

Telecom Industry

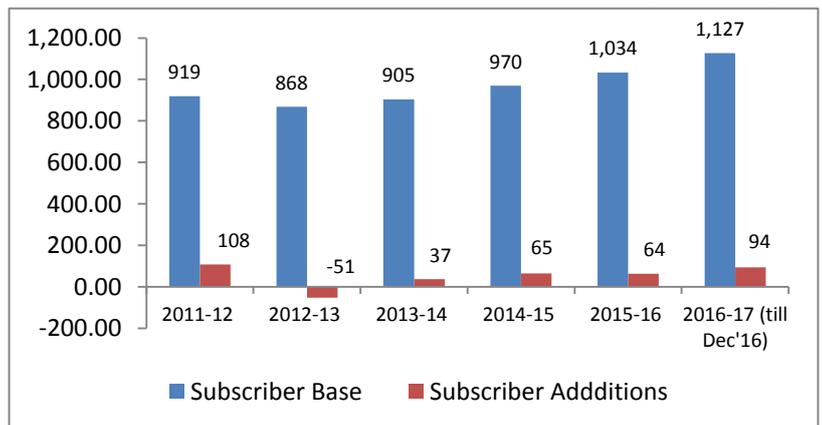
The Indian telecom industry has started witnessing consolidation which in turn, will reduce the number of telecom operators thus increasing the industry’s efficiency with two companies coming together to share their network coverage assets. Consolidation has gained momentum in the industry with the intention of telecom operators to maintain their market share in order to compete with the new entrant Reliance Jio. The entry of new player has gained subscribers and has also affected the industry’s sales and profits.

Wireless Subscriber Base

India is the second largest telecom market in the world followed by China. The telecom subscriber base in the country is dominated by the wireless segment which accounts for about 97% of the total subscriber base.

At the end of the financial year 2015-16, the wireless subscriber base in India crossed the one billion mark and stood at 1,033.6 million which is a growth rate of 6.3% on a y-o-y basis. A total of 63.74 million wireless subscribers were added during the year.

Chart 1: Wireless Subscriber Base and Additions (in million)



Source: CMIE

In the first three quarters (April-December 2016) of the current financial year 2016-17, 93.74 million wireless subscribers were added. This is 128.7% higher compared to the corresponding period a year ago. The strong growth in subscribers was driven by Reliance Jio Infocomm Ltd which entered the telecom market on 5th September 2016. During the period April-December 2015, 41 million subscribers were added.

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Of 93.74 million subscribers added, 72.16 million customers subscribed to Reliance Jio's wireless telecom service. This was on account of the telecom company's 'Welcome Offer' that provided free data services, free voice calls and no roaming charges across the country till the end of December 2016.

The increase in subscriber base of Reliance Jio is expected to continue during January-March 2017 with extension of the company's offer till 31st March 2017. The company introduced Happy New Year offer in place of Welcome Offer with data limit being reduced to 1 GB from 4GB earlier. With subscribers expected to grow in the coming months of 2016-17, the total wireless subscriber base is likely to rise by 12-12.6% by March 2017 on a yearly basis. As of 31st December 2016, the total wireless subscriber base grew by 11.52% to 1,127.4 million on a y-o-y basis.

However, it must be noted that of the total subscribers added by Reliance Jio, a very high percentage of the subscribers are dual SIM users. These dual SIM users in order to take benefit of Reliance Jio's free services subscribed to the telco. However, the telco will be charging for its services from 1st April 2017. Subsequently, this may prompt the user to surrender one of his connections. Thus, in the next financial year 2017-18, some de-growth is expected in number of subscribers.

The total subscriber base belongs to 22 telecom circles in India. These circles are broadly classified into four groups – Metros, Circle A, Circle B and Circle C.

Table 1: Wireless Subscriber Base (Circle Wise) as of December 31, 2016 (in million)

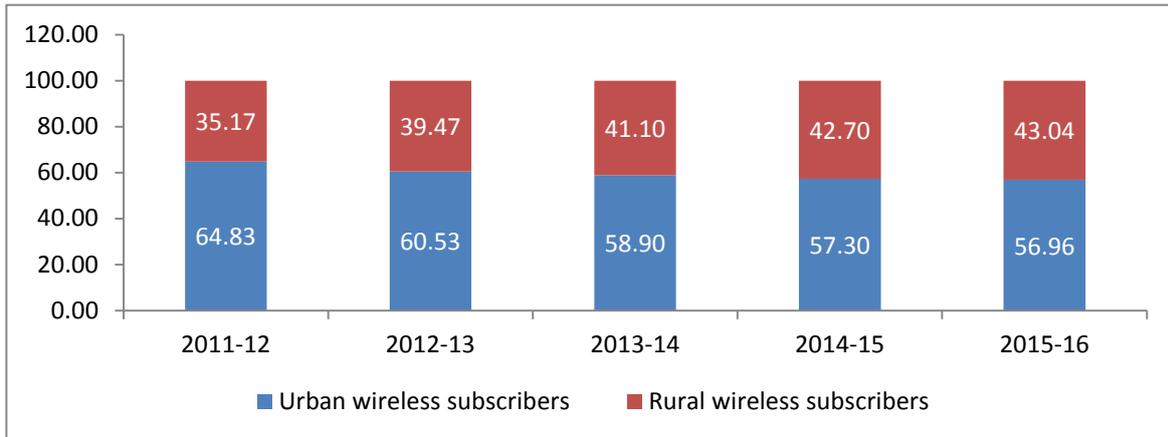
Location	Dec-16	Location	Dec-16
All India	1127.37	Circle B	449.82
Metros	113.65	Kerala	37.91
Delhi	50.88	Punjab	36.38
Mumbai	34.63	Haryana	23.94
Kolkata	28.14	Uttar Pradesh (W)	63.21
Circle A	394.47	Uttar Pradesh (E)	101.60
Maharashtra	90.77	Rajasthan	64.88
Gujarat	68.38	Madhya Pradesh	66.48
Andhra Pradesh	81.65	West Bengal	55.44
Karnataka	67.13	Circle C	169.43
Tamil Nadu	86.54	Himachal Pradesh	9.90
		Bihar	82.26
		Orissa	32.79
		Assam	20.91
		North East	12.29
		Jammu & Kashmir	11.27

Source: CMIE

Share of urban and rural wireless subscribers

Of the total subscriber base in 2015-16, the rural subscribers accounted for 43.0%. This share has been increasing over the years, albeit, gradually indicating thereby that the rural population is getting access to this service progressively.

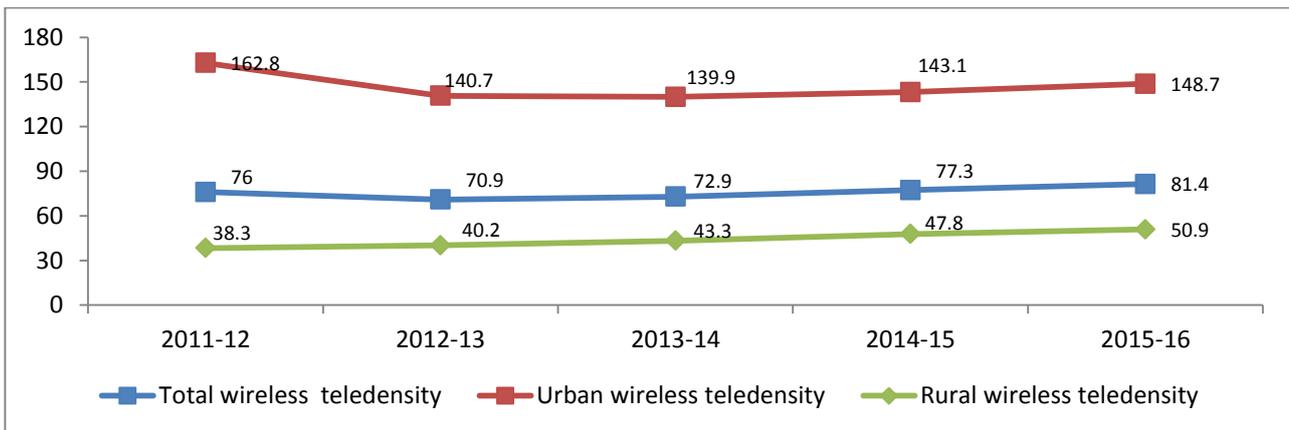
Chart 2: Share of urban and rural wireless subscribers (in %)



Source: CMIE

However, during the same period, rural wireless teledensity stood at 50.9% while urban wireless teledensity stood at 148.7%. This indicates a wide gap in telephone connections between the urban and rural areas. Teledensity is the number of telephone connections for every hundred individuals living within an area.

Chart 3: Teledensity (in %)



Source: CMIE

Though total wireless teledensity in India has improved, it has not increased at the same pace for rural and urban areas. The improvement in urban teledensity is mainly because urban areas are comparatively more developed and many of the urban users have multiple SIMs and multiple mobile phones.

The total wireless teledensity in India improved from 70.9% in 2012-13 to 81.4% in 2015-16. Increasing importance of mobile handsets coupled with easy availability of telecom services helped improve the country’s teledensity. In the year 2012-13, the total wireless teledensity had declined to 70.9% from 76% in 2011-12. This was mainly on account of removal of inactive telephone connections by the telecom service providers.

The prime reason for low rural teledensity is lack of telecom infrastructure in the rural areas. The telecom companies find it financially viable to add capacity in existing areas (mostly urban areas) rather than setting up capacity in new areas. Also, the telecom companies get lower returns from the rural areas compared with the urban areas.

Global scene

In a global context, the teledensity ratio is low, which indicates too the potential which exists for the system.

Table 2: Penetration rates (teledensity) for mobile-cellular telephone subscriptions (per 100 inhabitants)

Year	World	Developed countries	Developing countries	India
2012	88.1	116.0	82.1	76.0
2013	93.1	118.4	87.8	70.9
2014	96.8	122.7	91.4	72.9
2015	98.6	125.7	93.0	77.3
2016	99.7*	126.7*	94.1*	81.4

Source: ITU World Telecommunication/ICT Indicators database

*(Estimate)

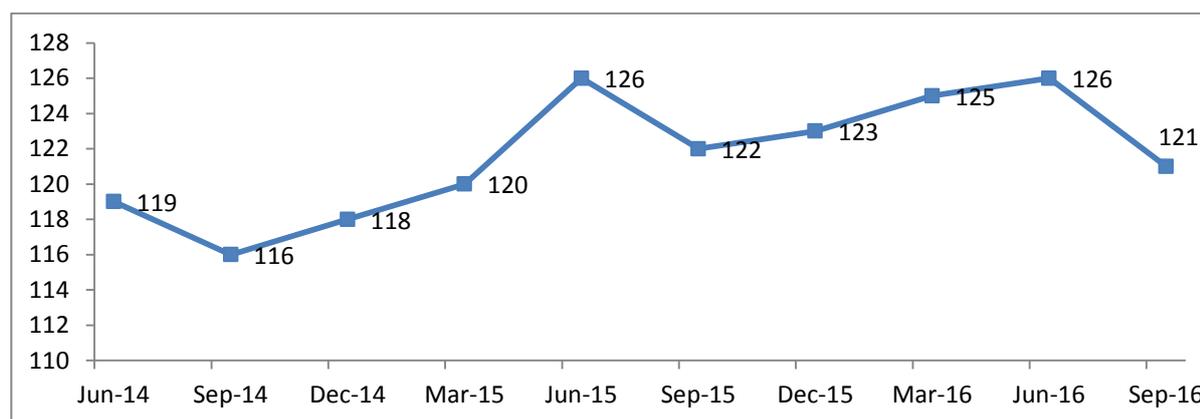
*The year ending for India is March

The above table gives the penetration rate of mobile-cellular telephone subscriptions globally. The penetration rate has been on a rise for all the years for all the locations except for India for the financial year 2012-13. The penetration rate in India however has remained lower compared to other locations mentioned above.

Average Revenue per User (ARPU)

The ARPU is made of revenues from voice call services and non-voice call services. The ARPU of telecom companies is largely made of tariffs from voice call services as revenues from voice-call services account for major portion of total revenues of these companies. Data usage which forms part of non-voice call services is the next major contributor to ARPU after voice call services.

Chart 4: All-India ARPU (in Rs.)



Source: CMIE

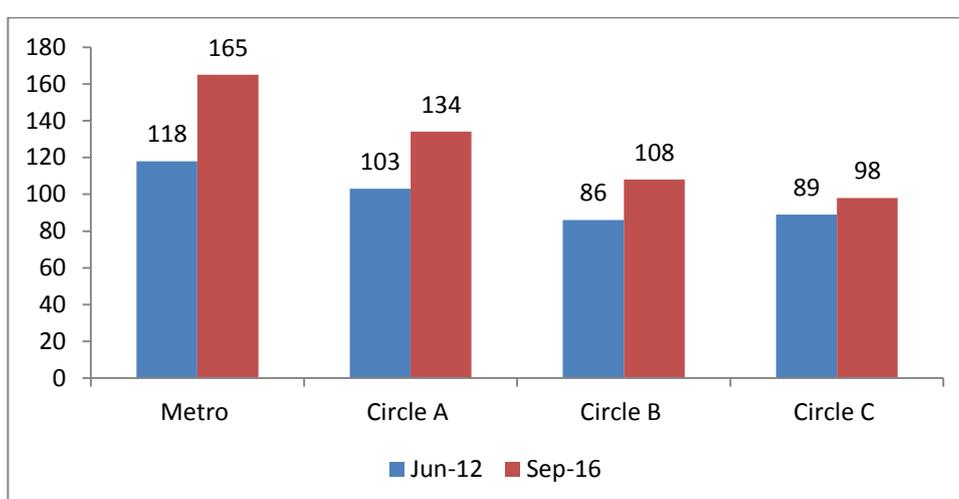
In the September 2016 quarter, all-India ARPU stood at Rs.121. This is lowest for the industry compared to the ARPU in the past four quarters. On a sequential basis, it declined by 3.97% due to intense competition from the new player Reliance Jio that offered various services at free of cost. This is believed to have hurt the ARPU of the telecom industry during the quarter.

In the December 2016 quarter, the ARPU of Bharti Airtel and Idea Cellular declined by 10.4% to Rs.172 and that of Idea by 10.8% to Rs.157 on a y-o-y basis. The fall in ARPU is primarily on account of free services offered by Reliance Jio. The free services offered by Reliance Jio are valid till the end of March 2017.

In the coming years, the ARPU of telecom companies is expected to improve backed by an increase in usage of data services on account of subscribers getting used to various applications thereby increasing data consumption. Also, the new norm of bundled voice and data packages will aid the telecom companies' ARPU. Most of the telecom operators are now offering bundled services in the price band of Rs.300-400 per month.

The chart below provides the Average Revenue per User (ARPU) across all circles. The ARPU for all the four circles (Metros, Circle A, Circle B and Circle C) have gradually increased from June 2012 quarter to September 2016 quarter except for few quarters where the ARPU declined sequentially. The all India ARPU increased to Rs.121 in the September 2016 quarter from Rs. 95 in the June 2012 quarter. The rise in ARPU can be attributed to the increasing usage of telecom services by the users with the services becoming increasingly available. Also, voice tariffs and rising data consumption aided the growth in ARPU.

Chart 5: Circle-wise GSM Subscriber ARPU (in Rs.)



Source: CMIE

It can be seen that the quarterly Average Revenue Per User (ARPU) for GSM wireless subscribers for Circle C that primarily consists of rural areas has remained lower compared to metro cities or Circle A that include very large cities. For the quarter ended September 2016, while the ARPU for metro cities stood at Rs.165 that for Circle C stood at Rs.98.

Metros: The ARPU for metros grew or remained flat in each of the quarters on a sequential basis during the September 2012 quarter to September 2015 quarter. The ARPU stood at Rs.174 in the September 2015 quarter. Following this, the ARPU however declined or remained flat in all the next four quarters sequentially. The ARPU for metros stood at Rs.165 in the September 2016 quarter compared to Rs.118 in the June 2012 quarter.

Circle A: The ARPU for Circle A that was Rs.103 in the June 2012 quarter reached to Rs.127 in the June 2014 quarter and declined sequentially to Rs.124 in the September 2014 quarter. Following this, the ARPU grew on a sequential basis and stood at Rs.136 in the June 2015 quarter. After this, the ARPU fell and remained flat in the next two quarters, respectively, and increased to Rs.138 in the June 2016 quarter and then declined to Rs.134 in the September 2016 quarter.

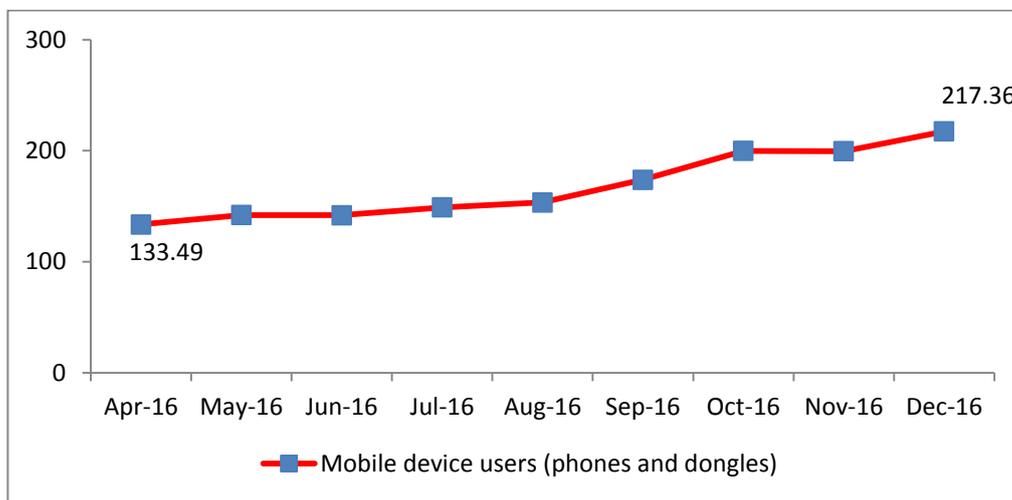
Circle B: The ARPU for Circle B that stood at Rs.86 in the June 2012 quarter increased sequentially to Rs.101 in the June 2013 quarter and then fell to Rs.98 in the September 2013 quarter. Following this, the ARPU rose on a sequential basis and stood at Rs.108 in the June 2014 quarter. After this, the ARPU declined to Rs.104 in the September 2014 quarter and grew sequentially to the level of Rs.114 in the June 2015 quarter. Compared to this, the ARPU remained subdued in all the next quarters and stood at Rs.108 in the September 2016 quarter.

Circle C: The ARPU for Circle C that was Rs.87 in the September 2012 quarter reached to the level of Rs.110 in the June 2014 quarter after witnessing sequential rise in all the quarters except for a fall in the September 2013 quarter during the period. After staying at Rs.110 in the June 2014 quarter, the ARPU declined to Rs.103 in the In the September 2014 quarter and grew marginally in the next three quarters to stand at Rs.106 in the June 2015 quarter. Following this, the ARPU fell to Rs.100 in the next quarter and increased sequentially in the next two quarters to Rs.109 in the March 2016 quarter. After this, the ARPU declined sharply and stood at Rs.98 in the September 2016 quarter.

Share of voice call and non-voice call revenues

Revenues of the Indian telecom industry are primarily dominated by voice call services. As per the December 2016 quarterly results of Bharti Airtel and Idea Cellular, voice call services accounted for 71.6% and 72.8% of the total revenues of these companies respectively. Both the companies together have a market share of 40.5% in terms of subscribers. Data services accounted for around 22.8% and 20.2%, respectively and SMS and other VAS services account for the balance revenues.

Chart 6: Broadband Subscriber Base of Mobile Device Users (in million)

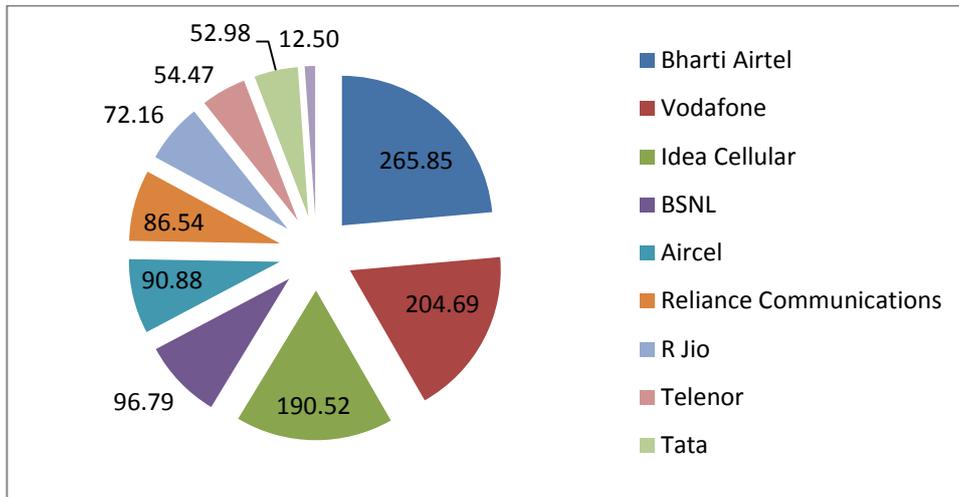


Source: TRAI

Data usage is the next major source of revenue earner for telecom companies after voice call services. The use of data services is on a rise. As of December 2016, the broadband subscriber base of mobile device users (phones and dongles) surged by 62.8% to 217.36 million compared to 133.49 million user base in April 2016. The growth in data usage can be attributed to devices that are available at cheaper prices, rapid growth in social media, and increase in use of internet-based applications and change in user profile. The rise in data usage is expected to increase the share of non-voice call revenues in total revenues of the telecom companies.

Market share of wireless service providers

Chart 7: Market share of wireless service providers as on December 31, 2016 (in million)



Source: CMIE

The telecom industry in India is highly competitive as it comprises 12 operators (including new entrant Reliance Jio) and this is believed to have resulted in Indian customers being paying one of the lowest telecom tariffs in the world. India has one of the cheapest telecom tariffs in the world according to a written reply given by the Minister in the Lok Sabha in March 2015. As per market view in February 2017, the tariff for 1 GB of data in India is 3.5 USD whereas it is 10 USD in USA and 15 USD in China. The telecom industry in China (the largest telecom market) comprises three players.

While the industry includes 12 players, the wireless subscriber base of the telecom industry in India is dominated by the top three operators. As of December 2016, Bharti Airtel leads the wireless subscriber base with a share of 23.58%, followed by Vodafone and Idea Cellular with a share of 18.16% and 16.9%, respectively. The other players BSNL, Aircel, Reliance Communications have a subscriber share of 8.59%, 8.06% and 7.68%, respectively. The new player Reliance Jio managed to gain subscriber share of 6.4% and the share for Telenor and Tata stood at 4.83% and 4.7%, respectively, as on 31st December 2016.

However, intense competition from Reliance Jio and increasing price war among players has paved the way for consolidation among the telecom companies. The consolidation is expected to support the financials of the industry and will also aid the companies to share their spectrum assets.

Considering consolidation of the telecom companies, the industry will consist of large five players: Vodafone-Idea, Airtel-Telenor, Reliance Jio, Reliance Communications-Aircel and state run BSNL-MTNL. While the telecom companies Vodafone and Idea agreed to merge, Reliance Communications and Aircel merger has received nod from the Competition Commission of India (CCI).

In February 2017, Telenor signed a definitive agreement with Airtel, whereby Airtel will take full ownership of Telenor India and the Department of Telecommunication (DoT) is expected to present the merger plan of BSNL-MTNL to the Union Cabinet by June 2017.

The buzzword ‘Spectrum’

Spectrum is the input required by telecom companies to provide services to its customers. It refers to a range of electromagnetic waves or the frequencies through which sound or data is transferred to phones. On the basis of frequencies,

spectrum is divided into different bands. In India, the spectrum is available in seven bands including 700, 800, 900, 1,800, 2,100, 2,300 and 2,500 MHz bands.

October 2016 spectrum auction

The recent spectrum auction that took place in October 2016 got wrapped up in five days. In this auction, the government had put up 2,354.55 MHz of spectrum for sale. Of this, around 965 MHz that equals to 41% of the spectrum was sold. The spectrum that was put up for sale belonged to the seven bands mentioned above. However, spectrum remained unsold in 700 MHz and 900 MHz bands.

Of the 1,389.55 MHz units of unsold spectrum, 770 units of spectrum were of the 700 MHz band. Each unit of 700 MHz band was reserved at Rs.11, 475 crore and it required a telco to bid for a minimum block of 5 MHz. This implies that a telco had to pay a high price of Rs.57, 425 crore to get spectrum in this band.

The telecom industry however found this deal very expensive and thus did not bid for it despite the fact that the 700 MHz band is found to be the most efficient band to provide 4G services. Also, the sale of spectrum depends on the availability of network and device ecosystem and this band lacks the device ecosystem necessary for its expansion.

The 700 MHz band is considered premium band on account of its efficiency, higher penetration inside buildings and wider coverage. This also holds true as lower frequencies travel longer distances and are better at passing through walls and at coverage when compared to higher frequencies. The lower frequency, in turn, requires fewer towers and thus reduces cost for telcos.

The overall spectrum of 2,354.55 MHz that was put up for sale valued Rs.5.63 trillion (lakh crore). Of this, spectrum involving value of Rs.65, 789.12 crore was sold. As per the norms, telcos had to pay 25% of the price upfront for the spectrum belonging to 700, 800 and 900 MHz bands and 50% for frequencies higher than these frequency bands. Subsequently, the upfront payment that the government was to receive stood at Rs.32, 000 crore.

The top bids for the spectrum auction were made by the big players Bharti Airtel, Vodafone and Idea Cellular. Nevertheless, the new entrant Reliance Jio was also one of the top bidders for the spectrum auction in October 2016.

Table 3: Top bidders in October 2016 spectrum auction

Bidders	Value of spectrum bought (crore)	Units bought in bands
Vodafone	Rs.20, 279.30	1,800 MHz, 2,100 MHz, 2,500 MHz
Bharti Airtel	Rs.14, 243.58	1,800 MHz, 2,100 MHz, 2,300 MHz
Reliance Jio	Rs.13, 672.46	800 MHz, 1,800 MHz, 2,300 MHz
Idea Cellular	Rs.12, 797.98	1,800 MHz, 2,100 MHz, 2,300 MHz, 2,500 MHz

Source: Department of Telecommunications (DoT)

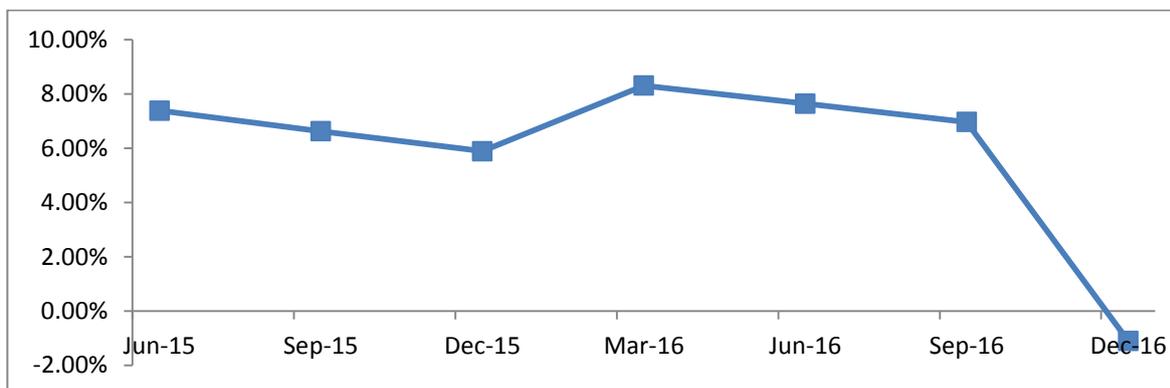
Citing high price and the lack of ecosystem for spectrum in 700 MHz band as major barriers, the telecom companies opted for the spectrum in 1,800/2,300/2,500 MHz bands that can be used to provide 4G services to their customers.

The Indian telecom industry has evolved over the years with the first spectrum auction being held in 1994 that introduced the 900 MHz frequency band to the introduction of 700 MHz frequency band in October 2016 spectrum auction. The 900 MHz band that was initially used for 2G networks can now also be deployed for 3G services. The bands of 1,800 MHz and 2,300 MHz that were introduced can be deployed for 4G services and 2,100 MHz band can be deployed for 3G services.

Financials of nine telecom companies (on a y-o-y basis)

Reliance Jio which entered the telecom market in September 2016 with its free of cost services not only affected the telecom industry’s sales but also profits in the December 2016 quarter. The company’s free of cost services are believed to have given tough competition to the telecom players which in turn impacted the industry’s sales and profits.

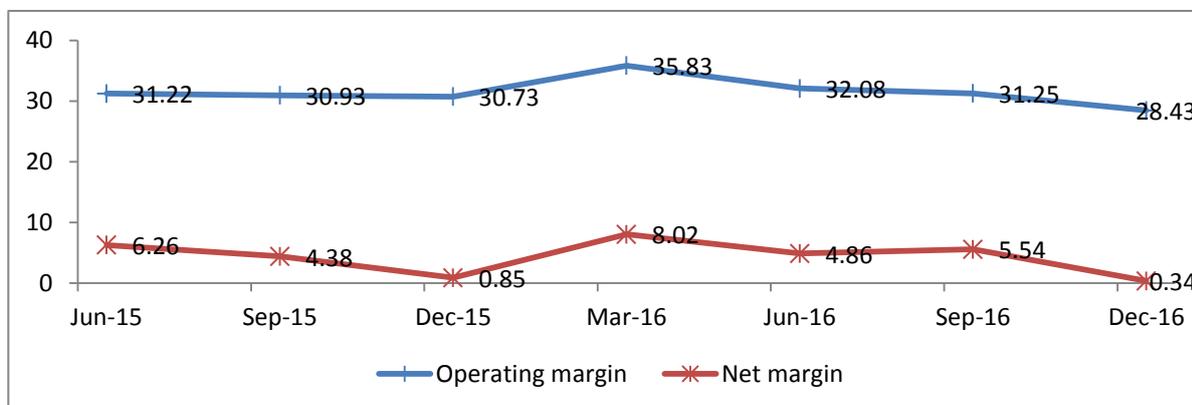
Chart 8: Sales growth rate



Source: Ace Equity

The aggregate sales of the nine telecom companies that grew in single-digit in each of the quarters during June 2015 quarter to September 2016 quarter declined by 1.1% in the December 2016 quarter.

Chart 9: Operating and Net margins (in %)



Source: Ace Equity

Likewise, the industry’s performance remained subdued on the profitability front. The industry’s operating margin stood at 28.43% and net margin stood at 0.34% in the December 2016 quarter. The profitability reported by the industry was weakest compared to each of the past six quarters.

Telecom Tower industry in India

Telecom tower provides network coverage to the telecom subscribers. The telecom tower industry comprises players that are independent tower infrastructure companies and the players that are promoted by telecom companies. This includes companies like Bharti Infratel, Reliance Infratel, Indus Towers.

Bharti Infratel and Reliance Infratel are hived off tower businesses of Bharti Airtel and Reliance Communications, respectively. Indus Towers is jointly owned by Bharti Airtel, Vodafone and Idea Cellular. The independent tower infrastructure players include companies like GTL Infrastructure Ltd; American Tower Corp. These telecom tower companies provide access to their towers to telecom service providers on a shared basis.

As per Bharti Infratel's 2015-16 Annual Report, the company owned and operated 38,458 towers and Indus Towers operated 1,19,881 towers. Considering Bharti Infratel's 42% interest in Indus Towers, the company has an economic interest that is equal to 88, 808 towers.

There are more than 4, 00,000 telecom towers in India according to Towers and Infrastructure Providers Association's (TAIPA) February 2014 release. The growing telecom subscriber base and improvement in data usage are believed to have supported the telecom tower industry in India.

Digital India

Digital India is a programme promoted by the government to transform India into a digitally empowered society and knowledge economy. The initiative aims at making financial transactions electronic and cashless. Also, it aims at using this electronic service for financial inclusion and making it available to schools, farmers and includes installing public wifi hotspots. These are some of the initiatives promoted by this programme. In addition to this, the usage of e-wallets are believed to have increased post demonetization and also the trend of using banking applications by users have started increasing. These factors, in turn, are expected to increase the usage of mobile data consumption in the coming years.

Concluding remarks

- *In the financial year 2017-18, some de-growth is expected in number of subscribers as the dual SIM users that subscribed to Reliance Jio may surrender one of the connections.*
- *The rise in data usage is expected to increase the share of non-voice call revenues in total revenues of the telecom companies. This will be mainly on account of devices that are available at cheaper prices, rapid growth in social media, and increase in use of internet-based applications and change in user profile.*
- *In the coming years, the ARPU of telecom companies is expected to improve backed by an increase in usage of data services and the new norm of bundled voice and data packages.*
- *The consolidation in telecom industry is expected to support the financials of the industry and will also aid the companies to share their spectrum assets.*
- *Citing high price and the lack of ecosystem for spectrum in 700 MHz band as major barriers, the telecom companies opted for the spectrum in 1,800/2,300/2,500 MHz bands that can be used to provide 4G services to their customers.*
- *New entrant Reliance Jio's free of cost services are believed to have given tough competition to the telecom players which in turn impacted the industry's sales and profits in the December 2016 quarter.*
- *The Digital India programme promoted by the government, increase in usage of e-wallets and banking applications are expected to increase the usage of mobile data consumption in the coming years.*

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