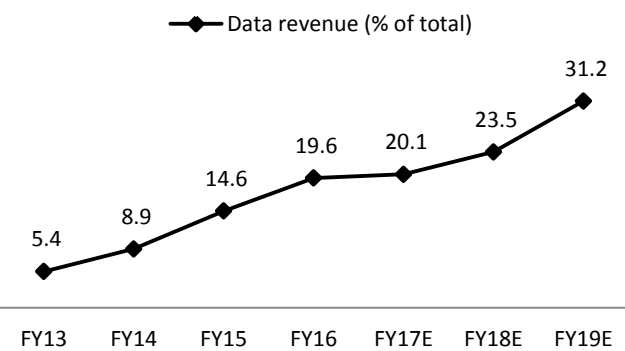
Source: Company, MOSL

Exhibit 107: Monthly churn (%)



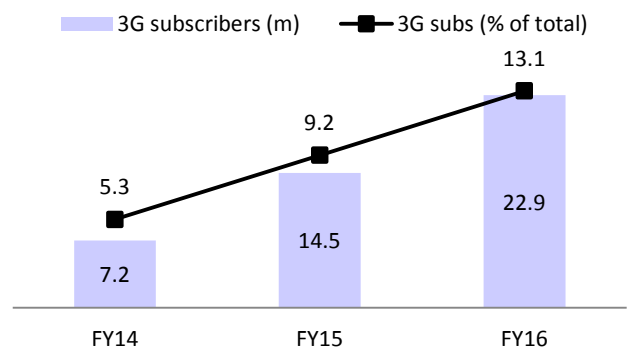
Source: Company, MOSL

Exhibit 108: Data revenue (% of total Idea revenue)



Source: Company, MOSL

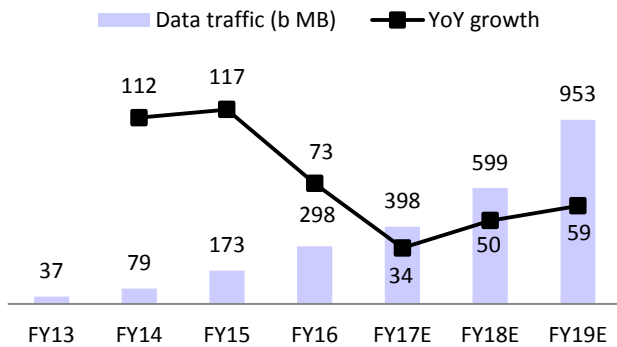
Exhibit 109: 3G subscriber base ramp-up



Source: Company, MOSL

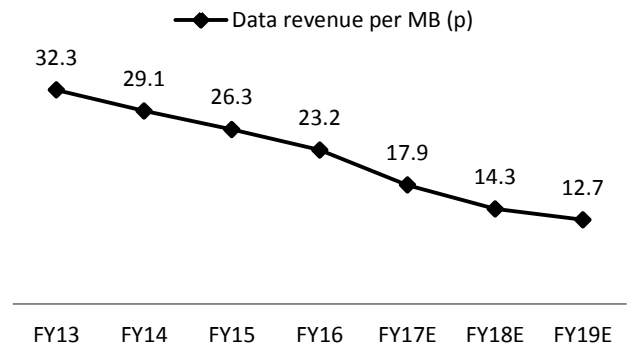
Story in Charts

Exhibit 110: Data traffic and YoY growth



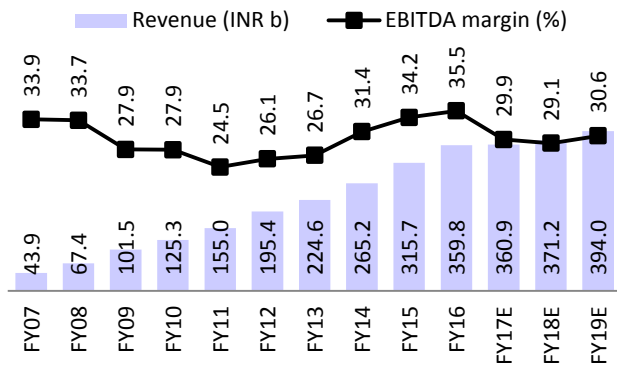
Source: Company, MOSL

Exhibit 111: IDEA: Data revenue per MB (p)



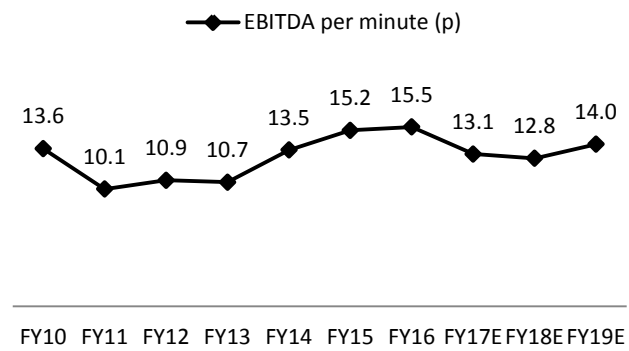
Source: Company, MOSL

Exhibit 112: Revenue and EBITDA margin trends



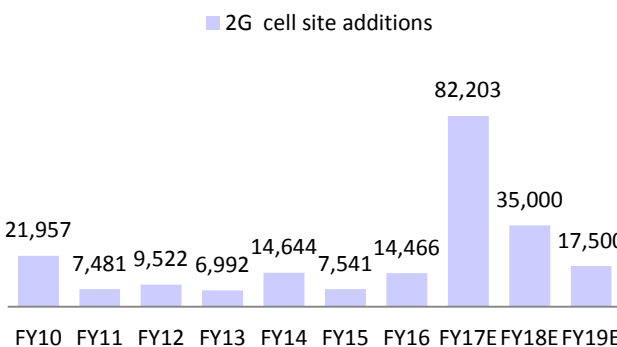
Source: Company, MOSL

Exhibit 113: EBITDA per minute (p)



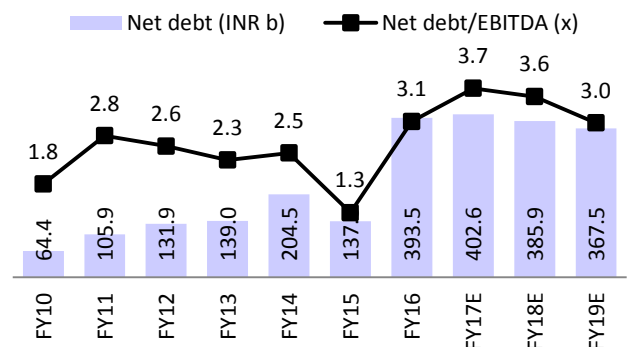
Source: Company, MOSL

Exhibit 114: 2G cell site additions



Source: Company, MOSL

Exhibit 115: Net debt and net debt/EBITDA



Source: Company, MOSL

Exhibit 116: Segmental break-up

	1QFY14	2QFY14	3QFY14	4QFY14	1QFY15	2QFY15	3QFY15	4QFY15	1QFY16	2QFY16	3QFY16	4QFY16	1QFY17
Consolidated revenue break-up (INR b)													
Established service areas*	62.0	59.9	62.8	66.7	71.5	71.4	75.5	79.0	82.5	81.0	84.1	88.1	88.1
New service areas*	3.4	3.3	3.3	3.7	4.0	4.2	4.6	5.2	5.4	5.8	6.0	6.7	6.8
Idea standalone	65.4	63.2	66.1	70.4	75.6	75.7	80.1	84.2	88.0	86.8	90.1	94.8	94.9
Proportionate revenue - Indus	5.6	5.6	5.6	5.7	5.9	6.0	6.1	6.2	6.2	6.4	6.5	6.7	0.0
Eliminations	-5.6	-5.5	-5.6	-5.7	-5.8	-6.0	-6.1	-6.1	-6.2	-6.3	-6.4	-6.6	0.0
Consolidated revenue	65.4	63.2	66.1	70.4	75.6	75.7	80.2	84.2	88.0	86.9	90.1	94.8	94.9
Consolidated EBITDA break-up (INR b)													
Established service areas*	19.8	18.7	19.7	21.6	24.4	24.2	26.7	29.6	31.3	29.5	30.3	34.4	31.9
New service areas*	-1.3	-1.3	-1.6	-1.7	-1.7	-1.8	-1.9	-1.7	-1.7	-1.8	-1.8	-1.2	-1.1
Idea standalone	18.4	17.4	18.1	19.9	22.7	22.4	24.9	27.8	29.6	27.8	28.5	33.2	30.7
Proportionate EBITDA - Indus	2.3	2.3	2.4	2.4	2.4	2.5	2.7	2.8	2.7	2.8	2.8	3.0	2.9
Consolidated EBITDA	20.8	19.7	20.6	22.3	25.1	24.9	27.5	30.6	32.3	30.6	31.3	36.2	33.6
EBITDA margin (%)													
Established service areas*	31.9	31.2	31.4	32.3	34.1	33.9	35.4	37.4	37.9	36.5	36.0	39.0	36.2
New service areas*	-38.8	-38.0	-47.5	-45.2	-42.7	-42.4	-40.8	-33.8	-31.1	-30.8	-29.6	-17.5	-16.7
Idea standalone	28.2	27.6	27.4	28.2	30.0	29.6	31.0	33.1	33.7	32.0	31.6	35.0	32.4
Implied margin - Indus	41.4	40.9	42.9	42.2	41.7	42.0	43.7	45.5	42.9	43.8	43.0	44.4	
Consolidated EBITDA margin	31.8	31.2	31.1	31.7	33.2	32.9	34.3	36.4	36.7	35.2	34.7	38.1	35.4

Source: Company, MOSL

Exhibit 117: IDEA: SOTP Valuation

	Methodology	Driver	Multiple	Fair Value (INRb)	Value/sh (INR)
Consol EBITDA	FY19 EV/EBITDA	121	5.5	657	183
Less Net debt				386	107
Total Value				271	75
Shares o/s (b)				3.6	
CMP (INR)					81
Upside (%)					-7.0

Source: Company, MOSL

Exhibit 118: Key assumptions

	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
Subscribers (m)	122	136	158	175	185	196	203
YoY%							
Average subscribers (m)	117	129	147	166	180	191	200
YoY%							
Data subscribers (m)	26	25	33	44	52	71	96
YoY%							
Average Rev Per User (INR/month)	158	169	177	177	162	155	156
YoY%							
Minutes of Use/Sub/Month	378	381	388	394	359	349	341
YoY%							
Data usage/data sub/month (mb)	119	257	490	641	631	711	832
YoY%							
Voice traffic (m min)	531,534	588,272	684,216	787,075	775,098	798,757	815,800
YoY%							
Data traffic (m MB)	37,380	79,382	172,531	297,920	363,617	523,647	833,426
YoY%							
Voice revenue per min (p)	35.4	37.2	35.6	32.4	33.2	32.0	30.3
YoY%							
Data revenue per MB (p)	32.3	29.1	26.3	23.2	18.3	14.4	12.8
YoY%							
Voice revenue (INR m)	188,382	218,808	243,676	255,135	257,538	255,839	246,934
YoY%							
Data revenue (INR m)	12,059	23,105	45,404	69,163	66,371	75,580	106,493
YoY%							
Data revenue as % of total revenue	5.4	8.9	14.6	19.6	19.0	21.3	28.5
Non Data VAS revenue (INR m)	21,038	19,082	22,232	29,148	25,901	23,293	19,595
Capex (INR m)	57,145	44,388	43,222	402,629	70,000	70,000	70,000
Capex / Sales (%)	25.8	17.0	13.9	113.9	20.0	19.7	18.8

Source: Company, MOSL

Financials and valuations

Consolidated - Income Statement							(INR Million)
Y/E March	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
Total Income from Operations	224,577	265,189	315,709	359,772	360,940	371,174	394,006
Change (%)	14.9	18.1	19.1	14.0	0.3	2.8	6.2
Total Expenditure	164,531	181,852	207,592	231,932	253,081	262,983	273,410
% of Sales	73.3	68.6	65.8	64.5	70.1	70.9	69.4
EBITDA	60,045	83,337	108,117	127,840	107,859	108,191	120,596
Margin (%)	26.7	31.4	34.2	35.5	29.9	29.1	30.6
Depreciation	34,778	45,194	53,036	65,466	80,736	87,876	93,767
EBIT	25,268	38,143	55,081	62,374	27,123	20,315	26,829
Int. and Finance Charges	9,495	7,700	5,755	16,993	36,628	34,777	33,297
PBT bef. EO Exp.	15,773	30,443	49,325	45,382	-9,505	-14,462	-6,468
Share of profits of associates	0	0	0	0	4,266	4,618	0
PBT after EO Exp.	15,773	30,443	49,325	45,382	-5,238	-9,844	-6,468
Total Tax	5,664	10,765	17,396	16,239	-1,804	-3,390	-506
Tax Rate (%)	35.9	35.4	35.3	35.8	34.4	34.4	7.8
Reported PAT	10,109	19,678	31,929	29,143	-3,434	-6,454	-5,962
Adjusted PAT	10,109	19,678	31,929	29,143	-3,434	-6,454	-5,962
Change (%)	39.8	94.7	62.3	-8.7	-111.8	87.9	-7.6
Margin (%)	4.5	7.4	10.1	8.1	-1.0	-1.7	-1.5

Consolidated - Balance Sheet							(INR Million)
Y/E March	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
Equity Share Capital	33,143	33,196	35,978	36,005	36,005	36,005	36,005
Total Reserves	111,073	132,073	194,314	221,670	218,236	211,782	205,820
Net Worth	144,217	165,269	230,292	257,675	254,241	247,787	241,825
Total Loans	140,438	206,350	268,591	415,031	429,694	403,231	374,122
Deferred Tax Liabilities	11,180	18,133	19,015	30,714	30,714	30,714	30,714
Capital Employed	295,834	389,752	517,898	703,420	714,649	681,732	646,661
Gross Block	467,357	516,970	618,207	1,011,254	1,081,254	1,151,254	1,221,254
Less: Accum. Deprn.	175,818	221,012	262,871	328,336	409,072	496,948	590,715
Net Fixed Assets	291,539	295,958	355,336	682,918	672,182	654,306	630,540
Goodwill on Consolidation	61	61	61	61	61	61	61
Capital WIP	8,811	114,194	51,405	60,986	60,986	60,986	60,986
Total Investments	10,280	2,155	115,267	13,728	13,728	13,728	13,728
Curr. Assets, Loans&Adv.	53,092	53,206	82,598	68,807	71,592	72,018	58,997
Inventory	726	683	710	1,065	910	1,020	1,029
Account Receivables	9,601	8,006	9,789	11,776	9,953	12,393	11,329
Cash and Bank Balance	1,429	1,881	15,537	7,818	13,400	3,572	-7,104
Loans and Advances	41,336	42,636	56,562	48,148	47,329	55,035	53,743
Curr. Liability & Prov.	67,949	75,823	86,769	123,081	103,900	119,367	117,650
Account Payables	64,719	68,960	78,013	112,331	95,081	108,062	107,592
Provisions	3,230	6,863	8,756	10,750	8,819	11,306	10,059
Net Current Assets	-14,857	-22,617	-4,171	-54,273	-32,308	-47,349	-58,654
Appl. of Funds	295,834	389,751	517,898	703,420	714,649	681,732	646,661

E: MOSL Estimates

Financials and valuations

Ratios

Y/E March	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
Basic (INR)							
EPS	2.8	5.5	8.9	8.1	-1.0	-1.8	-1.7
Cash EPS	12.5	18.0	23.6	26.3	21.5	22.6	24.4
BV/Share	40.1	45.9	64.0	71.6	70.6	68.8	67.2
DPS	0.3	0.4	0.6	0.6	-0.1	-0.1	-0.1
Payout (%)	11.5	7.9	8.1	8.9	6.4	6.8	7.5
Valuation (x)							
P/E			9.1	10.0	-84.9	-45.2	-48.9
Cash P/E			3.4	3.1	3.8	3.6	3.3
P/BV			1.3	1.1	1.1	1.2	1.2
EV/Sales			1.7	1.9	2.0	1.9	1.7
EV/EBITDA			5.0	5.5	6.6	6.4	5.6
Dividend Yield (%)			0.8	0.7	-0.1	-0.1	-0.1
Return Ratios (%)							
RoE	7.4	12.7	16.1	11.9	-1.3	-2.6	-2.4
RoCE	5.9	7.5	8.2	6.8	2.6	2.0	3.9
RoIC	6.0	9.0	11.7	8.4	2.9	2.2	4.2
Working Capital Ratios							
Fixed Asset Turnover (x)	0.5	0.5	0.5	0.4	0.3	0.3	0.3
Asset Turnover (x)	0.8	0.7	0.6	0.5	0.5	0.5	0.6
Inventory (Days)	1	1	1	1	1	1	1
Debtor (Days)	16	11	11	12	10	12	10
Leverage Ratio (x)							
Net Debt/Equity	0.9	1.2	0.6	1.5	1.6	1.6	1.5

Consolidated - Cash Flow Statement

(INR Million)

Y/E March	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
OP/(Loss) before Tax	10,109	19,678	31,929	29,143	-3,434	-6,454	-5,962
Depreciation	34,778	45,194	53,036	65,466	80,736	87,876	93,767
Interest & Finance Charges	9,963	8,564	9,337	16,993	36,628	34,777	33,297
Direct Taxes Paid	-4,110	-6,384	-11,043	0	0	0	0
(Inc)/Dec in WC	6,096	5,354	5,540	42,384	-16,384	5,212	629
CF from Operations	56,836	72,406	88,800	153,985	97,546	121,412	121,731
Others	6,135	9,786	15,379	11,699	0	0	0
CF from Operating incl EO	62,971	82,192	104,179	165,684	97,546	121,412	121,731
(Inc)/Dec in FA	-34,766	-36,448	-41,576	-402,629	-70,000	-70,000	-70,000
Free Cash Flow	28,205	45,744	62,603	-236,944	27,546	51,412	51,731
(Pur)/Sale of Investments	0	0	0	101,539	0	0	0
Others	657	-29,194	-15,680	0	0	0	0
CF from Investments	-34,109	-65,642	-57,256	-301,090	-70,000	-70,000	-70,000
Issue of Shares	248	263	37,374	-1,760	0	0	0
Inc/(Dec) in Debt	-10,368	-15,936	52,355	146,440	14,663	-26,463	-29,109
Interest Paid	-9,283	-7,682	-6,656	-16,993	-36,628	-34,777	-33,297
Dividend Paid	-250	-1,306	-2,792	0	0	0	0
CF from Fin. Activity	-19,653	-24,661	80,280	127,687	-21,965	-61,240	-62,406
Inc/Dec of Cash	9,209	-8,111	127,202	-7,718	5,581	-9,828	-10,676
Opening Balance	1,521	10,729	3,543	15,537	7,819	13,400	3,572
Closing Balance	1,429	1,881	15,537	7,818	13,400	3,572	-7,104

E: MOSL Estimates

Bharti Infratel

BSE Sensex 28,243 S&P CNX 8,738

CMP: INR363

TP: INR435 (+20%)

Buy



Stock Info

Bloomberg	BHIN IN
Equity Shares (m)	1,896.7
M.Cap.(INR b)/(USD b)	704/10.5
52-Week Range (INR)	437/ 302
1, 6, 12 Rel. Per (%)	10/-14/-4
Avg Val (INR m)	843
Free float	28.3

Financials & Valuation (INR b)

Y/E MAR	2016	2017E	2018E
Net Sales	123.3	132.4	144.2
EBITDA	54.1	58.1	63.9
NP	22.5	26.7	23.7
EPS (INR)	11.8	14.1	12.5
EPS Gr. (%)	48.1	33.9	5.4
BV/Sh. (INR)	96.7	95.8	103.7
RoE (%)	12.7	14.6	12.5
RoCE (%)	11.2	13.0	14.5
Payout (%)	39.0	32.0	36.1

Valuations

P/E (x)	30.6	25.8	29.1
P/BV (x)	3.8	3.8	3.5
EV/EBITDA (x)	12.3	11.4	10.0
Div. Yield (%)	1.1	1.1	1.1

Estimate change

TP change

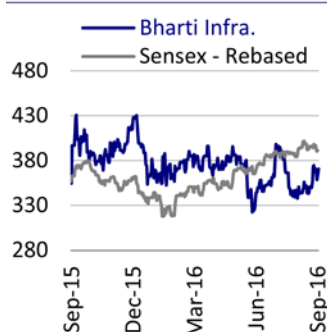
Rating change



Shareholding pattern %

As on	Jun-13	Mar-13	Jun-12
Promoter	43.6	45.8	45.7
Dom. Inst	8.2	8.6	8.4
Foreign	43.1	40.3	39.9
Others	5.2	5.4	6.0

Stock Performance (1-year)



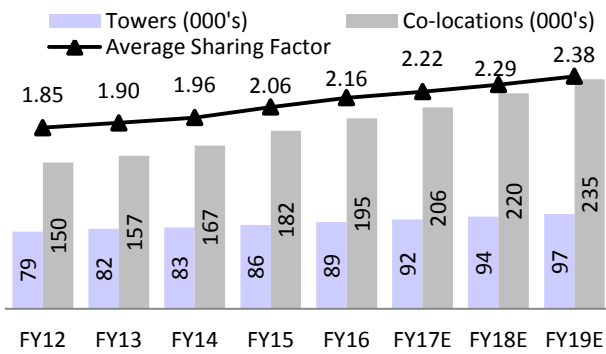
More they invest, more he wins

- Data to drive tenancy and pricing growth over 2-3 years:** Bharti Infratel continues to remain the key beneficiary of high data-led investments in the telecom market. With about 55% data coverage v/s voice coverage, the aggressive network rollout may continue over the next 2-3 years. Further, RJio's launch may intensify data traffic, which may have a two-pronged effect. It would (1) cramp existing sites, leading to higher density network rollout, and (2) accelerate data network rollout to match peers' competitive position. We expect annual tenancy adds to accelerate to 14,400 in FY18, after moderate growth of ~11,000 in FY17E due to the exits and spectrum phase.
- Exits, spectrum auction and possible pricing pressure to hurt near-term growth:** The ripple effect of the volatile telecom market is seen in the tower industry. Videocon's exit hurt tenancy in 1QFY17 (~1,400 tenancy adds v/s quarterly run-rate of 2,500). This, along with the shrinking footprint through merger/acquisition of RCOM, Aircel and Shyam Sistema as well as the lack of visibility on Telenor India and Tata Tele, could lead to a continued decline in tenancy over the next 2-3 quarters. Nearly 15% of tenancy is contributed by operators excluding the top three telcos (Bharti, Idea and Vodafone). Over the long term, this could benefit the tower industry as unutilized/underutilized spectrum could be resourcefully deployed, thereby increasing tenancy. However, we remain cautious on near-term tenancy growth, given (1) operators are reassessing their network rollout strategy by analyzing the industry and own spectrum position in the run up to the upcoming auction starting 30-September and (2) ongoing data/voice pricing war in the telecom market with RJio's service launch, which could potentially squeeze cash flow and hurt already highly levered balance sheets of telcos.
- New MSA rates resolve renewal-led pricing risks, albeit we would watch progress over two quarters.
- We see management's proactive action toward renewals positively. Tenancy rental improvement over the next five years will be curtailed, given the company's new MSA proposals to freeze tenancy rates for 90% of existing tenancies (until FY22E or before). This is done to bridge the tenancy rate gap for tenants whose rental rates are already higher than new rack rates. However, this has two key positives: (1) this will reduce uncertainty of ~20% renewals coming up in FY18 and ~70% in FY22, which were previously expected to demand lower renewal rates. This is because they were paying discriminatorily higher tenancy rates compared to new tenants, on an inconsistent legacy structure which did not factor in inflation adjustments in new tenants' pricing, keeping them abnormally lower; and (2) management has indicated quarterly impact of INR450m for the rental freeze which is factored in Q1FY17 rental pricing, removing uncertainty about the impact of rental freeze. We would like to track the renewals over the next 2-3 quarters to evaluate the acceptance of Bharti Infratel's new MSA agreement.

- **EBITDA CAGR of 9% over FY16-19E:** We expect 8% revenue CAGR over FY16-19E, led by 6% tenancy growth combined with 2% rental increase. With improving tenancy, ex-energy EBITDA margin is likely to improve 140bp over FY16-19E to 67.1%. This should lead to overall EBITDA margin improvement of about 60bp, with ~9% EBITDA growth to INR69.9b. Volatility on account of mark-to-market on investments makes it difficult to estimate interest income and thus PBT. However, the recent INR20b stock buyback should reduce share count by 2.5%.
- **Attractively priced at 10.4x FY18E EBITDA:** Our SOTP values standalone and Indus on DCF with 10.2% WACC and 4% terminal growth at (combined enterprise value of INR380b) net equity value/share of INR435. At CMP, the stock is attractively priced at EV/EBITDA of 11.7x/10.3x on FY17/FY18E. The stock has been under pressure (-17% YTD) due to tenancy concerns on account of exits and renewal-led pricing risks. We expect tenancy to improve post the upcoming auctions, and capex-led tenancy to accelerate on account of high data growth.

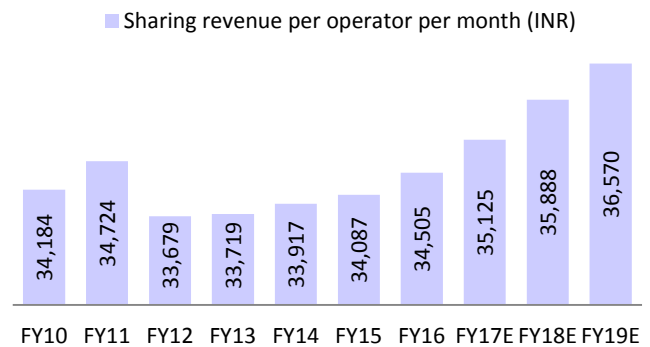
Story in Charts

Exhibit 119: Continued momentum in tenancy demand



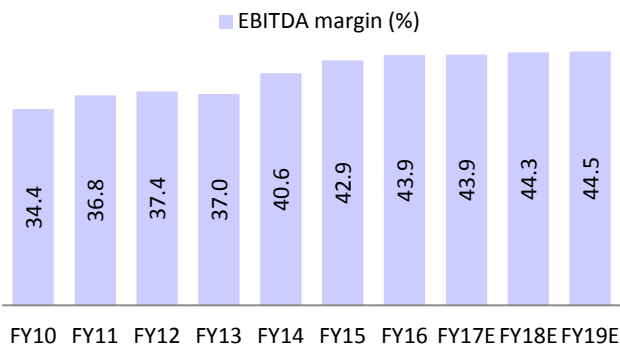
Source: Company, MOSL

Exhibit 120: Sharing revenue per operator per month (INR)



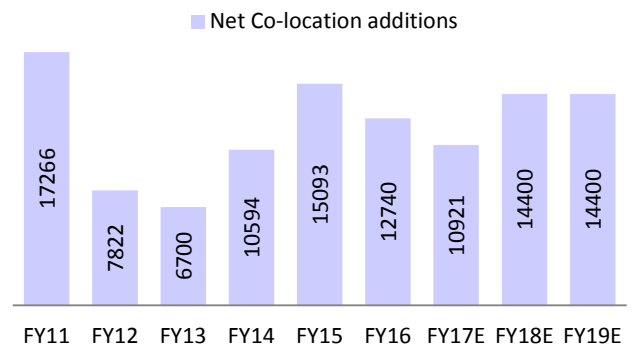
Source: Company, MOSL

Exhibit 121: EBITDA margin (%)



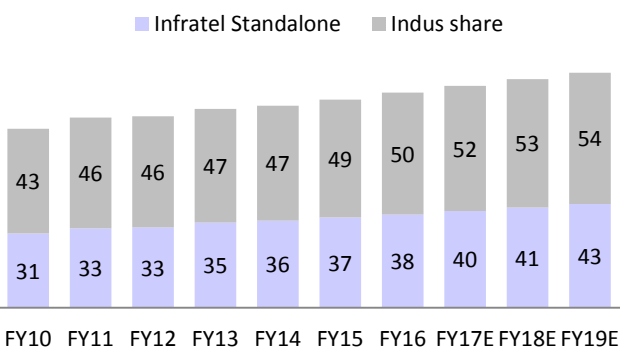
Source: Company, MOSL

Exhibit 122: Net co-location additions



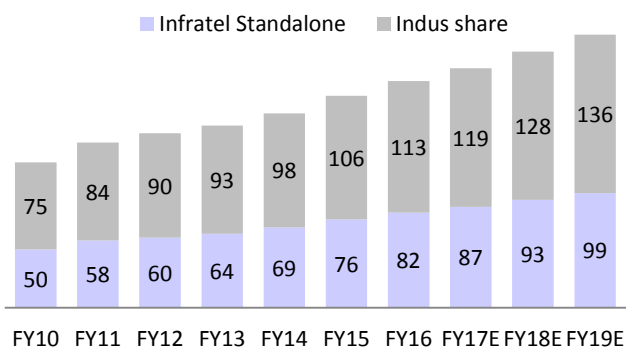
Source: Company, MOSL

Exhibit 123: Tower portfolio break-up (000s)



Source: Company, MOSL

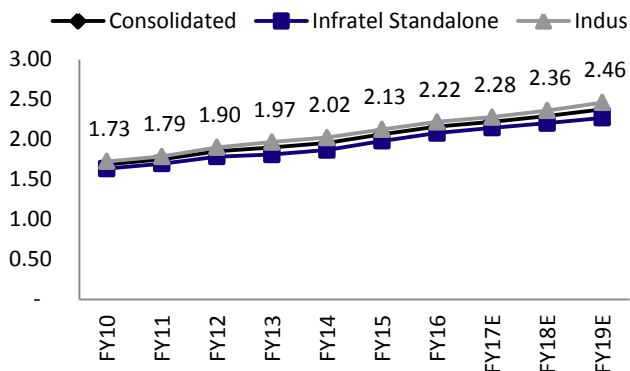
Exhibit 124: Co-locations break-up (000s)



Source: Company, MOSL

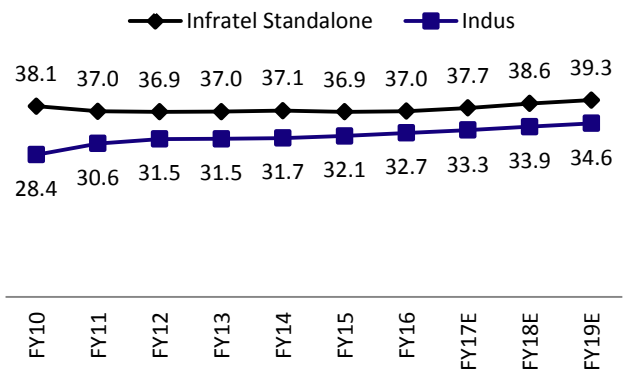
Story in Charts

Exhibit 125: Average sharing factor (x)



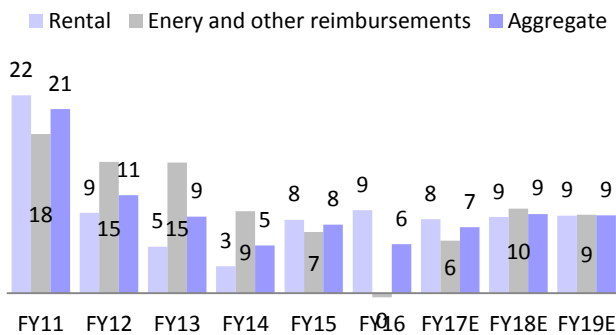
Source: Company, MOSL

Exhibit 126: Sharing revenue per operator (INR 000s/month)



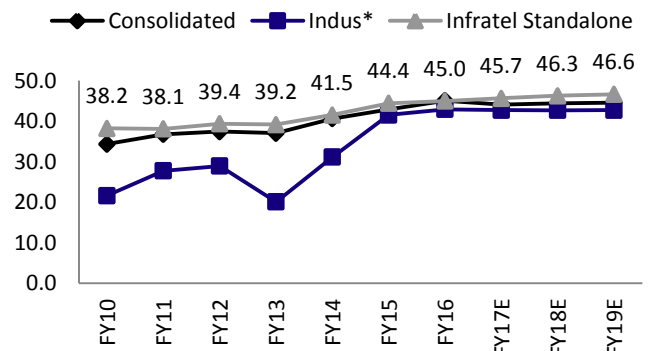
Source: Company, MOSL

Exhibit 127: Segment-wise revenue growth (%)



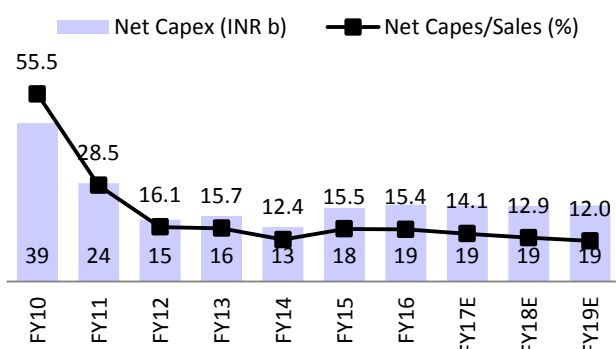
Source: Company, MOSL

Exhibit 128: Standalone v/s industry EBITDA margin (%)



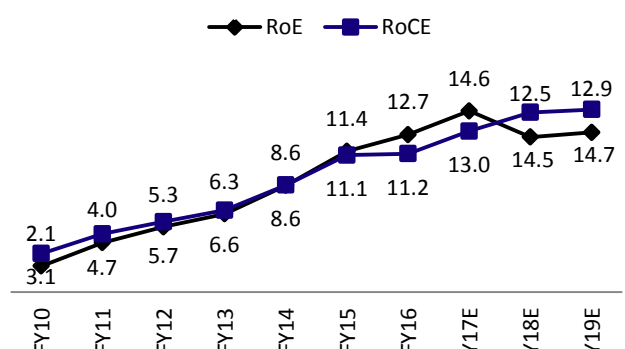
Source: Company, MOSL

Exhibit 129: Net Capex intensity expected to gradually increase



Source: Company, MOSL

Exhibit 130: Return ratios (%)



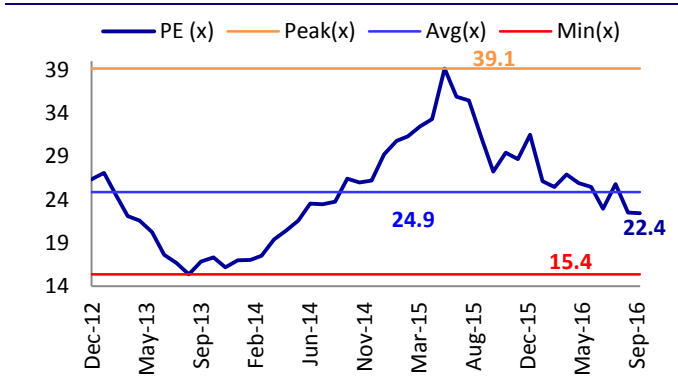
Source: Company, MOSL

Exhibit 131: Bharti Infratel: SOTP Valuation

	Value (INR b)	Value (INR/sh)	Implied FY19 EV/Tower (INR m)	Implied FY19 EV/EBITDA (x)
Standalone (Mar-18)	412	224	10	12
Indus (Mar-18)	969	526	8	11
Indus value (42%)	407			
Indus value post holdco discount of 20%	326	177	6	9
Total Enterprise value	737	400	8	10.6
Net Debt	-64	-35		
Shares o/s (b)	2			
Fair value	801	435		11.5
CMP (INR)		363		
Upside		20%		

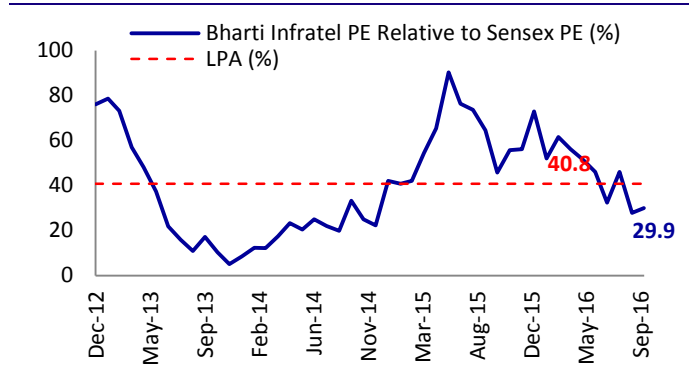
Source: Company, MOSL

Exhibit 132: BHIN: P/E band chart



Source: Company, MOSL

Exhibit 133: BHIN: Relative P/E v/s Sensex



Source: Company, MOSL

Exhibit 134: Bharti Infratel - A Snapshot

	FY11	FY12	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
Towers (000s)									
Consolidated	78	79	82	83	86	89	92	94	97
YoY (%)	6.1	0.8	3.8	1.6	3.0	3.4	3.1	3.0	2.9
Net additions	4.5	0.6	3.0	1.3	2.5	2.9	2.8	2.7	2.7
-Infratel Standalone	2.2	0.4	2.0	0.8	1.3	1.3	1.5	1.5	1.5
-Indus	5.5	0.6	2.5	1.2	2.9	3.9	3.1	3.0	3.0
Co-locations (000s)									
Consolidated	142	150	157	167	182	195	206	220	235
YoY (%)	13.8	5.5	4.5	6.8	9.0	7.0	5.6	7.0	6.5
Net additions	17.3	7.8	6.7	10.6	15.1	12.7	10.9	14.4	14.4
-Infratel Standalone	7.6	2.5	3.4	5.6	6.7	5.8	5.0	6.0	6.0
-Indus	23.0	12.6	7.8	12.0	20.0	16.5	14.1	20.0	20.0
Average sharing factor (x)									
Consolidated	1.75	1.85	1.90	1.96	2.06	2.16	2.22	2.29	2.38
-Infratel Standalone	1.70	1.79	1.81	1.87	1.98	2.08	2.15	2.20	2.27
-Indus	1.79	1.90	1.97	2.02	2.13	2.22	2.28	2.36	2.46
Sharing revenue per operator (INR '000/month)									
Consolidated	34.7	33.7	33.7	33.9	34.1	34.5	35.1	35.9	36.6
YoY (%)	1.6	-3.0	0.1	0.6	0.5	1.2	1.8	2.2	1.9
-Infratel Standalone	37.0	36.9	37.0	37.1	36.9	37.0	37.7	38.6	39.3
-Indus	30.6	31.5	31.5	31.7	32.1	32.7	33.3	33.9	34.6
Revenue break-up (INR b)									
Rental revenue	55.6	60.7	63.8	65.8	71.3	77.9	84.5	91.8	99.8
YoY (%)	22	9	5	3	8	9	8	9	9
-Bharti Infratel standalone	23.9	26.1	27.4	29.6	32.1	35.0	38.1	41.5	45.0
-Indus	70	78	82	86	94	103	111	120	131
Energy and other reimbursements	29.5	33.9	38.9	42.5	45.4	45.2	47.9	52.5	57.2
YoY (%)	18	15	15	9	7	0	6	10	9
-Bharti Infratel standalone	13.9	15.5	17.2	20.4	21.8	21.0	21.6	23.8	25.9
-Indus	37.1	41.8	49.6	52.3	55.8	57.7	63.3	68.4	74.5
Total revenue	85	95	103	108	117	123	132	144	157
YoY (%)	21	11	9	5	8	6	7	9	9
-Bharti Infratel standalone	38	42	45	50	54	56	60	65	71
-Indus	107	120	132	139	150	160	174	188	205
Power and fuel cost (INR b)	30	34	38	41	42	43	46	50	54
YoY (%)	19	11	13	7	3	2	7	9	9
% of revenue	35	36	37	38	36	35	35	34	35
Power and fuel cost per tower (INR '000/month)	33	36	39	41	41	41	42	45	47
EBITDA (INR b)	31	35	38	44	50	54	58	64	70
YoY (%)	29	13	8	16	14	8	7	10	9
EBITDA margin (%)	36.8	37.4	37.0	40.6	42.9	43.9	43.9	44.3	44.5
EBITDA per tower (INR m)	0.41	0.45	0.47	0.53	0.59	0.62	0.64	0.69	0.73

Source: Company, MOSL

Financials and valuations

Consolidated - Income Statement

(INR Million)

Y/E March	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
Total Income from Operations	102,720	108,267	116,683	123,314	132,369	144,244	156,975
Change (%)	8.7	5.4	7.8	5.7	7.3	9.0	8.8
Power and fuel	38,016	40,612	41,950	42,598	45,715	49,721	54,296
Rent	10,876	8,886	9,460	10,322	11,233	12,207	13,300
Employee benefits expenses	3,341	3,670	3,997	4,279	4,707	5,248	5,685
Other Expenses	12,437	11,098	11,235	12,007	12,577	13,136	13,834
Total Expenditure	64,670	64,266	66,642	69,206	74,231	80,312	87,115
% of Sales	63.0	59.4	57.1	56.1	56.1	55.7	55.5
EBITDA	38,050	44,001	50,041	54,108	58,138	63,932	69,861
Margin (%)	37.0	40.6	42.9	43.9	43.9	44.3	44.5
Depreciation	22,199	21,259	21,847	22,236	22,619	23,792	25,330
EBIT	15,851	22,742	28,194	31,872	35,518	40,140	44,531
Int. and Finance Charges	3,945	3,997	2,902	-1,847	-2,281	8,056	8,130
Other Income	3,379	4,487	5,223	2,048	1,108	3,793	3,793
PBT bef. EO Exp.	15,285	23,232	30,515	35,767	38,907	35,878	40,193
EO Items	22	0	0	0	0	0	0
PBT after EO Exp.	15,307	23,232	30,515	35,767	38,907	35,878	40,193
Total Tax	5,282	8,053	10,591	13,292	12,221	12,198	13,666
Tax Rate (%)	34.5	34.7	34.7	37.2	31.4	34.0	34.0
Reported PAT	10,025	15,179	19,924	22,475	26,687	23,679	26,528
Adjusted PAT	10,011	15,179	19,924	22,475	26,687	23,679	26,528
Change (%)	33.3	51.6	31.3	12.8	18.7	-11.3	12.0
Margin (%)	9.7	14.0	17.1	18.2	20.2	16.4	16.9

Consolidated - Balance Sheet

(INR Million)

Y/E March	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
Equity Share Capital	18,887	18,893	18,938	18,967	18,496	18,496	18,496
Total Reserves	153,038	161,489	151,262	164,512	163,124	178,259	196,242
Net Worth	171,925	180,382	170,200	183,479	181,621	196,755	214,738
Total Loans	32,296	26,836	17,131	10,767	10,767	10,767	10,767
Deferred Tax Liabilities	7,610	11,249	12,247	12,249	12,249	12,249	12,249
Capital Employed	211,831	218,467	199,578	206,495	204,637	219,771	237,754
Net Fixed Assets	163,239	153,205	148,121	144,868	140,974	135,844	129,339
Capital WIP	1,723	1,527	2,260	2,245	2,245	2,245	2,245
Total Investments	38,911	74,803	58,822	38,811	38,811	38,811	38,811
Curr. Assets, Loans&Adv.	73,057	56,821	62,344	83,265	88,509	112,155	140,189
Account Receivables	8,554	3,075	3,532	1,916	2,160	2,473	2,812
Cash and Bank Balance	1,267	1,655	9,120	31,916	35,744	57,174	83,251
Loans and Advances	63,236	52,091	49,692	49,433	50,605	52,508	54,126
Curr. Liability & Prov.	65,099	67,889	71,969	62,694	65,902	69,283	72,830
Account Payables	7,106	1,894	1,342	959	1,055	1,177	1,310
Other Current Liabilities	42,090	45,422	43,694	41,139	43,783	46,180	48,787
Provisions	15,903	20,573	26,933	20,596	21,064	21,926	22,734
Net Current Assets	7,958	-11,068	-9,625	20,571	22,607	42,871	67,359
Appl. of Funds	211,831	218,467	199,578	206,495	204,637	219,771	237,754

E: MOSL Estimates

Financials and valuations

Ratios							
Y/E March	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
Basic (INR)							
EPS	5.3	8.0	10.5	11.8	14.1	12.5	14.0
Cash EPS	17.0	19.2	22.0	23.6	26.0	25.0	27.3
BV/Share	90.6	95.1	89.7	96.7	95.8	103.7	113.2
DPS	4.0	4.0	4.0	4.0	3.9	3.9	3.9
Payout (%)	87.4	57.7	44.0	39.0	32.0	36.1	32.2
Valuation (x)							
P/E			34.6	30.6	25.8	29.1	26.0
Cash P/E			16.5	15.4	14.0	14.5	13.3
P/BV			4.0	3.8	3.8	3.5	3.2
EV/Sales			6.0	5.4	5.0	4.5	3.9
EV/EBITDA			13.9	12.3	11.4	10.0	8.8
Dividend Yield (%)	1.1	1.1	1.1	1.1	1.1	1.1	1.1
FCF per share	10.7	13.1	12.1	7.4	14.8	19.0	21.5
Return Ratios (%)							
RoE	6.3	8.6	11.4	12.7	14.6	12.5	12.9
RoCE	6.6	8.6	11.1	11.2	13.0	14.5	14.7
RoIC	6.0	9.6	13.6	15.2	18.6	21.2	25.0
Working Capital Ratios							
Fixed Asset Turnover (x)	0.6	0.7	0.8	0.9	0.9	1.1	1.2
Asset Turnover (x)	0.5	0.5	0.6	0.6	0.6	0.7	0.7
Inventory (Days)	0	0	0	0	0	0	0
Debtor (Days)	30	10	11	6	6	6	7
Creditor (Days)	25	6	4	3	3	3	3
Leverage Ratio (x)							
Net Debt/Equity	0.0	-0.3	-0.3	-0.3	-0.4	-0.4	-0.5
Consolidated - Cash Flow Statement							
							(INR Million)
Y/E March	FY13	FY14	FY15	FY16	FY17E	FY18E	FY19E
OP/(Loss) before Tax	15,307	23,232	30,515	35,767	38,907	35,878	40,193
Depreciation	22,199	21,259	21,847	22,236	22,619	23,792	25,330
Interest & Finance Charges	3,717	3,864	2,946	-1,847	-2,281	8,056	8,130
Direct Taxes Paid	-3,722	-4,345	-8,420	-13,292	-12,221	-12,198	-13,666
(Inc)/Dec in WC	3,463	-194	-517	-7,400	1,792	1,165	1,590
CF from Operations	40,964	43,816	46,371	35,464	48,817	56,692	61,578
Others	-4,452	-5,646	-5,338	-2,508	-2,048	-2,048	-2,048
CF from Operating incl EO	36,512	38,170	41,033	32,956	46,769	54,644	59,530
(Inc)/Dec in FA	-16,173	-13,389	-18,144	-18,968	-18,725	-18,662	-18,825
Free Cash Flow	20,339	24,781	22,889	13,988	28,044	35,982	40,705
(Pur)/Sale of Investments	-34,795	-35,977	17,588	20,011	0	0	0
Others	-6,976	25,904	17	10,883	10,883	10,883	10,883
CF from Investments	-57,944	-23,462	-539	11,926	-7,842	-7,779	-7,942
Issue of Shares	31,543	57	490	29	-20,000	0	0
Inc/(Dec) in Debt	124	-4,254	-7,601	-6,364	0	0	0
Interest Paid	-3,715	-3,805	-3,010	1,847	2,281	-8,056	-8,130
Dividend Paid	-5,721	-7,003	-21,755	-8,763	-8,545	-8,545	-8,545
CF from Fin. Activity	22231	-15005	-31876	-13252	-26,264	-16,601	-16,675
Inc/Dec of Cash	799	-297	8,618	31,631	12,663	30,265	34,913
Opening Balance	468	598	1,640	285	23,081	26,909	48,339
Closing Balance	1,267	1,655	9,120	31,916	35,744	57,174	83,251

E: MOSL Estimates

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Ushering in a new era

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India integrating

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