

## Equities

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# India Wireless

## Ten FAQs

- **Question #1 – How much spectrum is available across the various bands?**
- **Question #2 – Spectrum refarming – How much of a reality?**
- **Question #3 – What is the “market” value of spectrum?**
- **Question #4 – Timeline of National Telecom Policy?**
- **Question #5 – Roaming charges – Timeline and impact?**
- **Question #6 – M&A – What are the roadblocks to consolidation?**
- **Question #7 – Impact of uniform license fees at 8.5%?**
- **Question #8 – 3G roaming – Will the DoT take action against the incumbents?**
- **Question #9 – Tariff hikes – How much more upside?**
- **Question #10 – Will the telecom stocks go up, and in what order of preference?**
- **Answer #10 – Yes. Valuations of both Bharti and Idea have come off in the last one to two months. Bharti’s premium to the market has fallen to 18% (high of 40%) and Idea’s premium to Bharti has also come down to 9% (15% beginning Oct). The fall has come primarily due to 1) market movement (defensive), 2) FX concerns and 3) 2Q being seasonally slow. However, we believe that 1) concerns on FX are overstated (one-time, non-cash and back-ended) and 2) top-line growth should revive in 3Q with the seasonal pick-up in the mins growth. We maintain Buy on all three stocks. Our order of preference is Idea, followed by Bharti and RCOM.**
- **For answers to questions 1-9, please see below.**

### ■ Industry Overview

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Figure 1. Statistical Abstract

Company name	RIC code	Rating	M Cap	Price (Rs)	P/E (x)		EV/EBITDA (x)	
			US\$M	2-Nov-11	FY12E	FY13E	FY12E	FY13E
Bharti	BRTI.BO	1	30,280	393	21.0	14.3	8.1	6.6
RCOM	RLCM.BO	1H	3,326	79	11.4	7.7	6.7	5.7
Idea	IDEA.BO	1	6,354	95	50.8	23.0	8.8	6.8

Source: Citi Investment Research and Analysis

See Appendix A-1 for Analyst Certification, Important Disclosures and non-US research analyst disclosures.

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## Question #1 – How much spectrum is available across the various bands?

Enough spectrum has been set aside in the NFAP. However, release of spectrum held by the Government agencies could take some time.

The National Frequency Allocation Plan (2011) has set aside ample spectrum for 2G/3G/4G services – 100+Mhz in 2G, 60Mhz for 3G and 500+MHz for BWA services. However, not all the spectrum is currently available for the private operators as some of it is with Government entities who had previously been allocated it for non-commercial use.

Figure 2. Spectrum availability as per the National Frequency Plan (2011)

Technology	Band	Availability (MHz)	Comments
2G	900MHz	20.0	824-844MHz paired with 869-889MHz
2G	900MHz	12.5	902.5-915MHz paired with 947.5-960MHz
2G	1800MHz	75.0	1710-1785MHz paired with 1805-1880MHz
2G	1800MHz	10.0	1785-1805Mhz can be considered for co-ordination
2G	1900MHz	10.0	1900-1910MHz paired with 1980-1990MHz if it doesn't interfere with 3G spectrum
3G	2100MHz	60.0	1920-1980MHz paired with 2110-2170MHz
3G	2100MHz	15.0	2010-2025MHz unpaired (TDD)
BWA	2300MHz	100.0	2300-2400MHz unpaired (TDD)
BWA	3300MHz	100.0	3300-3400MHz can also be considered
BWA	2500MHz	120.0	Used for Broadcasting Satellite service downlink but can also be considered for BWA
BWA	3400MHz	200.0	3400-3600MHz may be considered if it doesn't interfere with networks in the FSS in the frequency band 3600- 4200 MHz

Source: Citi Investment Research and Analysis, DoT

A total of 107.5MHz of paired 2G spectrum has been set aside as per the National Frequency Allocation Plan (2011) in the 900 and 1800 MHz band. However, some of this has been allotted to the Defence and other Government entities like the Department of Post etc. The problem is compounded by the differing availability across the 22 circles and lack of clarity on the actual quantum available. While most of the circles have a lower quantum of available spectrum vis-a-vis what has been set aside in the NFAP, there are some circles where additional spectrum (over and above 107.5MHz) is available on a case-by-case basis.

A total of 32.5MHz in the 900MHz band has been set aside as per the NFAP. However, only ~20MHz of this lucrative spectrum has been allocated till now and the remainder is still with the Government or some Government agency. The remaining 75MHz of 2G spectrum is in the less spectrally efficient 1800MHz band and 50-70MHz of it has already been allocated. Some of this spectrum is also held by various entities like ONGC, Department of Post etc.

**Figure 3. 900MHz spectrum details**

	Allocated	Set aside as per NFAP	Balance available
Delhi	22.2	32.5	10.3
Mumbai	22.2	32.5	10.3
Chennai	12.4	32.5	20.1
Kolkata	19.9	32.5	12.6
Maharashtra	20.2	32.5	12.3
Gujarat	20.2	32.5	12.3
AP	20.2	32.5	12.3
Karnataka	20.2	32.5	12.3
TN	21.2	32.5	11.3
Kerala	18.6	32.5	13.9
Punjab	22.2	32.5	10.3
Haryana	18.6	32.5	13.9
UP (W)	18.6	32.5	13.9
UP (E)	18.6	32.5	13.9
Rajasthan	18.6	32.5	13.9
MP	18.6	32.5	13.9
WB	19.4	32.5	13.1
HP	18.6	32.5	13.9
Bihar	18.6	32.5	13.9
Orissa	12.4	32.5	20.1
Assam	21.2	32.5	11.3
NE	19.4	32.5	13.1
J&K	18.6	32.5	13.9

Source: Citi Investment Research and Analysis, DoT

**Figure 4. 1800MHz spectrum details**

	As per NFAP	Available (as per TRA)	Allocated	Balance (Available - allocated)	Balance (as per NFAP - allocated)
Delhi	75.0	57.2	53.6	3.6	21.4
Mumbai	75.0	74.8	72.4	2.4	2.6
Kolkata	75.0	78.4	60.4	18.0	14.6
Maharashtra	75.0	69.4	69.4	-	5.6
Gujarat	75.0	60.4	60.4	-	14.6
AP	75.0	83.6	69.4	14.2	5.6
Karnataka	75.0	79.2	69.4	9.8	5.6
TN	75.0	87.0	67.0	20.0	8.0
Kerala	75.0	89.2	61.2	28.0	13.8
Punjab	75.0	63.2	63.2	-	11.8
Haryana	75.0	63.8	63.8	-	11.2
UP (W)	75.0	61.2	61.2	-	13.8
UP (E)	75.0	62.4	62.4	-	12.6
Rajasthan	75.0	63.8	63.8	-	11.2
MP	75.0	93.6	63.0	30.6	12.0
WB	75.0	57.4	53.0	4.4	22.0
HP	75.0	57.6	57.6	-	17.4
Bihar	75.0	71.2	86.8	(15.6)	(11.8)
Orissa	75.0	77.4	59.4	18.0	15.6
Assam	75.0	59.4	55.0	4.4	20.0
NE	75.0	57.6	53.2	4.4	21.8
J&K	75.0	49.4	49.4	-	25.6

Source: Citi Investment Research and Analysis, DoT, The allocated spectrum in some circles is more than what has been set aside in the NFAP with extra spectrum being available on a case-by-case basis

A total of 60MHz of spectrum is available for 3G in the 2100MHz band. Out of this, only 20-25MHz was allocated during last year's auction (after Defence had vacated it). The auction saw heavy bidding given the perceived spectrum scarcity (also due to the low visibility of when further spectrum will become available) and the bid price would have been substantially lower had a larger quantum of this spectrum been available. Apart from the 60MHz spectrum, an additional 15MHz is available though it is unpaired.

**Figure 5. 3G spectrum (2100MHz) details**

	Number of slots auctioned	Total allocated (MHz)	Total available – NFAP (MHz)	Balance available (MHz)
Delhi	4	20	60	40
Mumbai	4	20	60	40
AP	4	20	60	40
Maharashtra	4	20	60	40
Gujarat	4	20	60	40
TN	4	20	60	40
Karnataka	4	20	60	40
Kolkata	4	20	60	40
WB	5	25	60	35
Haryana	4	20	60	40
Kerala	4	20	60	40
MP	4	20	60	40
Punjab	5	25	60	35
Rajasthan	4	20	60	40
UP (E)	4	20	60	40
UP (W)	4	20	60	40
Assam	4	20	60	40
Bihar	5	25	60	35
HP	5	25	60	35
J&K	5	25	60	35
Orissa	4	20	60	40
NE	4	20	60	40

Source: Citi Investment Research and Analysis, DoT

Surprisingly, the largest quantum of spectrum set aside has been for BWA - 520MHz out of which 100MHz is in the 2300MHz band. The BWA auction that had occurred last year (once again saw heavy bidding) was in the 2300MHz band for three slots of spectrum, leaving aside a potential 40MHz for future allocation.

**Figure 6. BWA spectrum (2300MHz) details**

	Number of slots auctioned	Total allocated (MHz)	Total available - NFAP (MHz)	Balance available (MHz)
Delhi	3	60	100	40
Mumbai	3	60	100	40
Maharashtra	3	60	100	40
Gujarat	3	60	100	40
AP	3	60	100	40
Karnataka	3	60	100	40
TN	3	60	100	40
Kolkata	3	60	100	40
Kerala	3	60	100	40
Punjab	3	60	100	40
Haryana	3	60	100	40
UP (E)	3	60	100	40
UP (W)	3	60	100	40
Rajasthan	3	60	100	40
MP	3	60	100	40
WB	3	60	100	40
HP	3	60	100	40
Bihar	3	60	100	40
Orissa	3	60	100	40
Assam	3	60	100	40
NE	3	60	100	40
J&K	3	60	100	40

Source: Citi Investment Research and Analysis, DoT

While the optimistic scenario would be that the remaining spectrum held for non-commercial use (10MHz in 900, 20 in 1800, 40 in 2100, 40 in 2300MHz) will eventually be vacated and made available for private operators, we tend to believe that a more realistic scenario would be the vacation of spectrum held by DoT/Government entities and only some vacation by Defence. However, even this ensures enough spectrum for future allocation and has the potential to significantly reduce the “market value” of spectrum across various bands. The key point to note however is past vacation of spectrum has come with delays and the same trend is likely to persist for any future release as well.

### When is Defence likely to vacate spectrum?

**Some spectrum has already been vacated; further release is contingent upon completion of the optic fibre network by BSNL.**

A fairly chunky quantum of spectrum has previously been allocated to Defence. The DoT has been trying to get all of it or at least some portion of it released to help alleviate the existing spectrum crunch, especially in 2G. The Ministry of Telecom and Defence signed a MoU in Oct-09 after a lengthy negotiation process, which proposed release of 25MHz of 3G and 20MHz of 2G spectrum.

Defence has up to now vacated 15MHz of spectrum each for 3G and 2G and the remaining spectrum release is contingent upon the completion of optical fibre network being built by BSNL. It is difficult to predict when this will be ready, given it has already been delayed. We believe that further delays cannot be ruled out.

Further release of spectrum (as and when) would help reduce the “market price” of spectrum – both for 2G as well as 3G.

**Figure 7. Timeline of events relating to spectrum release by Defence**

Jan-06	DoT considers allotting unutilized spectrum from Defence to telcos
Apr-06	DoT embarks on a Rs10bn project to lay optic fibre network for Defence to vacate ~45MHz (20 in 2G and 25 in 3G) to be laid by BSNL. Project expected to be completed in 3-4 months
May-06	Government sources indicate likely release of spectrum by Dec 2006
Sep-06	Defence establishment expected to vacate 45 MHz in Jan 2007
Nov-06	Defence informs DoT that the armed forces will need an additional year to vacate spectrum
May-07	Defence indicates that shifting to optic fibre network would require atleast 2 years and Rs40bn
Sep-07	BSNL completes 40% work on optic fibre network with the network completion expected in the next 6-8 months
Nov-07	DoT expects project to be completed by June 2008
Jan-08	Defence expected to vacate around 20MHz of spectrum by March
Feb-08	Defence may start releasing spectrum from June 2008 with the Air Force network getting completed
Feb-08	Vacation to begin by June 2008 and Defence expects it to take 2 years but should help vacate 60MHz of spectrum (2G & 3G)
Apr-08	DoT to auction 3G spectrum in 2 phases, this year and next, due to delays in freeing airwaves currently in use by Defence
Jun-08	MoU is expected between Defence and DoT to chart a roadmap for vacation of spectrum.
Jul-08	DoT negotiating for 25 MHz of spectrum, much less than earlier quantum of 42.5Mhz.
Aug-08	Defence could vacate part of spectrum by March 2009 paving the way for 3G auction
May-09	The DoT and Defence sign the MoU. As per the MoU, Defence will release 25 MHz of 3G and 20 MHz of 2G spectrum. Of this, it will immediately release 10 MHz of spectrum for 3G spectrum and 5 MHz for 2G
Aug-09	The Department of Space releases 40MHz for WiMax services in the 2.5GHz band
Oct-09	Defence to release the 20 MHz of spectrum it had committed only in June 2010 instead of December 09
May-10	Defence delays release of additional 10MHz spectrum by 4 months (June earlier)
Aug-10	The Telecom Ministry accepts armed forces demand to reserve 1 slot of wireless broadband spectrum
Sep-10	The Telecom Ministry to set aside a certain amount of spectrum in most bands for Defence as part of a 'Defence band' and the latter will vacate additional spectrum for commercial use
Mar-11	Defence has already released 15 MHz of 2G and 15 MHz of 3G spectrum
May-11	The OFC network to be set up BSNL for Defence is likely to get delayed

Source: Citi Investment Research and Analysis

Government intends to pursue refarming but we believe its focus will be on the Government agencies to make the additional spectrum available, as has been envisaged in the draft policy. Refarming of 900MHz looks difficult given limited quantity of spectrum is currently available in the 1800MHz band.

## Question #2 – Spectrum Refarming – How much of a reality?

There has been some concern raised by us (and the Street) on refarming of 900MHz spectrum. Implementation of spectrum refarming (900MHz) and allocation in the 1800MHz band would impact the incumbents through a combination of higher opex and capex, as it would require a denser network for similar coverage. Refarming of 900MHz spectrum was first raised by the TRAI in its May-10 recommendations.

Spectrum refarming now looks set to become a reality as it has been included in the draft National Telecom Policy. The policy has proposed enactment of a separate **Spectrum Act** to deal with “all issues connected with wireless (spectrum) licenses and their terms and conditions including *re-farming*/withdrawal of allotted spectrum, spectrum pricing, cancellation or revocation of spectrum license, exemptions on use of spectrum, spectrum sharing, spectrum trading etc.” The draft policy is essentially the broad intent of the Government and therefore we believe it would form part of the final policy as well.

The key question now is whether it will impact the GSM incumbents? We don't think so, for two reasons:

1. Refarming is likely to be a broad policy for all the various spectrum bands and will not just focus on the 900MHz band. The Street has been fixated on refarming of 900MHz spectrum and has therefore assumed the Spectrum Act and inclusion of refarming to imply a hit on the incumbents. However, the National Policy has envisaged making additional 300/200MHz spectrum available to the private operators by 2017/20 respectively. While some spectrum is already with the DoT, it will also need to make Government entities vacate some of the spectrum that had been previously allocated to them for non-commercial use. The DoT therefore needs a comprehensive refarming policy in order to make this additional spectrum available.
2. Even if the Government were to go ahead with refarming of 900MHz spectrum, it will be practically difficult given the limited quantity of additional 1800MHz available, some of which will also need to be set aside for future requirement. The table below shows that the DoT needs ~20MHz of spectrum in the 1800MHz band to go ahead with refarming. While cancellation of some licenses of the new entrants would help, we believe it will still not be enough.

Figure 8. Spectrum reformatting – Not enough spectrum is available in the 1800MHz band

	900MHz allocated	1800 MHz (available as per TRAI)	1800MHz (available as per NFAP)	Availability (as per TRAI)	Availability (as per NFAP)
Delhi	22.2	3.6	21.4	Not Available	Not Available
Mumbai	22.2	2.4	2.6	Not Available	Not Available
Maharashtra	20.2	0.0	5.6	Not Available	Not Available
Gujarat	20.2	0.0	14.6	Not Available	Not Available
AP	20.2	14.2	5.6	Not Available	Not Available
Karnataka	20.2	9.8	5.6	Not Available	Not Available
TN	21.2	20.0	8.0	Not Available	Not Available
Kolkata	19.9	18.0	14.6	Not Available	Not Available
Kerala	18.6	28.0	13.8	Available	Not Available
Punjab	22.2	0.0	11.8	Not Available	Not Available
Haryana	18.6	0.0	11.2	Not Available	Not Available
UP (E)	18.6	0.0	12.6	Not Available	Not Available
UP (W)	18.6	0.0	13.8	Not Available	Not Available
Rajasthan	18.6	0.0	11.2	Not Available	Not Available
MP	18.6	30.6	12.0	Available	Not Available
WB	19.4	4.4	22.0	Not Available	Available
HP	18.6	0.0	17.4	Not Available	Not Available
Bihar	18.6	-15.6	-11.8	Not Available	Not Available
Orissa	12.4	18.0	15.6	Available	Available
Assam	21.2	4.4	20.0	Not Available	Not Available
NE	19.4	4.4	21.8	Not Available	Available
J&K	18.6	0.0	25.6	Not Available	Available

Source: Citi Investment Research and Analysis, DoT, TRAI

As a result, we see only a limited probability of it being implemented. The DoT may charge a higher price for this spectrum (at the time of renewal) but this is anyways being built into our fair value for Bharti/Idea.

However, if one were to assume reformatting of 900Mhz spectrum, the estimated hit on Bharti/Idea would be Rs26/16/share respectively.

### Question #3 – What is the “market” value of spectrum?

Various estimates of the market value of spectrum have been put forward in the last two years. The actual price could be lower if more spectrum becomes available.

While the draft telecom policy has been silent on excess spectrum charges and license renewals, we believe that the final policy is likely to include both, given 1) the ongoing 2G spectrum controversy and 2) the Government’s desire to reduce the fiscal deficit.

The challenge is to estimate the “market” value of spectrum in absence of auction (not possible given enough quantity is not available). Thus far, three pricing schemes have been put forward. These include:

- The May 2009 TRAI recommendations that suggested pegging 2G spectrum value to prices discovered in the 3G auctions
- More recent TRAI recommendation published in Feb 2011
- 2G spectrum = 1/3 \* 3G Spectrum price (discovered in 3G auctions). The underlying assumption here is that 3G spectrum is three times as much efficient as 2G spectrum. This was highlighted by the Telecom Minister in a press conference.

Since there is no clarity as to which methodology (if any of these) will finally be selected, we arrive at spectrum price by averaging the prices obtained for the above three schemes. In addition, we assume 900MHz value to be 1.5x the value of 1800Mhz band. The actual value could however be lower than this:

1. **M&A** – Sector consolidation could reduce the market value of spectrum as new entrants, bleeding from network roll-out, will be desperate to sell out.
2. **Vacation of spectrum by Government entities** – Spectrum, which is currently with Government entities for non-commercial uses, if vacated, would help increase total availability and potentially reduce the value.

**Figure 9. Circle-wise 2G spectrum (Rs m/MHz)**

Rs m	May-09 TRAI Recommendations	Feb-11 TRAI Recommendations	1/3 * 3G Price	Avg. Price/ MHz
Delhi	5,021	2,497	1,674	3,064
Mumbai	5,116	1,573	1,705	2,798
Kolkata	808	476	269	518
Maharashtra	2,346	3,745	782	2,291
Gujarat	2,089	3,554	696	2,113
AP	2,342	4,320	781	2,481
Karnataka	2,918	3,459	973	2,450
TN inc Chennai	2,706	4,261	902	2,623
Kerala	555	2,322	185	1,020
Punjab	406	1,806	135	782
Haryana	450	1,079	150	559
UP W	826	2,526	275	1,209
UP E	592	3,188	197	1,326
Rajasthan	548	2,788	183	1,173
MP	522	2,545	174	1,080
WB	250	2,170	83	834
HP	61	281	20	121
Bihar	281	1,537	94	637
Orissa	85	733	28	282
Assam	69	313	23	135
NE	70	320	23	137
J&K	61	229	20	104

Source: Citi Investment Research and Analysis

### Excess spectrum charges

**Rs24.8bn and Rs9.2bn hit on Bharti/Idea respectively**

We arrive at a value of Rs24.8bn and Rs9.2bn (for excess spectrum charges) for Bharti and Idea, imputing per share hits of Rs7 and Rs3, respectively.

### License renewal – Idea impacted more than Bharti

Using the same assumptions for spectrum pricing as above, we arrive at Rs100.1bn and Rs71.7bn hits for Bharti and Idea respectively for spectrum renewals. Since these licenses are coming up for renewal in 2014-15, we discount them to arrive at our Rs17/Rs14 per share impacts for Bharti and Idea.



Figure 10. Hit on license renewal would be higher for Idea

	Circles	Date of license issue
<b>Bharti</b>	Delhi	Nov-94
	Kolkata	Nov-94
	AP	Dec-95
	Karnataka	Feb-96
	TN incl. Chennai	Nov-95
	Punjab	Dec-95
	Rajasthan	Apr-96
	HP	Dec-95
<b>Idea</b>	Maharashtra	Dec-95
	Gujarat	Dec-95
	AP	Dec-95
	Karnataka	Apr-96
	Kerala	Dec-95
	Punjab	Apr-96
	Haryana	Dec-95
	UP W	Dec-95
	MP	Dec-95

Source: TRAI

Figure 11. License renewal calculation

Rs m	As per TRAI	As per 3G	Assuming 3G is 3x more efficient than 2G spectrum	Average	NPV	Per share hit
Bharti	129,329	128,324	42,775	100,142	65,967	17
Idea	95,588	89,726	29,909	71,741	47,258	14

Source: Citi Investment Research and Analysis, TRAI

Final policy should be out by Dec but will still be a framework and the various measures will get finalized only over a period of time.

Impact should be muted as implementation is likely to be staggered giving operators time to modify their tariff structure.

## Question #4 – Timeline of National Telecom Policy

- When will the final policy be released?** – Dec end deadline looks achievable. TRAI recommendations on spectrum and M&A, which will form part of the final policy, should be finalized in the next two or three months.
- Will it be the final document?** – No, the policy will be framework and provide for building blocks for new measures to be implemented over a period of time. The Telecom secretary has explicitly mentioned that the Government will decide on the issues over the next six months.

## Question #5 – Roaming charges – Timeline and impact

The draft telecom policy has proposed review of the existing roaming charges with the ultimate objective of removing them. Implementation of this carries downside risk – EBITDA hit of 3/7% for Bharti/Idea assuming immediate implementation. However, the timeline for this is likely to be stretched as the DoT will have to ask the TRAI for its recommendations before taking a final decision. TRAI in turn will also need to initiate a consultative process. We believe the actual hit on the operators' bottom line will be muted, given:

- The removal of roaming charges is likely to be done in phases as opposed to a one-shot removal – which will give operators time to modify their tariff structures.

- Besides, the operators could introduce rental/distance-based tariff structures which could help offset some of the impact from the roaming cut.

Figure 12. Impact of removal of roaming charges (assuming implementation in FY13E)

Rs m	Bharti	Idea	Comment
Wireless revs	470,650	226,056	
Domestic roaming revs	18,826	9,042	4% of revenues
Incoming rev	3,765	1,206	20% of total minutes; will be eliminated except termination charges from off-net calls
Outgoing rev	15,061	7,837	Hit to the tune of difference between local tariffs and roaming charges
<b>Roaming revenues hit</b>	<b>12,425</b>	<b>5,787</b>	
% of revenues	2.6%	2.6%	
<b>EBITDA impact</b>	<b>9,464</b>	<b>4,321</b>	Net of carriage and license fees
% of Wireless EBITDA	5.3%	7.3%	
% of reported EBITDA	3.1%	7.3%	

Source: Citi Investment Research and Analysis

## Question #6 M&A – What are the roadblocks to consolidation?

Roadblocks as per TRAI's May 10 recommendations exist but the Telecom Minister has been quite vocal on facilitating sector consolidation.

TRAI, in its May 10 recommendations, placed some stiff conditions for M&A:

- AGR or total subscriber market share (as per VLR) should not be greater than 30% of the merged entity
- The total spectrum held by the post merger entity should not exceed 14.4 MHz
- A spectrum transfer charge at 5% of the difference between the transaction price and the total "current price" should be charged.

We have included some scenarios to highlight where the potential roadblocks exist:

- Spectrum** – Should not be a constraint. A merger scenario that includes a GSM incumbent and a new entrant will not face any issues with respect to the 14.4MHz cap. Even a merger between two incumbents, i.e. Idea and Aircel, would be possible.
- Cap on market share (AGR or VLR sub based)** – TRAI's recommendations on capping the merged entity's market share at 30% will be a roadblock if it were to be accepted. The issue is not so much of the resultant entity's market share overshooting beyond 30%. GSM incumbents, in some of their circles, already have market share beyond 30% (AGR and/or sub). The DoT in their final consideration will need to address this issue in order to facilitate any M&A.
- Spectrum transfer charge** – This will be charged as the difference between the transaction price and the "current price". There have been concerns raised on the definition of the current price – whether it relates to the Rs16.5bn for a pan-India license + spectrum which the new entrants had paid or if it will be the "market price" of the spectrum. Given that the M&A activity will primarily involve the new entrants who are currently bleeding and desperate to sell out, we don't expect the transaction price to go very high and, as such, don't believe payment of a spectrum transfer charge will become a constraint. Besides the acquirer can anyways deduct this from his perceived value. We however do expect the DoT to impose some transfer charge.

*The telecom minister has made his intentions clear to facilitate M&A. Therefore, we believe that the policy is not likely to contain any conditions which will act as a deterrent to this.*

Figure 13. Market share based on adjusted gross revenue

	Adjusted gross revenue market share					M&A scenarios		
	Idea	Bharti	Vodafone	Aircel	Uninor	Idea + Uninor	Aircel + Uninor	Idea + Aircel
Delhi	8.7%	<b>38.4%</b>	24.7%	2.4%	0.0%	Possible	Possible	Possible
Mumbai	5.5%	18.9%	29.6%	1.9%	1.1%	Possible	Possible	Possible
Kolkata	1.8%	25.6%	<b>30.9%</b>	4.2%	2.6%	Possible	Possible	Possible
Maharashtra	<b>31.9%</b>	18.5%	23.2%	0.8%	1.6%	<b>Not Possible</b>	Possible	<b>Not Possible</b>
Gujarat	18.4%	16.1%	<b>43.0%</b>	0.0%	2.1%	Possible	Possible	Possible
AP	16.9%	41.5%	9.7%	1.2%	1.4%	Possible	Possible	Possible
Karnataka	7.7%	48.1%	11.5%	1.2%	0.8%	Possible	Possible	Possible
TN	0.7%	<b>31.1%</b>	22.1%	23.5%	0.7%	Possible	Possible	Possible
Kerala	<b>34.0%</b>	15.5%	21.7%	1.9%	0.5%	<b>Not Possible</b>	Possible	<b>Not Possible</b>
Punjab	20.5%	37.3%	15.8%	0.0%	0.0%	Possible	Possible	Possible
Haryana	21.3%	17.8%	27.8%	-1.2%	0.0%	Possible	Possible	Possible
UP (W)	28.7%	16.0%	23.5%	2.3%	4.2%	<b>Not Possible</b>	Possible	<b>Not Possible</b>
UP (E)	11.2%	29.7%	<b>30.8%</b>	1.6%	4.6%	Possible	Possible	Possible
Rajasthan	9.2%	<b>51.7%</b>	23.8%	-0.1%	0.0%	Possible	Possible	Possible
MP	<b>34.3%</b>	28.7%	3.6%	0.0%	0.0%	<b>Not Possible</b>	Possible	<b>Not Possible</b>
WB	2.4%	25.8%	<b>38.7%</b>	4.6%	3.3%	Possible	Possible	Possible
HP	4.4%	<b>40.2%</b>	5.6%	7.7%	0.0%	Possible	Possible	Possible
Bihar	8.4%	<b>47.7%</b>	10.1%	4.8%	2.6%	Possible	Possible	Possible
Orissa	1.9%	<b>38.1%</b>	9.3%	7.8%	1.6%	Possible	Possible	Possible
Assam	1.4%	<b>33.9%</b>	11.1%	27.1%	0.0%	Possible	Possible	Possible
NE	1.7%	<b>36.1%</b>	9.0%	29.1%	0.0%	Possible	Possible	<b>Not Possible</b>
J&K	1.2%	<b>39.7%</b>	5.5%	30.1%	0.0%	Possible	<b>Not Possible</b>	<b>Not Possible</b>

Source: Citi Investment Research and Analysis

Figure 14. Spectrum allocation

	Spectrum allotted (MHz)					M&A scenarios			
	Idea	Bharti	Vodafone	Aircel	New entrant	New Entrant + Idea	New Entrant + Bharti	New Entrant + Vodafone	Aircel + Idea
Delhi	8.0	10	10	4.4	4.4	Possible	Possible	Possible	Possible
Mumbai	4.4	9.2	10	4.4	4.4	Possible	Possible	Possible	Possible
Kolkata	4.4	8.0	8	4.4	4.4	Possible	Possible	Possible	Possible
Maharashtra	9.8	8.2	9.8	4.4	4.4	Possible	Possible	Possible	Possible
Gujarat	6.2	6.2	6.2	4.4	4.4	Possible	Possible	Possible	Possible
AP	8.0	10.0	9.8	4.4	4.4	Possible	Possible	Possible	Possible
Karnataka	6.2	10.0	6.2	4.4	4.4	Possible	Possible	Possible	Possible
TN inc Chennai	4.4	9.2	8.0	9.0	4.4	Possible	Possible	Possible	Possible
Kerala	8.0	6.2	7.2	4.4	4.4	Possible	Possible	Possible	Possible
Punjab	7.8	7.8	6.2	4.4	4.4	Possible	Possible	Possible	Possible
Haryana	6.2	6.2	6.2	4.4	4.4	Possible	Possible	Possible	Possible
UP W	8.0	6.2	6.2	4.4	4.4	Possible	Possible	Possible	Possible
UP E	6.2	7.2	6.2	4.4	4.4	Possible	Possible	Possible	Possible
Rajasthan	6.2	8.2	8.2	4.4	4.4	Possible	Possible	Possible	Possible
MP	8.0	8.0	6.2	4.4	4.4	Possible	Possible	Possible	Possible
WB	4.4	6.2	4.4	4.4	4.4	Possible	Possible	Possible	Possible
HP	4.4	6.2	6.2	4.4	4.4	Possible	Possible	Possible	Possible
Bihar	4.4	9.2	4.4	4.4	4.4	Possible	Possible	Possible	Possible
Orissa	4.4	8.0	4.4	4.4	4.4	Possible	Possible	Possible	Possible
Assam	4.4	6.2	4.4	6.2	4.4	Possible	Possible	Possible	Possible
NE	4.4	6.2	4.4	4.4	4.4	Possible	Possible	Possible	Possible
J&K	4.4	8.0	4.4	4.4	4.4	Possible	Possible	Possible	Possible

Source: Citi Investment Research and Analysis

Figure 15. VLR-based sub market share

	VLR based sub market share						M&A scenarios			
	Bharti	Idea	Vodafone	Aircel	Uninor	RCOM	New Entrant + Bharti	New Entrant + Idea	New Entrant + Vodafone	Aircel + Idea
AP	35%	17%	9%	2%	3%	11%	Not Possible	Possible	Possible	Possible
Assam	30%	2%	15%	27%	0%	16%	Not Possible	Possible	Possible	Possible
Bihar	37%	10%	12%	5%	5%	14%	Not Possible	Possible	Possible	Possible
Delhi	23%	13%	24%	5%	0%	22%	Possible	Possible	Possible	Possible
Gujarat	16%	18%	34%	2%	4%	14%	Possible	Possible	Not Possible	Possible
HP	32%	8%	7%	8%	0%	19%	Not Possible	Possible	Possible	Possible
Haryana	14%	20%	26%	1%	0%	16%	Possible	Possible	Possible	Possible
J&K	38%	3%	9%	30%	0%	7%	Not Possible	Possible	Possible	Not Possible
Karnataka	37%	11%	12%	2%	2%	14%	Not Possible	Possible	Possible	Possible
Kerala	13%	29%	20%	4%	1%	11%	Possible	Possible	Possible	Not Possible
Kolkata	21%	5%	23%	6%	5%	22%	Possible	Possible	Possible	Possible
MP	23%	33%	6%	1%	0%	21%	Possible	Not Possible	Possible	Not Possible
Maharashtra	17%	27%	21%	1%	3%	13%	Possible	Not Possible	Possible	Possible
Mumbai	14%	9%	21%	3%	3%	27%	Possible	Possible	Possible	Possible
NE	30%	29%	12%	34%	0%	8%	Possible	Possible	Possible	Not Possible
Orissa	33%	3%	12%	8%	3%	16%	Not Possible	Possible	Possible	Possible
Punjab	29%	20%	17%	2%	0%	13%	Possible	Possible	Possible	Possible
Rajasthan	36%	10%	21%	3%	0%	14%	Not Possible	Possible	Possible	Possible
TN	24%	3%	22%	20%	2%	12%	Possible	Possible	Possible	Possible
UP (E)	26%	12%	25%	3%	7%	16%	Not Possible	Possible	Not Possible	Possible
UP (W)	14%	25%	23%	3%	6%	17%	Possible	Not Possible	Possible	Possible
WB	24%	4%	33%	5%	5%	16%	Possible	Possible	Not Possible	Possible

Source: Citi Investment Research and Analysis

## Question #7 – Impact of uniform license fees at 8.5%?

Minimal impact as operators are in any case currently paying ~8.5% as license fees

TRAI, as part of its May 10 recommendations, had proposed shifting to a uniform license fee of 6% in a phase manner (until 2014) besides giving additional benefit of a 2% cut (from 2012) post meeting coverage requirement (90% in areas with 500-2000 population). This would have translated into a ~3% cumulative margin benefit at the EBITDA level.

Figure 16. Proposed license fees (May-10 recommendations)

Circles	2010-11	2011-12	2012-13	2013-14
Metro	10%	9%	8%	6%
Category 'A'	9%	8%	7%	6%
Category 'B'	7%	6%	6%	6%
Category 'C'	6%	6%	6%	6%

Source: TRAI

However, DoT has now decided to migrate to uniform license fees at 8.5% of AGR instead. While a sentiment negative, this will not come with any incremental cash outflows for the operators, given the frontline operators (Bharti, Idea, Voda, RCOM) are in any case (for their wireless business) currently paying ~8.5% of AGR as license fees. There would be some impact on NLD/ILD, which currently pay 6% of AGR as license fees but this impact should be negligible (as seen in the Figure below).

Figure 17. Negligible impact of migration to uniform license fees at 8.5% (1QFY12 revenues)

Rs m	Wireless			NLD	ISD	ISP	ILD/NLD/ISP		License fees	Impact	
	AGR	License fees	% of revenue	AGR	AGR	AGR	License fees	% of AGR	@8.5%	EBITDA	%
Idea	33,547	2,974	8.9%	3,829	108		236	6%	3,186	(24)	0%
Vodafone	50,373	4,565	9.1%	7,571	771		500	6%	4,991	(75)	0%
Bharti	75,598	6,607	8.7%	14,809	856	74	944	6%	7,764	212	0%
RCOM	18,594	1,615	8.7%	6,204	390		396	6%	2,141	131	0%

Source: Citi Investment Research and Analysis, TRAI

## #8 3G roaming – Will the DoT take action against the incumbents?

**No action likely till the formulation of new policy, which is likely to allow spectrum sharing and MVNOs.**

TRAI has written to the DoT to say that 3G roaming services offered by five operators - Bharti, Vodafone, Tata Tele, Aircel and Idea Cellular in those circles where they do not have 3G spectrum - are illegal. As per TRAI, the amendments in the UASL licenses have been carried out only for those licenses that have been allocated 3G spectrum in those winning circles. As such, the authority is of the opinion that only those service providers are authorized to provide 3G services. In addition, as per media reports, an internal note has stated that the 3G roaming agreements are tantamount to being a MVNO, which is not allowed under the current policy.

We believe that the DoT is unlikely to take any adverse action against these operators, given the new telecom policy is likely to include both spectrum sharing as well as allow MVNOs. However 3G roaming is not likely to become a widespread phenomenon due to the inherent spectrum scarcity. Our channel checks indicate that the current capacity utilisation of 3G networks is <5% and as such it currently makes sense for the operators to open their networks to other operators (given the large payments made during the auction). As these networks start to fill up, we believe that these roaming arrangements will start to be withdrawn.

## #9 Tariff increase – How much more upside?

**Further headline increase fraught with political/regulatory risk. Operators likely to focus on managing network utilisation – helps rev/min and margins.**

The subscriber base has matured over the last two years and started to focus on network coverage/quality, even if it means paying higher tariff versus the previous trend when subscribers were simply running behind the cheapest offer (prevalent during the time of new launches). Incumbents have started to cash in on their deeper coverage and have increased tariffs, reduced discounted mins (supports rev/min) and lowered channel commissions (supports margins).

Bharti was the first operator to hike tariffs on net prepaid tariffs by 20% (1p to 1.2p) in late July, which was immediately followed up by Idea and Vodafone. RCOM too subsequently hiked tariffs. Apart from the headline increase, operators have also reduced talk time on recharge vouchers.

GSM incumbents (Bharti, Idea and Vodafone) have seen a sustained rise in minutes consumed in the last 5-6 quarters. We believe this has led to a sharp increase in capacity utilisation. Our channel checks indicate that the incumbents' networks are currently running at 80-85% utilisation. We therefore believe that, while pricing power has been one key reason for the incumbents to hike tariffs, high utilisation and the need to expand capacity to handle the rising usage at a time when the leverage level of all operators is relatively high too has been a factor.

From a strategic perspective, Bharti (and other incumbents) would like the market equilibrium of higher tariffs and lower MoUs given the increased sub sophistication (read higher tariffs should not result in traffic migration) and high capacity utilisation. This would help them spend less on capex (to expand capacity, bid for additional 2G spectrum as and when it becomes available) and also keep the 3G spectrum relatively free for data (rather than utilize it for voice). The new entrants, along with RCOM/DoCoMo, would likely toe the line, given they are hurting from sub-optimal network utilisation.

The key question now is how long can the hikes sustain. While operators will benefit from this hike over the next six to nine months as subscribers gradually migrate to the new structure (as their existing schemes expire), rapid rise in rev/min beyond from headline increases is likely to be difficult as it is fraught with political/regulatory risk. The operators, in our opinion, will focus more on reducing discounted mins in order to manage the utilisation level, which would also support rev/min.

Figure 18. Operators have reduced talk time in the last two months (UP)

Coupon denomination (Rs)	Previous talk time	New talk time	Decline in volumes
15	11	10	-9.1%
25	20	19	-5.0%
50	41	40	-2.4%
100	86	85	-1.2%

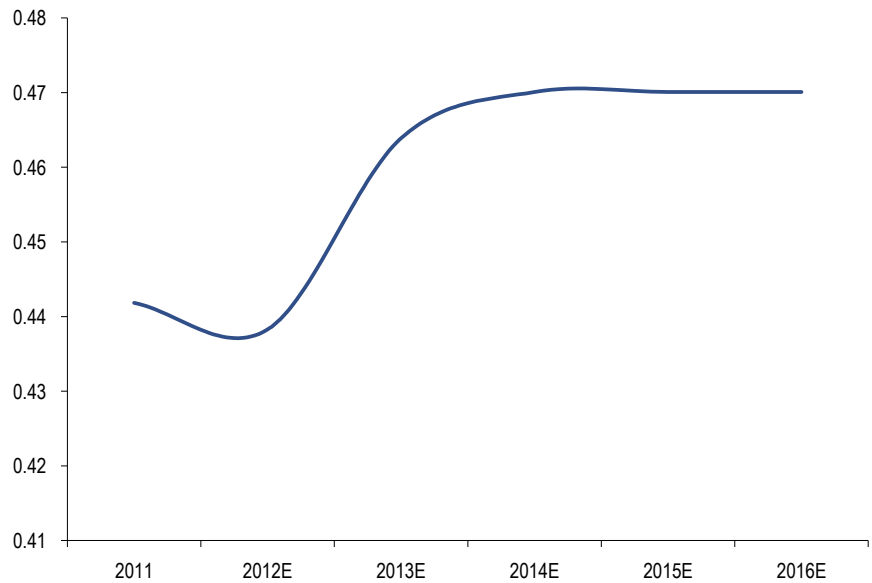
Source: Citi Investment Research and Analysis

Figure 19. Tariff and voucher changes by Bharti in the last 2 months

	On-net rates		Off-net rates		Prepaid Recharge Packs					
	Earlier	Now	Earlier	Now	Rs10		Rs30		Rs50	
Delhi	1p/ sec	1.2p/ sec	1.2p/ sec	1.2 p/ sec	NA	Rs 9 (1 day validity)	NA	Rs 24	NA	Rs42, 10 free night mins for on-net calls (local/ STD)
Mumbai	1p/ sec – Unchanged		1p/ sec – Unchanged		Rs7	Rs6	Rs24	Rs23, 10 on-net mins	NA	100 mins
Kolkata	1p/ sec	1.2 p/ sec	1 p/ sec	1.2 p/ sec (mobile), 1.5p/ sec (landline)	Rs7, 10 free SMSs	Rs6, 20 free SMSs	Rs24	Rs30	Rs42	Rs42
Maharashtra	1p/ sec	1.2 p/ sec	1 p/ sec	1.2 p/ sec	NA	R 6	NA	Rs24, 3 free night local mins	NA	100 local mins, 100 STD mins,
Karnataka	1p/ sec	1.2 p/ sec	1 p/ sec	1.2 p/ sec	Rs7	Rs6	R 24	Rs22	Rs41	Rs 40
TN inc Chennai	1 p/ sec	1.2p/ sec	1.2p/sec	1.2p/sec	NA	Rs6, 10 free SMSs	NA	Rs21, 30 free sms	NA	Rs 38, 45 free sms, 2 mins of STD
Kerala	1p/ sec	1.2 p/ sec	1 p/ sec	1.2 p/ sec	Rs6, 10 on-net local/ STD mins	Rs6, 10 SMSs	Rs23	Rs21, 10 SMSs	NA	Rs40
Rajasthan	1p/ sec	1p/ sec	1 p/ sec	1.2p/sec	Rs6	Rs6	Rs23	Rs23	NA	NA
WB	1p/ sec	1.2 p/ sec	1.2 p/ sec	1.2 p/ sec	Rs6, 10 free SMSs	Rs6, 10 free SMSs	Rs24, 10 free SMSs	Rs24, 10 free SMSs	Rs42, 10 free SMSs	Rs42, 10 free SMSs
Orissa	1p/ sec	1.2 p/ sec	1p/ sec	1.2 p/ sec	Rs6.7	Rs6	Rs26	Rs 26	Rs43, 7 free on-net mins	Rs43, 7 free on-net mins

Source: Citi Investment Research and Analysis

Figure 20. Rev/min (Rs) – Sharp up-tick on tariff hikes; should stabilize in next 9-12 months (Idea)



Source: Citi Investment Research and Analysis

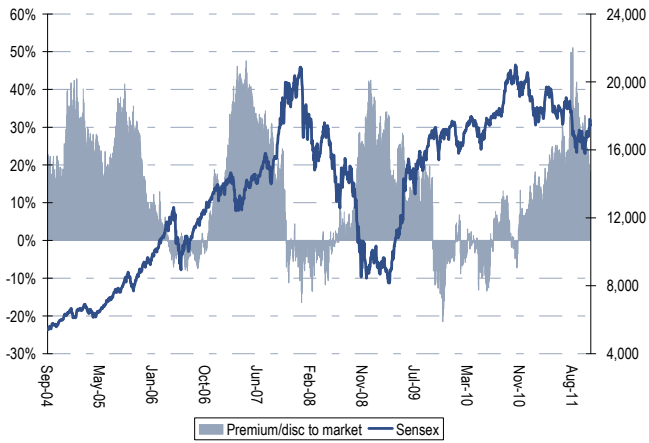
Valuations have come off; top-line growth should revive in 3Q with the seasonal pick-up in mins.

### Question #10 – Will telecom stocks go up, and in what order of preference?

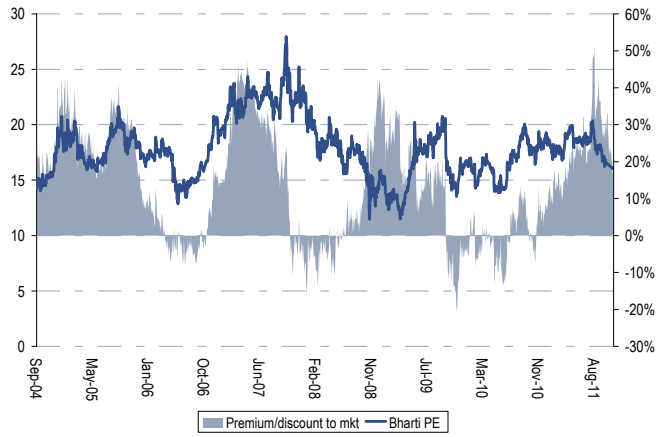
Yes. Valuations of both Bharti and Idea have come off in the last one to two months. Bharti's premium to the market has fallen to 18% (high of 40%) and Idea's premium to Bharti has also come down to 9% (from 15% at the beginning of Oct). The fall has come primarily due to 1) market movement (defensive), 2) FX concerns and 3) 2Q being seasonally slow. However, we believe that 1) concerns on FX are overstated (one-time, non-cash and back-ended) and 2) top-line growth should revive in 3Q with the seasonal pick-up in the mins growth. Besides, the rev/min should also continue to inch up as existing subs shift to the higher tariff structure (as their existing schemes end) and operators keep reducing discounted mins (helps rev/min and manage capacity utilization – already high at 80-85%).

Idea currently trades at a 9% premium to Bharti (on 1 yr forward EV/EBITDA). We believe it deserves a larger premium, given faster growth and cleaner play. Our order of preference is Idea, followed by Bharti and RCOM (which trades below asset value).

Figure 21. Bharti's P/E to market has come down – mix of being defensive as well as FX concerns



Source: Citi Investment Research and Analysis



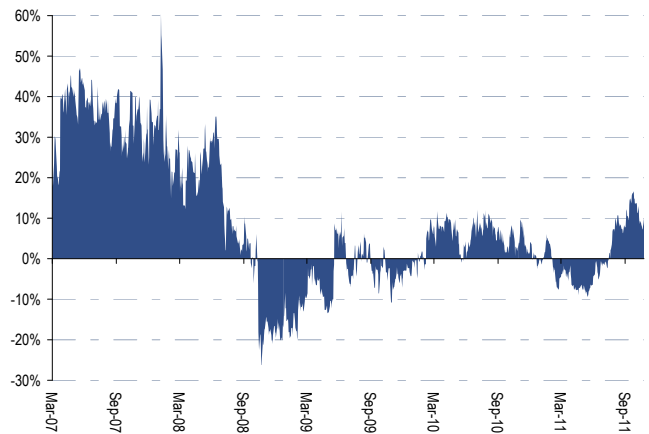
Source: Citi Investment Research and Analysis

Figure 22. Idea's EV/EBITDA



Source: Citi Investment Research and Analysis

Figure 23. Idea's premium to Bharti has come off slightly after muted results



Source: Citi Investment Research and Analysis



# Appendix A-1

## Analyst Certification

The research analyst(s) primarily responsible for the preparation and content of this research report are named in bold text in the author block at the front of the product except for those sections where an analyst's name appears in bold alongside content which is attributable to that analyst. Each of these analyst(s) certify, with respect to the section(s) of the report for which they are responsible, that the views expressed therein accurately reflect their personal views about each issuer and security referenced and were prepared in an independent manner, including with respect to Citigroup Global Markets Inc and its affiliates. No part of the research analyst's compensation was, is, or will be, directly or indirectly, related to the specific recommendation(s) or view(s) expressed by that research analyst in this report.

### IMPORTANT DISCLOSURES

#### Bharti Airtel (BRTI.BO)

##### Ratings and Target Price History

##### Fundamental Research

Analyst: Gaurav Malhotra, CFA  
Covered since June 18 2010

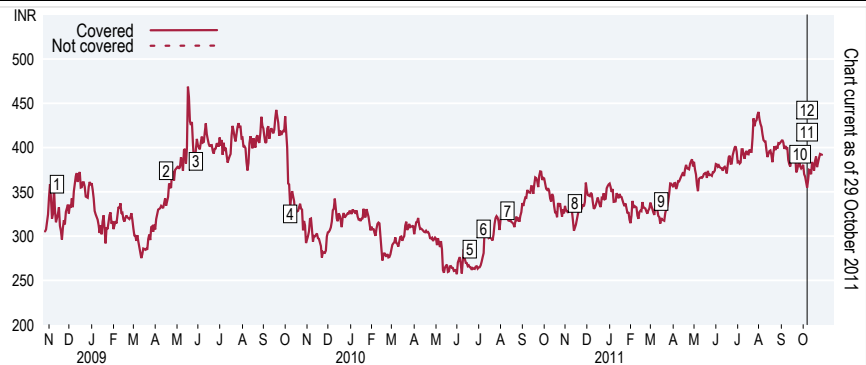


Chart current as of 29 October 2011

	Date	Rating	Target Price	Closing Price
1	13-Nov-08	1L	*450.00	315.63
2	16-Apr-09	1L	*420.00	334.38
3	28-May-09	1L	*465.00	397.60
4	8-Oct-09	*2L	*370.00	334.65

	Date	Rating	Target Price	Closing Price
5	18-Jun-10	2L	*303.00	264.85
6	8-Jul-10	2L	*300.00	280.85
7	11-Aug-10	2L	*350.00	319.70
8	15-Nov-10	*1L	*400.00	309.50

	Date	Rating	Target Price	Closing Price
9	16-Mar-11	1L	*415.00	320.45
10	28-Sep-11	1L	*453.00	378.75
11	7-Oct-11	Stock rating system changed		
12	7-Oct-11	*1	453.00	354.80

\* Indicates change

Rating/target price changes above reflect Eastern Standard Time

#### Bharti Airtel (BRTI.BO)

##### Ratings and Target Price History

##### Best Ideas Research

##### Relative Call (3 Month)

Analyst: Gaurav Malhotra, CFA  
Covered since June 18 2010

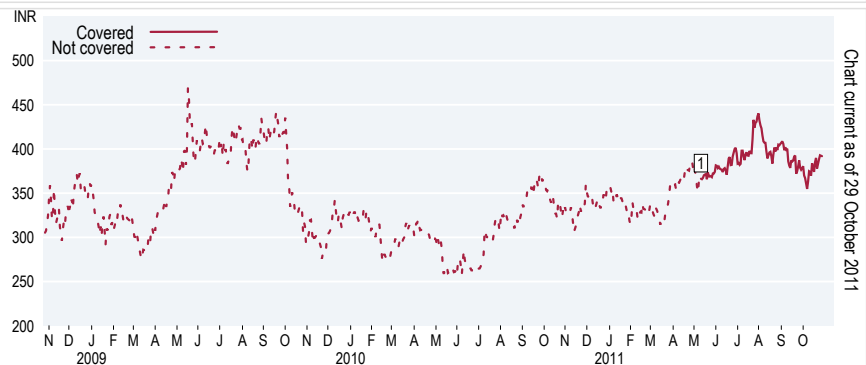


Chart current as of 29 October 2011

	Date	Rating	Target Price	Closing Price
1	11-May-11	*ADD MP	-	366.35

\* Indicates change

Rating/target price changes above reflect Eastern Standard Time

**IDEA Cellular (IDEA.BO)**  
Ratings and Target Price History  
Fundamental Research

Analyst: Gaurav Malhotra, CFA  
Covered since June 18 2010

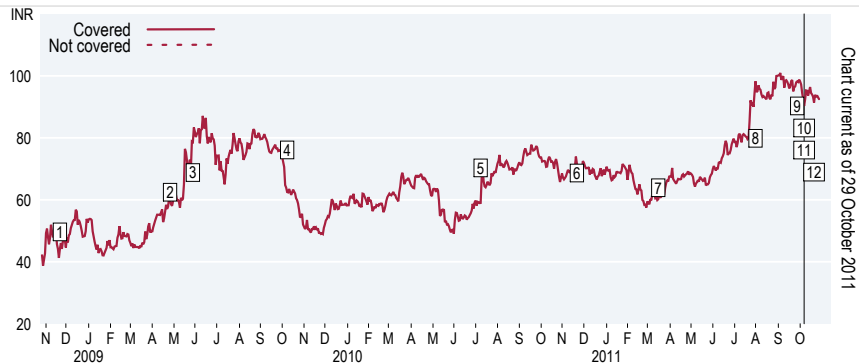


Chart current as of 29 October 2011

	Date	Rating	Target Price	Closing Price
1	21-Nov-08	*2H	*56.00	44.20
2	26-Apr-09	*2M	*67.00	60.55
3	28-May-09	*3M	*80.00	78.65
4	8-Oct-09	3M	*55.00	62.50

	Date	Rating	Target Price	Closing Price
5	8-Jul-10	3M	*50.00	59.00
6	22-Nov-10	3M	*72.00	71.65
7	16-Mar-11	*1M	*79.00	60.20
8	31-Jul-11	*1L	*105.00	94.35

	Date	Rating	Target Price	Closing Price
9	28-Sep-11	1L	*120.00	98.20
10	7-Oct-11	Stock rating system changed		
11	7-Oct-11	*1	120.00	90.30
12	21-Oct-11	1	*118.00	91.40

\* Indicates change

Rating/target price changes above reflect Eastern Standard Time

**IDEA Cellular (IDEA.BO)**  
Ratings and Target Price History  
Best Ideas Research  
Relative Call (3 Month)

Analyst: Gaurav Malhotra, CFA  
Covered since June 18 2010

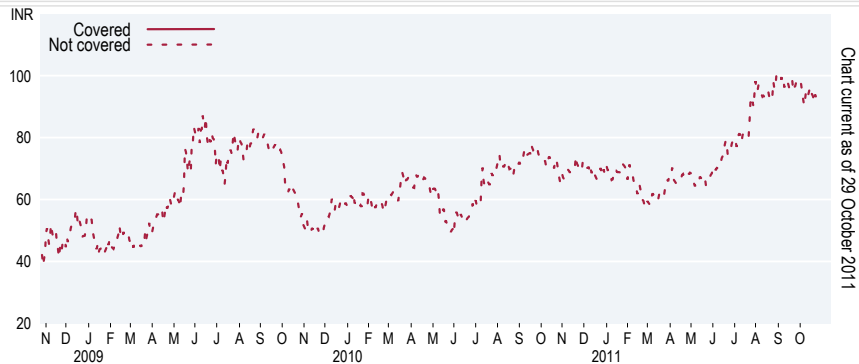


Chart current as of 29 October 2011

\* Indicates change

Rating/target price changes above reflect Eastern Standard Time

**Reliance Communications (RLCM.BO)**  
Ratings and Target Price History  
Fundamental Research

Analyst: Gaurav Malhotra, CFA  
Covered since June 18 2010



Chart current as of 29 October 2011

	Date	Rating	Target Price	Closing Price
1	2-Nov-08	*2H	*270.00	220.70
2	26-Jan-09	*3H	*150.00	160.15
3	30-Apr-09	3H	*190.00	214.95
4	28-May-09	3H	*270.00	297.35

	Date	Rating	Target Price	Closing Price
5	2-Aug-09	*2M	*310.00	275.65
6	8-Oct-09	*3M	*210.00	246.30
7	12-Dec-09	3M	*160.00	183.65
8	8-Jul-10	3M	*165.00	187.95

	Date	Rating	Target Price	Closing Price
9	22-Nov-10	3M	*155.00	149.30
10	16-Mar-11	*1H	*127.00	102.95
11	16-Aug-11	1H	*117.00	77.40
12	7-Oct-11	Stock rating system changed		

\* Indicates change

Rating/target price changes above reflect Eastern Standard Time

**Reliance Communications  
(RLCM.BO)**

**Ratings and Target Price History**

**Best Ideas Research**

**Relative Call (3 Month)**

Analyst: Gaurav Malhotra, CFA

Covered since June 18 2010

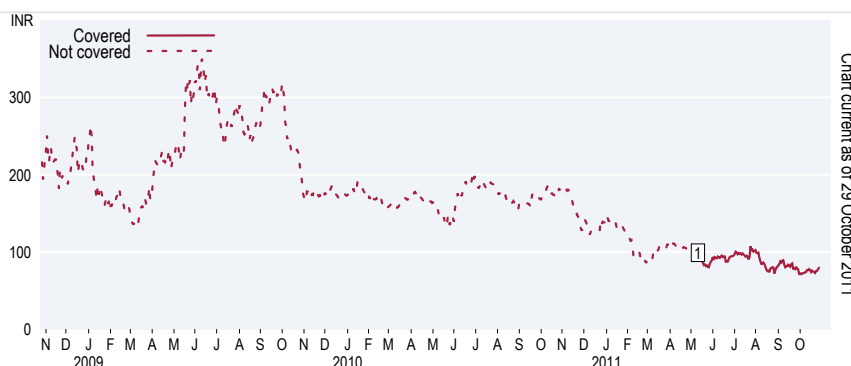


Chart current as of 29 October 2011

Date	Rating	Target Price	Closing Price
11-May-11	*ADD LP	-	91.55

\* Indicates change

Rating/target price changes above reflect Eastern Standard Time

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	45%	42%	37%	50%	43%	46%

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