



INDIA



Stocks mentioned in the report

| Company | Bberg Ticker | Rec | Price (Rs) | TP (Rs) | Change (%) |
|---------|--------------|-----|------------|---------|------------|
| Bharti | BHARTI | UP | 275 | 280 | 2% |
| RCOM | RCOM | UP | 172 | 160 | -7% |
| Idea | IDEA | UP | 54 | 35 | -36% |
| MTNL | MTNL | UP | 53 | 47 | -12% |
| TCOM | TCOM | UP | 247 | 247 | 0% |
| RIL | RIL | OP | 1,046 | 1,293 | 22% |

Note: Prices as of 11 June 2010

Source: Bloomberg, Macquarie Research, June 2010

Investment fundamentals – Bharti Standalone India business

| | 2010A | 2011E | 2012E |
|----------------------|-------|-------|-------|
| Total revenue (Rsbn) | 396.2 | 600.6 | 662.5 |
| EBITDA (Rsbn) | 159.3 | 231.8 | 266.9 |
| PER adj (x) | 11.6 | 17.6 | 13.9 |
| EV/EBITDA (x) | 6.4 | 4.4 | 3.8 |

Investment fundamentals – RCOM

| | 2010A | 2011E | 2012E |
|----------------------|-------|-------|-------|
| Total revenue (Rsbn) | 235.9 | 276.6 | 313.7 |
| EBITDA (Rsbn) | 86.3 | 100.0 | 116.3 |
| PER adj (x) | 9.8 | 8.3 | 6.7 |
| EV/EBITDA (x) | 6.7 | 5.8 | 5.0 |

Investment fundamentals – Idea

| | 2010A | 2011E | 2012E |
|----------------------|-------|-------|-------|
| Total revenue (Rsbn) | 118.0 | 135.3 | 152.6 |
| EBITDA (Rsbn) | 34.6 | 43.2 | 51.1 |
| PER adj (x) | 22.2 | 91.0 | 28.0 |
| EV/EBITDA (x) | 6.3 | 5.1 | 4.3 |

Investment fundamentals – MTNL

| | 2010A | 2011E | 2012E |
|---------------------|--------|--------|--------|
| Total revenue (Rsm) | 37,481 | 34,772 | 34,900 |
| EBITDA (Rsm) | 620 | -844 | -785 |
| PER adj (x) | nmf | nmf | nmf |
| EV/EBITDA (x) | -17.8 | 13.1 | 14.1 |

Source: Company data, Macquarie Research, June 2010

Shubham Majumder

+91 22 6653 3049 shubham.majumder@macquarie.com

Jal Irani

+91 22 6653 3040

Jal.Irani@macquarie.com

14 June 2010

India Wireless Sector

Déjà vu 2003: from crowd to stampede

Event

- BWA auctions ended with three major negative consequences for the already-beleaguered Indian telecom sector. First, the pan-India winning price of Rs128.47bn (US\$2.74bn) per slot was well ahead of anyone's expectations. Second, it led to a fractured verdict, with the largest incumbents coming out croppers with no circle wins, except for Bharti, which won in only four circles. Lastly, in a repeat of 2003, we are seeing the birth of four new players in the Indian telco space. While one could dismiss their entry citing competition only for wireless data, this clearly thwarts the future growth option for incumbents from wireless data during the next five years. Of the four new entrants, most notable is Reliance Industries, India's largest company, which began the remarkable telecom foray in 2003 of what is now called RCOM.
- We are clear that one needs a serious reassessment of Indian telecoms, and the hope of consolidation to reduce the number of players to a workable seven or eight is just that – hope. We reiterate our Underperform ratings on the entire listed operator space – Bharti, RCOM, Idea, TCOM and MTNL. In our view, all of it is 'dead money' for the next six to nine months. We believe that the only event worth investing in may be RCOM attaining a cash infusion on the 26% stake sale at a good premium.

Impact

- RCOM, Vodafone, Idea and Tata are notable absentees from the list of BWA spectrum winners. Aircel Maxis continued to surprise in BWA (as in 3G) with wins in eight circles. BSNL and MTNL have been allotted BWA spectrum in 20 and two circles, respectively (the third pan-India BWA slot).
- **The biggest surprise winner is Infotel Broadband, which won all 22 circles (pan-India) for US\$2.74bn.** Other surprise winners were QUALCOMM (QCOM US, US\$35.03, Outperform, TP: US\$50.00, Phil Cusick) in four circles, Tikona (unlisted) in five circles and Augere (unlisted) in one circle.
- Within hours of the BWA result release, Reliance Industries disclosed that it has acquired a 95% stake in Infotel Broadband by infusing approximately US\$1.02bn and that RIL would pay US\$2.74bn to the government for Infotel's BWA spectrum. This marks the reentry of RIL into telecoms, and the fresh capital infusion would help Infotel launch its services targeted at corporates/enterprises by next year. Although no capex plan has been disclosed, we believe that the size of RIL's balance sheet (US\$46.3bn) and its annual operating cashflow of US\$4.4bn would be able to fund expansion in the scope and scale of the telecom business over time and a potential entry into the whole gamut of services, chiefly voice.

Outlook

- **Headwinds galore for the incumbents, in-market consolidation a pipe dream unless regulations change; valuations expensive as downgrades start coming through:** MNP implementation could occur by September 2010, which could lead to a 7–8% correction in ARPU, entirely led by postpaid. We view the regulatory framework on M&A as the key hurdle for in-market consolidation, even while supply of new capacity continues unabated.

Circle-wise details and impact of BWA license payouts on Indian telcos

Fig 1 Final operator-wise BWA spectrum payout in cash; full cash to be paid out in 10 days

| In Rs m, unless mentioned | BWA spectrum payout | | | | | | | | |
|--------------------------------|---------------------|---------------|----------------|---------------|----------------|---------------|---------------|--------------|---------------|
| | No of Slots | Base Price | Final Bid | Bharti | Infotel | Qualcomm | Tikona | Augere | Aircel |
| Delhi | 2 | 1,600 | 22,410 | - | 22410 | 22410 | - | - | - |
| Mumbai | 2 | 1,600 | 22,930 | - | 22930 | 22930 | - | - | - |
| Maharashtra | 2 | 1,600 | 9,156 | 9156 | 9156 | - | - | - | - |
| Gujarat | 2 | 1,600 | 6,139 | - | 6139 | - | 6139 | - | - |
| Andhra Pradesh | 2 | 1,600 | 10,591 | - | 10591 | - | - | - | 10591 |
| Karnataka | 2 | 1,600 | 15,433 | 15433 | 15433 | - | - | - | - |
| Tamil Nadu | 2 | 1,600 | 20,695 | - | 20695 | - | - | - | 20695 |
| Kolkata | 2 | 600 | 5,232 | 5232 | 5232 | - | - | - | - |
| Kerala | 2 | 600 | 2,587 | - | 2587 | 2587 | - | - | - |
| Punjab | 2 | 600 | 3,323 | 3323 | 3323 | - | - | - | - |
| Haryana | 2 | 600 | 1,199 | - | 1199 | 1199 | - | - | - |
| Uttar Pradesh (E) | 2 | 600 | 1,425 | - | 1425 | - | 1425 | - | - |
| Uttar Pradesh (W) | 2 | 600 | 1,839 | - | 1839 | - | 1839 | - | - |
| Rajasthan | 2 | 600 | 973 | - | 973 | - | 973 | - | - |
| Madhya Pradesh | 2 | 600 | 1,247 | - | 1247 | - | - | 1247 | - |
| West Bengal | 2 | 600 | 710 | - | 710 | - | - | - | 710 |
| Himachal Pradesh | 2 | 150 | 207 | - | 207 | - | 207 | - | - |
| Bihar | 2 | 150 | 993 | - | 993 | - | - | - | 993 |
| Orissa | 2 | 150 | 636 | - | 636 | - | - | - | 636 |
| Assam | 2 | 150 | 330 | - | 330 | - | - | - | 330 |
| North East | 2 | 150 | 213 | - | 213 | - | - | - | 213 |
| Jammu & Kashmir | 2 | 150 | 213 | - | 213 | - | - | - | 213 |
| Total payable (Rs mn) | 70 | 17,500 | 128,478 | 33,144 | 128,478 | 49,125 | 10,582 | 1,247 | 34,380 |
| Total payable (US\$ mn) | | 374 | 2,747 | 709 | 2,747 | 1,050 | 226 | 27 | 735 |
| Metro & Category A | | | | 3 | 8 | 2 | 1 | - | 2 |
| Category B | | | | 1 | 8 | 2 | 3 | 1 | 1 |
| Category C | | | | - | 6 | - | 1 | - | 5 |
| Total Circles won | | | | 4 | 22 | 4 | 5 | 1 | 8 |

Source: DOT, Macquarie Research, June 2010

Fig 2 3G/BWA license payout to stretch balance sheets across the board

| | FY11E | FY12E |
|---|-----------|---------|
| BHARTI (Post Zain integration and post 3G/BWA) | | |
| Net Debt (Rsm) | 488,828 | 430,084 |
| Gross debt (Rsm) | 558,119 | 468,133 |
| Net Debt/ Equity | 1.03 | 0.78 |
| Net Debt/EBITDA | 2.2 | 1.6 |
| FCF (Rsm) | (36,587) | 85,870 |
| RCOM (Post 3G/BWA) | | |
| Net Debt (Rsm) | 328,695 | 288,444 |
| Gross debt (Rsm) | 345,625 | 307,631 |
| Net Debt/ Equity | 0.70 | 0.53 |
| Net Debt/EBITDA | 4.6 | 3.9 |
| FCF (Rsm) | (79,186) | 236 |
| IDEA CELLULAR (Post 3G/BWA) | | |
| Net Debt (Rsm) | 145,696 | 154,639 |
| Gross debt (Rsm) | 152,502 | 173,502 |
| Net Debt/ Equity | 1.18 | 1.22 |
| Net Debt/EBITDA | 3.7 | 3.1 |
| FCF (Rsm) | (79,338) | (10) |
| MTNL (Post 3G/BWA) | | |
| Net Debt (Rsm) | 83,648 | 87,935 |
| Gross debt (Rsm) | 111,117 | 100,000 |
| Net Debt/ Equity | 0.78 | 0.83 |
| Net Debt/EBITDA | 17.8 | 13.3 |
| FCF (Rsm) | (149,411) | (1,929) |

Source: Company data, Macquarie Research, June 2010

Fig 3 Final operator-wise BWA spectrum – circles won

| In Rs m, Unless mentioned | BWA circles Won | | | | | | | | |
|---------------------------|-----------------|---------------|----------------|----------|-----------|----------|----------|----------|----------|
| | No of Slots | Base Price | Final Bid | Bharti | Infotel | Qualcomm | Tikona | Augere | Aircel |
| Delhi | 2 | 1,600 | 22,410 | | 1 | 1 | | | |
| Mumbai | 2 | 1,600 | 22,930 | | 1 | 1 | | | |
| Maharashtra | 2 | 1,600 | 9,156 | 1 | 1 | | | | |
| Gujarat | 2 | 1,600 | 6,139 | | 1 | | 1 | | |
| Andhra Pradesh | 2 | 1,600 | 10,591 | | 1 | | | | 1 |
| Karnataka | 2 | 1,600 | 15,433 | 1 | 1 | | | | |
| Tamil Nadu | 2 | 1,600 | 20,695 | | 1 | | | | 1 |
| Kolkata | 2 | 600 | 5,232 | 1 | 1 | | | | |
| Kerala | 2 | 600 | 2,587 | | 1 | 1 | | | |
| Punjab | 2 | 600 | 3,323 | 1 | 1 | | | | |
| Haryana | 2 | 600 | 1,199 | | 1 | 1 | | | |
| Uttar Pradesh (E) | 2 | 600 | 1,425 | | 1 | | 1 | | |
| Uttar Pradesh (W) | 2 | 600 | 1,839 | | 1 | | 1 | | |
| Rajasthan | 2 | 600 | 973 | | 1 | | 1 | | |
| Madhya Pradesh | 2 | 600 | 1,247 | | 1 | | | 1 | |
| West Bengal | 2 | 600 | 710 | | 1 | | | | 1 |
| Himachal Pradesh | 2 | 150 | 207 | | 1 | | 1 | | |
| Bihar | 2 | 150 | 993 | | 1 | | | | 1 |
| Orissa | 2 | 150 | 636 | | 1 | | | | 1 |
| Assam | 2 | 150 | 330 | | 1 | | | | 1 |
| North East | 2 | 150 | 213 | | 1 | | | | 1 |
| Jammu & Kashmir | 2 | 150 | 213 | | 1 | | | | 1 |
| Total | 70 | 17,500 | 128,478 | 4 | 22 | 4 | 5 | 1 | 8 |
| Total (US\$m) | | 374 | 2,747 | | | | | | |
| Metro & Category A | | | | 3 | 8 | 2 | 1 | - | 2 |
| Category B | | | | 1 | 8 | 2 | 3 | 1 | 1 |
| Category C | | | | - | 6 | - | 1 | - | 5 |
| Total Circles won | | | | 4 | 22 | 4 | 5 | 1 | 8 |

Source: DOT, Macquarie Research, June 2010

Fig 4 BWA allocated frequency

| In Rs m, Unless mentioned | No of Slots | Winning Price | BWA spectrum frequency (in MHz) | | | | | | |
|---------------------------|-------------|---------------|---------------------------------|-----------------|-----------------|-----------------|-----------------|----------|-----------------|
| | | | Bharti | Infotel | Qualcomm | Tikona | Augere | Aircel | |
| Delhi | 2 | 22,410 | | 2305.0 - 2325.0 | 2327.5 - 2347.5 | | | | |
| Mumbai | 2 | 22,930 | | 2305.0 - 2325.0 | 2327.5 - 2347.5 | | | | |
| Maharashtra | 2 | 9,156 | 2305.0 - 2325.0 | 2327.5 - 2347.5 | | | | | |
| Gujarat | 2 | 6,139 | | 2305.0 - 2325.0 | | 2327.5 - 2347.5 | | | |
| Andhra Pradesh | 2 | 10,591 | | 2347.5 - 2367.5 | | | | | 2302.5 - 2322.5 |
| Karnataka | 2 | 15,433 | 2325.0 - 2345.0 | 2302.5 - 2322.5 | | | | | |
| Tamil Nadu | 2 | 20,695 | | 2312.5 - 2332.5 | | | | | 2335.0 - 2355.0 |
| Kolkata | 2 | 5,232 | 2332.5 - 2352.5 | 2305.0 - 2325.0 | | | | | |
| Kerala | 2 | 2,587 | | 2302.5 - 2322.5 | 2325.0 - 2345.0 | | | | |
| Punjab | 2 | 3,323 | 2320.0 - 2340.0 | 2357.5 - 2377.5 | | | | | |
| Haryana | 2 | 1,199 | | 2322.5 - 2342.5 | 2362.5 - 2382.5 | | | | |
| Uttar Pradesh (E) | 2 | 1,425 | | 2357.5 - 2377.5 | | 2320.0 - 2340.0 | | | |
| Uttar Pradesh (W) | 2 | 1,839 | | 2357.5 - 2377.5 | | 2320.0 - 2340.0 | | | |
| Rajasthan | 2 | 973 | | 2357.5 - 2377.5 | | 2320.0 - 2340.0 | | | |
| Madhya Pradesh | 2 | 1,247 | | 2332.5 - 2352.5 | | | 2302.5 - 2322.5 | | |
| West Bengal | 2 | 710 | | 2305.0 - 2325.0 | | | | | 2332.5 - 2352.5 |
| Himachal Pradesh | 2 | 207 | | 2345.0 - 2365.0 | | 2322.5 - 2342.5 | | | |
| Bihar | 2 | 993 | | 2302.5 - 2322.5 | | | | | 2335.0 - 2355.0 |
| Orissa | 2 | 636 | | 2335.0 - 2355.0 | | | | | 2302.5 - 2322.5 |
| Assam | 2 | 330 | | 2325.0 - 2345.0 | | | | | 2302.5 - 2322.5 |
| North East | 2 | 213 | | 2302.5 - 2322.5 | | | | | 2325.0 - 2345.0 |
| Jammu & Kashmir | 2 | 213 | | 2340.0 - 2360.0 | | | | | 2380.0 - 2400.0 |
| Metro & Category A | | | 3 | 8 | 2 | 1 | - | - | 2 |
| Category B | | | 1 | 8 | 2 | 3 | 1 | - | 1 |
| Category C | | | - | 6 | - | 1 | - | - | 5 |
| Total Circles won | | | 4 | 22 | 4 | 5 | 1 | - | 8 |

Source: DOT, Macquarie Research, June 2010

- **The biggest positive surprise came from Infotel, which won a pan-India license.** Infotel Broadband (the company owned by Mahendra and Anant Nahata, promoters of HFCL) surprised by winning all the 22 circles. Only later did it come to light that RIL was backing Infotel in the auctions.
- **The biggest negative surprise came from Vodafone, RCOM and Idea, which did not win in any circles, followed by Bharti Airtel, which won only four circles.** Bharti has not won spectrum in key metro circles such as Mumbai or Delhi and only a handful of the category A circles despite its pan-India presence and 30% pan-India revenue market share. Bharti has received BWA license in circles contributing only 23.3% of its pan-India mobile revenue. Bharti's current revenue market share in circles won and revenue contribution from the circle to Bharti pan-India wireless revenue, respectively, are as follows: Maharashtra (20.7%, 4.8%); Kolkata (29.4%, 2.2%); Punjab (39.4%, 4.6%); and Karnataka (52.1%, 11.7%). This implies that Bharti has not won BWA spectrum in 18 circles, which cumulatively contribute 76.7% to its overall wireless revenue.
- **Vodafone, IDEA and RCOM exited BWA auctions in midway.** Despite the fact that Vodafone, RCOM and Idea have 21%, 15% and 12% pan-India revenue market shares, respectively, they have failed to win any spectrum on BWA bidding. Logic suggests that these players may have exited as a result of increasingly fierce bidding and their stretched balance sheets due to recent 3G bidding.

Fig 5 Current revenue and subscriber market shares for six key operators by circle and presence on 3G and BWA spectrum

| | Revenue market share | | | | | | 3G spectrum ("Y" if yes, "N" if no) | | | | | | BWA spectrum ("Y" if yes, "N" if no) | | | | | |
|-------------|----------------------|----------|------|------|-----------|--------|-------------------------------------|----------|------|------|-----------|--------|--------------------------------------|----------|------|------|-----------|--------|
| | Bharti | Vodafone | RCOM | Idea | Tata Tele | Aircel | Bharti | Vodafone | RCOM | Idea | Tata Tele | Aircel | Bharti | Vodafone | RCOM | Idea | Tata Tele | Aircel |
| Delhi | 40% | 25% | 10% | 9% | 13% | 2% | Y | Y | Y | N | N | N | N | N | N | N | N | N |
| Mumbai | 20% | 32% | 13% | 3% | 17% | 1% | Y | Y | Y | N | N | N | N | N | N | N | N | N |
| Karnataka | 52% | 13% | 8% | 6% | 11% | 1% | Y | N | N | N | Y | Y | Y | N | N | N | N | N |
| Tamilnadu | 34% | 20% | 7% | 1% | 6% | 23% | Y | Y | N | N | N | Y | N | N | N | N | N | Y |
| AP | 41% | 11% | 8% | 16% | 14% | 1% | Y | N | N | Y | N | Y | N | N | N | N | N | Y |
| Maharashtra | 21% | 20% | 7% | 32% | 13% | 1% | N | Y | N | Y | Y | N | Y | N | N | N | N | N |
| Gujarat | 19% | 42% | 6% | 18% | 5% | na | N | Y | N | Y | Y | N | N | N | N | N | N | N |
| Kolkata | 29% | 31% | 18% | 1% | 11% | 4% | N | Y | Y | N | N | Y | Y | N | N | N | N | N |
| UP (W) | 18% | 25% | 10% | 29% | 7% | 1% | Y | N | N | Y | Y | N | N | N | N | N | N | N |
| UP (E) | 30% | 32% | 9% | 9% | 4% | 1% | N | Y | N | Y | N | Y | N | N | N | N | N | N |
| Punjab | 39% | 16% | 2% | 19% | 7% | na | N | N | Y | Y | Y | Y | Y | N | N | N | N | N |
| Rajasthan | 47% | 23% | 6% | 6% | 6% | na | Y | N | Y | N | Y | N | N | N | N | N | N | N |
| Kerala | 16% | 24% | 7% | 34% | 6% | 2% | N | N | N | Y | Y | Y | N | N | N | N | N | N |
| MP | 31% | 3% | 17% | 33% | 8% | na | N | N | Y | Y | Y | N | N | N | N | N | N | N |
| Haryana | 18% | 22% | 7% | 21% | 14% | na | N | Y | N | Y | Y | N | N | N | N | N | N | N |
| West Bengal | 29% | 39% | 8% | 1% | 4% | 1% | Y | Y | Y | N | N | Y | N | N | N | N | N | Y |
| Bihar | 51% | 7% | 14% | 7% | 8% | 5% | Y | N | Y | N | N | Y | N | N | N | N | N | Y |
| Orissa | 41% | 6% | 14% | 2% | 9% | 8% | N | N | Y | N | N | Y | N | N | N | N | N | Y |
| North East | 37% | 6% | 4% | 0% | 1% | 34% | Y | N | Y | N | N | Y | N | N | N | N | N | Y |
| Assam | 37% | 7% | 19% | 0% | 1% | 30% | Y | N | Y | N | N | Y | N | N | N | N | N | Y |
| HP | 45% | 3% | 16% | 4% | 3% | 4% | Y | N | Y | Y | N | N | N | N | N | N | N | N |
| J&K | 20% | 2% | 3% | 0% | 2% | 20% | Y | N | Y | Y | N | Y | N | N | N | N | N | Y |

Source: Company data, Macquarie Research, June 2010

Fig 6 Global emerging market telecom valuation

| Macquarie - Asia Wireless Telecom Valuation Table (March Year End) | | | | | | | | | | | | | |
|--|------------------|--------------|------------|-----------|-------|-------|-----------------------------------|-------|-------|-------|-----------|--------------|---------------------|
| Company Name | Bloomberg Ticker | Rec | Price lcy | EV/EBITDA | | | EV/EBITDA by EBITDA CAGR 2009-12E | PER | | | P/B 2011E | PEG 2009-12E | Div Yield (%) 2011E |
| | | | | 2010E | 2011E | 2012E | | 2010E | 2011E | 2012E | | | |
| China Mobile | 941 HK | Neutral | 76.95 | 4.9 | 4.6 | 4.6 | 1.4 | 11.9 | 11.6 | 11.5 | 2.1 | 5.1 | 3.8 |
| China Unicom | 762 HK | Neutral | 9.62 | 4.6 | 4.3 | 3.9 | -5.6 | 22.2 | 34.7 | 21.0 | 0.9 | -0.4 | 2.0 |
| China Telecom | 728 HK | Underperform | 3.60 | 4.4 | 4.5 | 4.4 | -0.9 | 18.2 | 17.5 | 14.3 | 1.1 | -0.9 | 3.1 |
| Bharti Airtel* | BHARTI IN | Underperform | 285.25 | 6.8 | 6.3 | 5.4 | 0.8 | 11.6 | 12.4 | 11.0 | 2.1 | 10.1 | 3.2 |
| Reliance Comms* | RCOM IN | Underperform | 174.15 | 6.8 | 5.8 | 5.0 | 0.8 | 9.9 | 8.4 | 6.8 | 0.6 | -0.4 | 1.7 |
| Idea Cellular* | IDEA IN | Underperform | 55.30 | 6.4 | 5.1 | 4.3 | 0.3 | 22.6 | 92.5 | 28.4 | 1.1 | -0.3 | 0.0 |
| TCOM | TCOM IN | Underperform | 250.25 | 8.6 | 7.5 | 6.4 | 0.4 | 146.7 | nmf | nmf | 1.6 | 6.1 | 1.8 |
| MTNL | MTNL IN | Underperform | 53.90 | -17.4 | 12.8 | 13.7 | nmf | nmf | nmf | nmf | 0.5 | nmf | 34.4 |
| PT Telkom | TLKM IJ | Outperform | 7,750.00 | 6.6 | 6.3 | 5.7 | 0.7 | 13.5 | 12.4 | 11.7 | 3.1 | 1.9 | 4.0 |
| Indosat | ISAT IJ | Neutral | 4,975.00 | 5.7 | 5.1 | 4.7 | 1.3 | 45.4 | 17.9 | 14.9 | 1.2 | -0.3 | 3.1 |
| XL Axiata | EXCL IJ | Outperform | 3,950.00 | 6.7 | 6.0 | 5.4 | 0.4 | 16.4 | 14.5 | 10.4 | 2.4 | 1.4 | 1.4 |
| Bakrie Telecom | BTEL IJ | Outperform | 170.00 | 5.4 | 4.2 | 3.9 | 0.3 | 24.9 | 17.0 | 13.5 | 0.9 | 0.9 | 0.0 |
| SK Telecom | 017670 KS | Outperform | 168,500.00 | 4.1 | 3.5 | 3.3 | 0.6 | 9.5 | 7.4 | 7.1 | 0.9 | 0.7 | 7.1 |
| KT | 030200 KS | Outperform | 49,000.00 | 4.9 | 3.8 | 3.6 | 1.0 | 17.6 | 9.4 | 8.4 | 1.1 | 0.4 | 5.5 |
| LG Telecom | 032640 KS | Neutral | 8,110.00 | 4.1 | 4.1 | 3.8 | 0.2 | 8.9 | 8.6 | 7.5 | 0.8 | -2.0 | 5.5 |
| SK Broadband | 033630 KS | Neutral | 5,950.00 | 9.8 | 7.1 | 5.8 | 0.9 | nmf | nmf | 91.0 | 1.3 | nmf | 0.0 |
| Chunghwa Telecom | 2412 TT | Neutral | 62.40 | 5.3 | 5.9 | 5.9 | -3.3 | 13.8 | 13.2 | 12.9 | 1.6 | -3.6 | 7.0 |
| Taiwan Mobile | 3045 TT | Outperform | 62.60 | 6.8 | 7.2 | 6.7 | 1.2 | 13.4 | 13.5 | 12.8 | 2.5 | -2.2 | 7.0 |
| Far EasTone | 4904 TT | Neutral | 39.25 | 5.0 | 5.2 | 5.1 | -1.3 | 13.9 | 13.7 | 13.0 | 1.7 | -13.6 | 6.9 |
| SingTel * | ST SP | Neutral | 2.95 | 6.9 | 6.4 | 5.9 | 1.4 | 11.8 | 11.9 | 10.7 | 1.7 | -89.8 | 5.4 |
| Starhub | STH SP | Outperform | 2.20 | 6.8 | 6.9 | 6.7 | 6.6 | 11.8 | 13.1 | 12.1 | 100.3 | -2.4 | 9.1 |
| MobileOne | M1 SP | Outperform | 2.13 | 7.0 | 6.7 | 6.6 | 9.2 | 12.7 | 12.6 | 12.6 | 6.0 | 33.0 | 6.4 |
| Axiata | AXIATA MK | Outperform | 3.77 | 6.9 | 6.1 | 5.6 | 0.4 | 17.1 | 13.5 | 12.3 | 1.4 | 0.6 | 2.7 |
| Digi.Com | DIGI MK | Neutral | 22.58 | 8.5 | 7.7 | 7.0 | 1.4 | 17.5 | 16.1 | 14.0 | 17.7 | -5.6 | 7.1 |
| Telekom Malaysia | T MK | Outperform | 3.31 | 4.8 | 4.8 | 4.6 | 1.4 | 18.2 | 16.5 | 15.9 | 1.7 | 1.3 | 6.0 |
| PLDT | TEL PM | Outperform | 2,380.00 | 5.8 | 5.5 | 5.3 | 2.2 | 11.3 | 10.6 | 10.2 | 4.2 | 2.7 | 6.8 |
| Globe | GLO PM | Neutral | 860.00 | 4.1 | 4.4 | 4.2 | -8.7 | 8.4 | 10.7 | 10.6 | 2.3 | -0.9 | 7.9 |
| AIS | ADVANC TB | Underperform | 82.00 | 5.6 | 5.5 | 5.4 | 19.7 | 14.2 | 13.6 | 12.7 | 4.3 | 3.6 | 7.9 |
| Shin Corp | SHIN TB | Underperform | 24.80 | 10.2 | 7.8 | 7.6 | 0.5 | 12.2 | 9.2 | 9.1 | 2.3 | 0.6 | 9.7 |
| TAC | DTAC TB | Neutral | 36.50 | 4.8 | 4.8 | 4.8 | -19.5 | 13.1 | 11.8 | 11.6 | 1.3 | -0.8 | 6.0 |
| True Corp | TRUE TB | Underperform | 2.92 | 4.7 | 4.5 | 4.5 | 1.3 | nmf | 12.5 | 10.7 | 1.6 | 0.6 | 0.0 |
| Thaicom | THCOM TB | Neutral | 5.45 | 7.0 | 4.4 | 4.2 | 0.4 | nmf | 42.6 | 14.3 | 0.4 | nmf | 0.0 |
| Smartone | 315 HK | Underperform | 8.10 | 4.1 | 3.2 | 3.1 | 1.3 | 108.4 | 20.6 | 17.3 | 1.6 | -1.9 | 5.6 |
| NTT* | 9432 JP | Outperform | 3,620.00 | 2.7 | 2.6 | 2.6 | -2.8 | 10.1 | 9.6 | 9.0 | 0.6 | 4.6 | 3.3 |
| NTT DoCoMo * | 9437 JP | Neutral | 133,300.00 | 3.7 | 3.8 | 3.8 | -1.1 | 11.2 | 11.0 | 10.9 | 1.1 | 3.7 | 3.9 |
| Softbank* | 9984 JP | Underperform | 2,288.00 | 5.1 | 5.1 | 4.9 | 0.9 | 16.7 | 14.8 | 13.6 | 3.1 | 4.0 | 0.2 |
| KDDI * | 9433 JP | Outperform | 431,000.00 | 3.0 | 3.0 | 2.9 | 1.3 | 7.2 | 8.0 | 7.1 | 0.8 | 18.7 | 3.5 |
| eAccess | 9427 JP | Outperform | 66,600.00 | 5.8 | 4.2 | 3.6 | 0.4 | 23.5 | 16.2 | 13.0 | 4.0 | nmf | 3.6 |
| Okinawa Cellular * | 9436 JP | Outperform | 169,900.00 | 3.3 | 3.2 | 2.8 | 0.7 | 7.8 | 8.0 | 7.7 | 0.9 | -1.6 | 4.6 |
| Telstra | TLS AU | Neutral | 3.18 | 5.0 | 5.0 | 5.0 | 3.3 | 9.7 | 10.2 | 10.4 | 3.0 | 4.1 | 8.8 |
| TCNZ | TEL NZ | Neutral | 1.87 | 3.2 | 3.3 | 3.3 | -1.3 | 7.2 | 8.7 | 10.0 | 1.4 | -0.3 | 9.0 |

Note: Prices as of 11 June 2010. Aircel, Tata Teleservices, Telenor Unitech and Vodafone Essar are unlisted.

Source: Bloomberg, Macquarie Research, June 2010

Please find below excerpts from our report published after conclusion of 3G auctions in India, dated 19 May 2010.

India 3G auctions

Event

- 3G auctions ended at a pan-India winning price of Rs167.5bn per slot. There were no pan-India winners, with Bharti winning 13 circles, RCOM 13, Aircel 13, Idea 11, Vodafone Essar nine, Tata Tele (DoCoMo) nine and STel three. We maintain Underperform ratings on the India telecom sector, in view of increased balance sheet stress due to immediate 3G payouts, likely disruption on introduction of MNP and uncertain regulatory environment after the recent TRAI recommendations on licensing and spectrum. Emergence of Aircel and Tata Tele with strong wins in 3G is structurally negative for the sector, as 3G will lead to further splintering of the sector while 3G could/should have been a consolidator of the wireless space in favour of the top 4 incumbents.

Impact

- Bharti will have the highest 3G license payout of Rs122.95bn**, followed by Vodafone Essar (Rs116bn), RCOM (Rs86bn), Aircel (Rs65bn), Tata Tele (Rs59bn), Idea (Rs58bn) and STel (Rs3bn). **Key metro circles of Delhi and Mumbai were won by Bharti, Vodafone and RCOM**, and together they cost Rs65.6bn (US\$1.4bn), accounting for 39% of the pan-India price. The outcome for incumbents was splintered in the important five Category A circles and Kolkata.
- The biggest surprise winner in multiple circles is Aircel (Maxis' 74% subsidiary) in 13 circles**, comprising three Category A circles: Karnataka, Tamil Nadu and Andhra Pradesh. This is a good use of proceeds from the recent sale of passive infra assets by Aircel for EV of Rs84bn (US\$1.8bn).
- The biggest negative surprise in terms of not winning in quite a few key circles was Bharti Airtel, followed by Vodafone and IDEA**. Bharti has not won spectrum in nine circles of which eight are important, implying that the company does not have 3G in areas that cumulatively contribute 31.6% to its wireless revenues. IDEA has not won spectrum in 13 circles, implying it doesn't have 3G in areas that cumulatively contribute 17.9% to its all-India wireless revenue.
- 3G roaming to come to the rescue of operators that have not won 3G in a circle. However, that does not solve the problem of incumbents that were banking on the extra 5MHz of 3G spectrum to help their strained and overburdened 2G network**; that is possibly already behind (voice) demand.
- MTNL liable to pay Rs65.6bn for 3G slots already awarded** in Mumbai and Delhi, unless the government waives MTNL's liability in this regard, implying the company wins 3G spectrum for free. If MTNL ends up paying cash for 3G, it translates into Rs104/share, implying significant debt to be raised to fund this.
- Payment for 3G within 10 days though spectrum will be available only after September 2010**. We expect launch of 3G services by December 2010.

Outlook

India is unlikely to see meaningful uplift to data revenues in the next two years, as the existing base of high-end subs will move to 3G from existing EDGE/GPRS networks, implying 3G will have a cannibalising effect on existing 2G-led data revenues. Only about 5% of India's SIM holders have 3G-capable handsets.

Fig 7 Final operator-wise 3G spectrum payout in cash

| In Rs m, Unless mentioned | 3G spectrum payout | | | | | | | | | |
|---------------------------|--------------------|---------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|--------------|
| | No of Slots | Base Price | Final Bid | Bharti | Vodafone | RCOM | Idea | Tata Tele | Aircel | STel |
| Delhi | 3 | 3,200 | 33,169 | 33,169 | 33,169 | 33,169 | - | - | - | - |
| Mumbai | 3 | 3,200 | 32,471 | 32,471 | 32,471 | 32,471 | - | - | - | - |
| Karnataka | 3 | 3,200 | 15,799 | 15,799 | - | - | - | 15,799 | 15,799 | - |
| Tamil Nadu | 3 | 3,200 | 14,649 | 14,649 | 14,649 | - | - | - | 14,649 | - |
| Andhra Pradesh | 3 | 3,200 | 13,731 | 13,731 | - | - | 13,731 | - | 13,731 | - |
| Maharashtra | 3 | 3,200 | 12,578 | - | 12,578 | - | 12,578 | 12,578 | - | - |
| Gujarat | 3 | 3,200 | 10,761 | - | 10,761 | - | 10,761 | 10,761 | - | - |
| Kolkata | 3 | 1,200 | 5,443 | - | 5,443 | 5,443 | - | - | 5,443 | - |
| Uttar Pradesh (West) | 3 | 1,200 | 5,140 | 5,140 | - | - | 5,140 | 5,140 | - | - |
| Uttar Pradesh (East) | 3 | 1,200 | 3,646 | - | 3,646 | - | 3,646 | - | 3,646 | - |
| Punjab | 4 | 1,200 | 3,220 | - | - | 3,220 | 3,220 | 3,220 | 3,220 | - |
| Rajasthan | 3 | 1,200 | 3,210 | 3,210 | - | 3,210 | - | 3,210 | - | - |
| Kerala | 3 | 1,200 | 3,125 | - | - | - | 3,125 | 3,125 | 3,125 | - |
| Madhya Pradesh | 3 | 1,200 | 2,584 | - | - | 2,584 | 2,584 | 2,584 | - | - |
| Haryana | 3 | 1,200 | 2,226 | - | 2,226 | - | 2,226 | 2,226 | - | - |
| West Bengal | 4 | 1,200 | 1,236 | 1,236 | 1,236 | 1,236 | - | - | 1,236 | - |
| Bihar | 4 | 300 | 2,035 | 2,035 | - | 2,035 | - | - | 2,035 | 2,035 |
| Orissa | 3 | 300 | 970 | - | - | 970 | - | - | 970 | 970 |
| North East | 3 | 300 | 423 | 423 | - | 423 | - | - | 423 | - |
| Assam | 3 | 300 | 415 | 415 | - | 415 | - | - | 415 | - |
| Himachal Pradesh | 3 | 300 | 372 | 372 | - | 372 | 372 | - | - | 372 |
| Jammu & Kashmir | 4 | 300 | 303 | 303 | - | 303 | 303 | - | 303 | - |
| Total | 70 | 35,000 | 167,506 | 122,955 | 116,179 | 85,850 | 57,686 | 58,643 | 64,995 | 3,377 |
| Total (US\$m) | | 761 | 3,641 | 2,673 | 2,526 | 1,866 | 1,254 | 1,275 | 1,413 | 73 |
| Metro & Category A | | | | 5 | 5 | 2 | 3 | 3 | 3 | - |
| Category B | | | | 3 | 4 | 5 | 6 | 6 | 5 | - |
| Category C | | | | 5 | - | 6 | 2 | - | 5 | 3 |
| Total Circles won | | | | 13 | 9 | 13 | 11 | 9 | 13 | 3 |

Source: Company data, Macquarie Research, June 2010

Fig 8 Final operator wise 3G spectrum – circles won

| In Rsm unless mentioned | No of Slots | Base Price | Final Bid | Circles won | | | | | | |
|--------------------------|-------------|---------------|----------------|-------------|----------|-----------|-----------|-----------|-----------|----------|
| | | | | Bharti | Vodafone | RCOM | Idea | Tata Tele | Aircel | STel |
| Delhi | 3 | 3,200 | 33,169 | 1 | 1 | 1 | | | | |
| Mumbai | 3 | 3,200 | 32,471 | 1 | 1 | 1 | | | | |
| Karnataka | 3 | 3,200 | 15,799 | 1 | | | | 1 | 1 | |
| Tamil Nadu | 3 | 3,200 | 14,649 | 1 | 1 | | | | 1 | |
| Andhra Pradesh | 3 | 3,200 | 13,731 | 1 | | | 1 | | 1 | |
| Maharashtra | 3 | 3,200 | 12,578 | | 1 | | 1 | 1 | | |
| Gujarat | 3 | 3,200 | 10,761 | | 1 | | 1 | 1 | | |
| Kolkata | 3 | 1,200 | 5,443 | | 1 | 1 | | | | 1 |
| Uttar Pradesh (West) | 3 | 1,200 | 5,140 | 1 | | | 1 | 1 | | |
| Uttar Pradesh (East) | 3 | 1,200 | 3,646 | | 1 | | 1 | | 1 | |
| Punjab | 4 | 1,200 | 3,220 | | | 1 | 1 | 1 | 1 | |
| Rajasthan | 3 | 1,200 | 3,210 | 1 | | 1 | | 1 | | |
| Kerala | 3 | 1,200 | 3,125 | | | | 1 | 1 | 1 | |
| Madhya Pradesh | 3 | 1,200 | 2,584 | | | 1 | 1 | 1 | | |
| Haryana | 3 | 1,200 | 2,226 | | 1 | | 1 | 1 | | |
| West Bengal and And | 4 | 1,200 | 1,236 | 1 | 1 | 1 | | | | 1 |
| Bihar | 4 | 300 | 2,035 | 1 | | 1 | | | 1 | 1 |
| Orissa | 3 | 300 | 970 | | | 1 | | | 1 | 1 |
| North East | 3 | 300 | 423 | 1 | | 1 | | | 1 | |
| Assam | 3 | 300 | 415 | 1 | | 1 | | | 1 | |
| Himachal Pradesh | 3 | 300 | 372 | 1 | | 1 | 1 | | | 1 |
| Jammu & Kashmir | 4 | 300 | 303 | 1 | | 1 | 1 | | 1 | |
| Total | 70 | 35,000 | 167,506 | 13 | 9 | 13 | 11 | 9 | 13 | 3 |
| Total (US\$m) | | 761 | 3,641 | | | | | | | |
| Metro & Category A | | | | 5 | 5 | 2 | 3 | 3 | 3 | - |
| Category B | | | | 3 | 4 | 5 | 6 | 6 | 5 | - |
| Category C | | | | 5 | - | 6 | 2 | - | 5 | 3 |
| Total Circles won | | | | 13 | 9 | 13 | 11 | 9 | 13 | 3 |

Source: Macquarie Research, May 2010

- The biggest negative surprises in terms of not winning in quite a few key circles were Bharti Airtel and, to a lesser extent, Vodafone.** Bharti has not won spectrum in key circles. The company's current revenue market share in the circle and the revenue contribution from the circle to Bharti pan-India wireless revenue, respectively, are as follows: Maharashtra (22.3%, 5.1%); Gujarat (19.6%, 3.7%); Kolkata (32.4%, 2.4%); Kerala (16.2%, 2.7%); Punjab (39.1%, 5.0%); Haryana (19.0%, 1.3%); UP – East (29.0%, 5.1%); and Madhya Pradesh (32.0%, 3.9%). This implies that Bharti does not have 3G spectrum in nine circles that cumulatively contribute 31.6% to its overall wireless revenue.
- IDEA has not won spectrum in key circles.** Idea's current revenue market share and the revenue contribution from that circle to Idea's wireless revenue, respectively, are as follows: Delhi (9.4%, 7.1%); Karnataka (6.9%, 4.0%); Mumbai (2.8%; 3.0%); and Bihar (4.5%, 2.6%). This implies that IDEA does not have 3G spectrum in 13 circles that cumulatively contribute 17.9% to IDEA's India wireless revenue.

Fig 9 Current revenue market shares for six key operators by circle and presence on 900 MHz 2G spectrum and presence on 3G spectrum

| In Rsm unless mentio | Revenue Market Share | | | | | | Spectrum in 900MHz band ("Y" if yes, "N" if no) | | | | | | 3G Spectrum ("Y" if yes, "N" if no) | | | | | |
|----------------------|----------------------|----------|-------|-------|-----------|--------|---|----------|------|------|-----------|--------|-------------------------------------|----------|------|------|-----------|--------|
| | Bharti | Vodafone | RCOM | Idea | Tata Tele | Aircel | Bharti | Vodafone | RCOM | Idea | Tata Tele | Aircel | Bharti | Vodafone | RCOM | Idea | Tata Tele | Aircel |
| Delhi | 38.6% | 22.5% | 12.3% | 9.4% | 12.2% | 0.6% | Y | Y | N | N | Y | N | Y | Y | Y | N | N | N |
| Mumbai | 20.0% | 30.3% | 17.3% | 2.8% | 16.1% | 0.3% | N | Y | N | N | N | N | Y | Y | Y | N | N | N |
| Karnataka | 54.2% | 14.4% | 8.9% | 6.9% | 6.3% | 0.4% | Y | N | N | N | N | N | Y | N | N | N | Y | Y |
| Tamil Nadu | 34.9% | 21.6% | 8.0% | 0.0% | 1.9% | 22.6% | N | Y | N | N | N | Y | Y | Y | N | N | N | Y |
| Andhra Pradesh | 40.5% | 12.9% | 9.7% | 18.0% | 9.2% | 0.2% | Y | N | N | Y | N | N | Y | N | N | Y | N | Y |
| Maharashtra | 22.3% | 18.4% | 8.0% | 30.4% | 10.5% | 0.2% | N | Y | N | Y | N | N | N | Y | N | Y | Y | N |
| Gujarat | 19.6% | 42.8% | 7.4% | 17.8% | 5.1% | na | N | Y | N | Y | N | N | N | Y | N | Y | Y | N |
| Kolkata | 32.4% | 32.9% | 17.9% | 0.5% | 9.7% | 1.4% | Y | Y | N | N | N | N | N | Y | Y | N | N | Y |
| Uttar Pradesh (West) | 16.6% | 25.6% | 10.6% | 27.9% | 6.5% | 0.2% | N | Y | N | Y | N | N | Y | N | N | Y | Y | N |
| Uttar Pradesh (East) | 29.0% | 32.7% | 11.2% | 7.9% | 3.2% | 0.1% | Y | Y | N | N | Y | N | N | Y | N | Y | N | Y |
| Punjab | 39.1% | 15.7% | 4.3% | 3.2% | 5.2% | na | Y | N | N | N | N | N | N | N | Y | Y | Y | Y |
| Rajasthan | 46.7% | 24.3% | 7.3% | 5.2% | 5.3% | na | Y | Y | N | N | N | N | Y | N | Y | N | Y | N |
| Kerala | 16.2% | 21.0% | 10.3% | 31.0% | 3.2% | 0.5% | N | Y | N | Y | N | N | N | N | N | Y | Y | Y |
| Madhya Pradesh | 32.0% | 2.4% | 18.9% | 29.9% | 3.8% | na | N | N | Y | Y | N | N | N | N | Y | Y | Y | N |
| Haryana | 19.0% | 24.9% | 7.2% | 20.6% | 9.4% | na | N | Y | N | Y | N | N | N | Y | N | Y | Y | N |
| West Bengal and And | 28.8% | 37.6% | 11.7% | 0.3% | 5.8% | 3.4% | Y | N | Y | N | N | N | Y | Y | Y | N | N | Y |
| Bihar | 51.2% | 3.7% | 20.1% | 4.5% | 6.0% | 4.0% | Y | N | Y | N | N | N | Y | N | Y | N | N | Y |
| Orissa | 46.7% | 3.7% | 18.0% | 0.6% | 5.0% | 5.7% | Y | N | Y | N | N | N | N | N | Y | N | N | Y |
| North East | 38.4% | 3.8% | 6.5% | 0.0% | 0.6% | 28.6% | Y | N | Y | N | Y | N | Y | N | Y | N | N | Y |
| Assam | 37.0% | 2.4% | 16.9% | 0.0% | 0.8% | 25.1% | Y | N | Y | N | Y | N | Y | N | Y | N | N | Y |
| Himachal Pradesh | 46.0% | 2.2% | 21.0% | 4.9% | 3.7% | 2.7% | Y | N | Y | N | Y | N | Y | N | Y | Y | N | N |
| Jammu & Kashmir | 65.7% | 1.5% | 1.2% | 0.2% | 1.2% | 24.4% | Y | N | N | N | Y | Y | Y | N | Y | Y | N | Y |

Source: Company data, Macquarie Research, May 2010

Fig 10 India wireless sector – key metrics

| March Year ends; Rs million | 3QFY08 | 4QFY08 | 1QFY09 | 2QFY09 | 3QFY09 | 4QFY09 | 1QFY10 | 2QFY10 | 3QFY10A | 4QFY10A |
|-----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Bharti Gross ARPU (Rs) | 358 | 357 | 350 | 331 | 324 | 305 | 278 | 252 | 230 | 220 |
| YoY growth (%) | -16.2 | -12.1 | -10.4 | -9.5 | -9.3 | -14.6 | -20.4 | -23.9 | -29.0 | -27.9 |
| QoQ growth (%) | -2.2 | -0.2 | -2.1 | -5.3 | -2.0 | -6.0 | -8.8 | -9.4 | -8.6 | -4.5 |
| RCOM Gross ARPU (Rs) | 339 | 317 | 282 | 271 | 251 | 224 | 210 | 161 | 149 | 139 |
| YoY growth (%) | 3.4 | -15.9 | -24.8 | -24.9 | -26.0 | -29.3 | -25.5 | -40.6 | -40.6 | -37.9 |
| QoQ growth (%) | -6.1 | -6.5 | -11.0 | -3.9 | -7.4 | -10.8 | -6.3 | -23.3 | -7.5 | -6.7 |
| Idea Gross ARPU (Rs) | 292 | 297 | 294 | 266 | 271 | 261 | 236 | 215 | 206 | 190 |
| YoY growth (%) | | | -11.2 | -12.2 | -7.2 | -12.0 | -19.7 | -19.1 | -23.8 | -27.4 |
| QoQ growth (%) | -3.8 | 1.8 | -1.0 | -9.4 | 1.6 | -3.5 | -9.7 | -8.7 | -4.3 | -8.0 |
| VOD Gross ARPU (Rs) | 349 | 350 | 332 | 305 | 297 | 274 | 247 | 222 | 209 | 197 |
| YoY growth (%) | -15.7 | -13.6 na | | -15.5 | -14.9 | -21.7 | -25.7 | -27.2 | -29.6 | -28.1 |
| QoQ growth (%) | -3.3 | 0.3 | -5.1 | -8.1 | -2.6 | -7.7 | -10.0 | -10.0 | -5.9 | -5.7 |
| Bharti MoUs per subscriber | 474 | 507 | 534 | 526 | 505 | 485 | 478 | 450 | 446 | 468 |
| YoY growth (%) | 1.4 | 6.8 | 11.8 | 12.2 | 6.7 | -4.3 | -10.6 | -14.5 | -11.8 | -3.6 |
| QoQ growth (%) | 1.1 | 7.0 | 5.4 | -1.6 | -3.9 | -4.0 | -1.5 | -5.9 | -0.9 | 5.0 |
| RCOM MoUs per subscriber | 449 | 430 | 425 | 423 | 410 | 372 | 365 | 340 | 330 | 318 |
| YoY growth (%) | -1.1 | -20.5 | -16.7 | -13.7 | -8.7 | -13.5 | -14.1 | -19.6 | -19.5 | -14.5 |
| QoQ growth (%) | -8.4 | -4.2 | -1.2 | -0.4 | -3.1 | -9.3 | -1.9 | -6.8 | -2.9 | -3.6 |
| Idea MoUs per subscriber | 377 | 411 | 431 | 421 | 416 | 402 | 399 | 375 | 389 | 398 |
| YoY growth (%) | 2.2 | 6.2 | 13.1 | 16.9 | 10.3 | -2.2 | -7.4 | -10.9 | -6.5 | -1.0 |
| QoQ growth (%) | 4.7 | 9.0 | 4.9 | -2.3 | -1.2 | -3.4 | -0.7 | -6.0 | 3.7 | 2.3 |
| VOD MoUs per subscriber | 384 | 391 | 374 | 364 | 355 | 336 | 330 | 319 | 318 | 325 |
| YoY growth (%) | -10.5 | -9.6 na | | -2.2 | -7.4 | -14.1 | -11.9 | -12.6 | -10.5 | -3.1 |
| QoQ growth (%) | 3.0 | 1.8 | -4.2 | -2.6 | -2.5 | -5.6 | -1.8 | -3.3 | -0.1 | 2.1 |
| Bharti ARPM (Rs) | 0.76 | 0.70 | 0.65 | 0.63 | 0.64 | 0.63 | 0.58 | 0.56 | 0.52 | 0.47 |
| YoY growth (%) | -17.3 | -17.7 | -19.9 | -19.4 | -14.9 | -10.7 | -11.0 | -10.9 | -19.5 | -25.2 |
| QoQ growth (%) | -3.3 | -6.7 | -7.1 | -3.8 | 2.1 | -2.1 | -7.4 | -3.7 | -7.8 | -9.1 |
| RCOM ARPM (Rs) | 0.76 | 0.74 | 0.66 | 0.64 | 0.61 | 0.60 | 0.58 | 0.47 | 0.45 | 0.44 |
| YoY growth (%) | 4.5 | 5.8 | -9.7 | -13.0 | -18.9 | -18.3 | -13.4 | -26.1 | -26.2 | -27.4 |
| QoQ growth (%) | 2.5 | -2.4 | -9.9 | -3.5 | -4.4 | -1.6 | -4.5 | -17.7 | -4.6 | -3.2 |
| Idea ARPM (Rs) | 0.74 | 0.72 | 0.68 | 0.62 | 0.64 | 0.63 | 0.58 | 0.56 | 0.51 | 0.48 |
| YoY growth (%) | -15.2 | -11.8 | -18.9 | -22.5 | -13.5 | -12.8 | -14.9 | -9.7 | -20.3 | -24.4 |
| QoQ growth (%) | -7.5 | -2.4 | -5.6 | -9.0 | 3.2 | -1.6 | -7.9 | -3.4 | -8.9 | -6.6 |
| VOD ARPM (Rs) | 0.91 | 0.90 | 0.89 | 0.84 | 0.84 | 0.82 | 0.75 | 0.70 | 0.66 | 0.61 |
| YoY growth (%) | -5.8 | -4.4 na | | -13.6 | -8.1 | -8.9 | -15.7 | -16.8 | -21.4 | -25.8 |
| QoQ growth (%) | -6.1 | -1.5 | -0.9 | -5.7 | -0.2 | -2.3 | -8.4 | -6.9 | -5.7 | -7.7 |

Source: Company data, Macquarie Research, June 2010

Fig 11 Key quarterly operating and financial metrics – wireless business: Bharti and RCOM

| Bharti Airtel - Actuals for 4QFY10 | | | | | | | | | | |
|---|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| March Year ends; Rs million | 3QFY08 | 4QFY08 | 1QFY09 | 2QFY09 | 3QFY09 | 4QFY09 | 1QFY10 | 2QFY10 | 3QFY10A | 4QFY10A |
| Wireless Revenues (Rs m) | 56,105 | 64,201 | 69,150 | 72,843 | 79,392 | 82,216 | 82,285 | 80,994 | 79,618 | 81,975 |
| YoY growth (%) | 49.3 | 51.3 | 47.2 | 44.0 | 41.5 | 28.1 | 19.0 | 11.2 | 0.3 | -0.3 |
| QoQ growth (%) | 10.9 | 14.4 | 7.7 | 5.3 | 9.0 | 3.6 | 0.1 | -1.6 | -1.7 | 3.0 |
| Subscribers (m) | 55.16 | 61.98 | 69.38 | 77.48 | 85.65 | 93.92 | 102.37 | 110.51 | 118.86 | 127.62 |
| YoY growth (%) | 72.5 | 66.9 | 62.5 | 58.5 | 55.3 | 51.5 | 47.5 | 42.6 | 38.8 | 35.9 |
| QoQ growth (%) | 12.9 | 12.4 | 11.9 | 11.7 | 10.5 | 9.7 | 9.0 | 8.0 | 7.6 | 7.4 |
| Gross ARPU (Rs) | 358 | 357 | 350 | 331 | 324 | 305 | 278 | 252 | 230 | 220 |
| YoY growth (%) | -16.2 | -12.1 | -10.4 | -9.5 | -9.3 | -14.6 | -20.4 | -23.9 | -29.0 | -27.9 |
| QoQ growth (%) | -2.2 | -0.2 | -2.1 | -5.3 | -2.0 | -6.0 | -8.8 | -9.4 | -8.6 | -4.5 |
| Avg. monthly MoUs per subscriber | 474 | 507 | 534 | 526 | 505 | 485 | 478 | 450 | 446 | 468 |
| YoY growth (%) | 1.4 | 6.8 | 11.8 | 12.2 | 6.7 | -4.3 | -10.6 | -14.5 | -11.8 | -3.6 |
| QoQ growth (%) | 1.1 | 7.0 | 5.4 | -1.6 | -3.9 | -4.0 | -1.5 | -5.9 | -0.9 | 5.0 |
| ARPM (Rs) | 0.76 | 0.70 | 0.65 | 0.63 | 0.64 | 0.63 | 0.58 | 0.56 | 0.52 | 0.47 |
| YoY growth (%) | -17.3 | -17.7 | -19.9 | -19.4 | -14.9 | -10.7 | -11.0 | -10.9 | -19.5 | -25.2 |
| QoQ growth (%) | -3.3 | -6.7 | -7.1 | -3.8 | 2.1 | -2.1 | -7.4 | -3.7 | -7.8 | -9.1 |
| Total minutes carried (m) | 73,840 | 89,058 | 105,217 | 115,834 | 123,626 | 130,669 | 140,713 | 143,680 | 153,241 | 172,797 |
| YoY growth (%) | 78.8 | 80.9 | 84.2 | 79.9 | 67.4 | 46.7 | 33.7 | 24.0 | 24.0 | 32.2 |
| QoQ growth (%) | 14.7 | 20.6 | 18.1 | 10.1 | 6.7 | 5.7 | 7.7 | 2.1 | 6.7 | 12.8 |
| Avg. EBITDA per minute (Rs) | 0.31 | 0.26 | 0.20 | 0.19 | 0.20 | 0.20 | 0.19 | 0.18 | 0.16 | 0.14 |
| YoY growth (%) | -9.3 | -24.2 | -39.6 | -41.0 | -34.8 | -22.6 | -4.1 | -5.2 | -21.9 | -30.0 |
| QoQ growth (%) | -3.8 | -17.4 | -21.2 | -5.7 | 6.3 | -2.0 | -2.4 | -6.7 | -12.5 | -12.2 |
| Wireless EBITDA (Rs m) | 22,887 | 22,779 | 21,218 | 22,009 | 24,963 | 25,860 | 27,183 | 25,860 | 24,178 | 23,969 |
| YoY growth (%) | 62.0 | 37.2 | 11.2 | 6.2 | 9.1 | 13.5 | 28.1 | 17.5 | -3.1 | -7.3 |
| QoQ growth (%) | 10.4 | -0.5 | -6.9 | 3.7 | 13.4 | 3.6 | 5.1 | -4.9 | -6.5 | -0.9 |
| Wireless EBITDA margin (%) | 40.8 | 35.5 | 30.7 | 30.2 | 31.4 | 31.5 | 33.0 | 31.9 | 30.4 | 29.2 |
| YoY expansion (basis points) | 319.5 | -365.1 | -994.7 | -1,076.7 | -935.0 | -402.7 | 235.1 | 171.4 | -107.5 | -221.4 |
| QoQ expansion (basis points) | -18.8 | -531.2 | -479.7 | -47.0 | 122.8 | 1.1 | 158.1 | -110.7 | -156.1 | -112.8 |
| Blended Churn | 3.8% | 4.2% | 3.7% | 3.2% | 2.9% | 3.2% | 3.4% | 4.4% | 6.3% | 5.7% |
| VAS as % of total revenue | 9.3% | 9.4% | 9.7% | 10.0% | 9.5% | 9.3% | 9.3% | 9.8% | 11.0% | 11.8% |
| YoY growth (%) | -10.6 | -6.9 | -2.0 | 2.0 | 2.2 | -1.1 | -4.1 | -2.0 | 15.8 | 26.9 |
| QoQ growth (%) | -5.1 | 1.1 | 3.2 | 3.1 | -5.0 | -2.1 | 0.0 | 5.4 | 12.2 | 7.3 |
| Total Cell Sites | 60,299 | 69,141 | 75,876 | 82,554 | 88,319 | 93,368 | 96,149 | 99,501 | 102,190 | 104,826 |
| YoY growth (%) | 75.8 | 76.3 | 65.7 | 56.3 | 46.5 | 35.0 | 26.7 | 20.5 | 15.7 | 12.3 |
| QoQ growth (%) | 14.1 | 14.7 | 9.7 | 8.8 | 7.0 | 5.7 | 3.0 | 3.5 | 2.7 | 2.6 |
| Wireless Capex (Rsm) | 27,538 | 17,995 | 32,227 | 23,396 | 29,012 | 16,039 | 13,037 | 15,028 | 12,513 | 8,565 |
| YoY growth (%) | 76.6 | 68.1 | -1.8 | -18.4 | 5.4 | -10.9 | -59.5 | -35.8 | -56.9 | -46.6 |
| QoQ growth (%) | -3.9 | -34.7 | 79.1 | -27.4 | 24.0 | -44.7 | -18.7 | 15.3 | -16.7 | -31.6 |
| Total Population Centres covered | 325,525 | 347,646 | 369,335 | 389,571 | 406,939 | 419,966 | 428,216 | 434,795 | 438,929 | 444,024 |
| YoY growth (%) | 79.7 | 64.0 | 48.7 | 32.1 | 25.0 | 20.8 | 15.9 | 11.6 | 7.9 | na |
| QoQ growth (%) | 10.4 | 6.8 | 6.2 | 5.5 | 4.5 | 3.2 | 2.0 | 1.5 | 1.0 | na |
| Total employees | 24,703 | 25,543 | 26,144 | 25,616 | 25,553 | 24,538 | 23,789 | 18,598 | 18,201 | 18,354 |
| YoY growth (%) | 35.6 | 25.7 | 13.9 | 10.1 | 3.4 | -3.9 | -9.0 | -27.4 | -28.8 | na |
| QoQ growth (%) | 6.2 | 3.4 | 2.4 | -2.0 | -0.2 | -4.0 | -3.1 | -21.8 | -2.1 | na |
| India Total Wireless Subscribers | 233.63 | 261.08 | 286.87 | 315.31 | 346.89 | 391.76 | 437.51 | 483.27 | 515.5 | 574.77 |
| YoY growth (%) | 59.5 | 58.1 | 55.1 | 50.8 | 48.5 | 50.1 | 52.5 | 53.3 | 48.6 | 46.7 |
| QoQ growth (%) | 11.7 | 11.8 | 9.9 | 9.9 | 10.0 | 12.9 | 11.7 | 10.5 | 6.7 | 11.5 |

Fig 11 Key quarterly operating and financial metrics – wireless business: Bharti and RCOM

| Reliance Communications - Actuals for 4QFY10 | | | | | | | | | |
|--|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| March Year ends; Rs million | 4QFY08 | 1QFY09 | 2QFY09 | 3QFY09 | 4QFY09 | 1QFY10 | 2QFY10 | 3QFY10A | 4QFY10A |
| Wireless Revenues (Rs m) | 41,608 | 41,187 | 43,356 | 44,119 | 45,015 | 47,931 | 40,100 | 40,225 | 40,900 |
| YoY growth (%) | 40.1 | 22.1 | 16.5 | 11.5 | 8.2 | 16.4 | -7.5 | -8.8 | -9.1 |
| QoQ growth (%) | 5.2 | -1.0 | 5.3 | 1.8 | 2.0 | 6.5 | -16.3 | 0.3 | 1.7 |
| Subscribers (m) | 45.79 | 50.79 | 56.05 | 61.35 | 72.67 | 79.62 | 86.12 | 93.80 | 102.42 |
| YoY growth (%) | 63.5 | 59.4 | 54.3 | 49.8 | 58.7 | 56.8 | 53.7 | 52.9 | 40.9 |
| QoQ growth (%) | 11.8 | 10.9 | 10.4 | 9.5 | 18.5 | 9.6 | 8.2 | 8.9 | 9.2 |
| Gross ARPU (Rs) | 317 | 282 | 271 | 251 | 224 | 210 | 161 | 149 | 139 |
| YoY growth (%) | -15.9 | -24.8 | -24.9 | -26.0 | -29.3 | -25.5 | -40.6 | -40.6 | -37.9 |
| QoQ growth (%) | -6.5 | -11.0 | -3.9 | -7.4 | -10.8 | -6.3 | -23.3 | -7.5 | -6.7 |
| Avg. monthly MoUs per subscriber | 430 | 425 | 423 | 410 | 372 | 365 | 340 | 330 | 318 |
| YoY growth (%) | -20.5 | -16.7 | -13.7 | -8.7 | -13.5 | -14.1 | -19.6 | -19.5 | -14.5 |
| QoQ growth (%) | -4.2 | -1.2 | -0.4 | -3.1 | -9.3 | -1.9 | -6.8 | -2.9 | -3.6 |
| ARPM (Rs) | 0.74 | 0.66 | 0.64 | 0.61 | 0.60 | 0.58 | 0.47 | 0.45 | 0.44 |
| YoY growth (%) | 5.8 | -9.7 | -13.0 | -18.9 | -18.3 | -13.4 | -26.1 | -26.2 | -27.4 |
| QoQ growth (%) | -2.4 | -9.9 | -3.5 | -4.4 | -1.6 | -4.5 | -17.7 | -4.6 | -3.2 |
| Total minutes carried (m) | 55,959 | 62,000 | 67,800 | 72,100 | 74,800 | 83,300 | 84,500 | 89,057 | 93,596 |
| YoY growth (%) | 18.9 | 35.4 | 35.3 | 38.5 | 33.7 | 34.4 | 24.6 | 23.5 | 25.1 |
| QoQ growth (%) | 7.5 | 10.8 | 9.4 | 6.3 | 3.7 | 11.4 | 1.4 | 5.4 | 5.1 |
| Avg. EBITDA per minute (Rs) | 0.30 | 0.27 | 0.25 | 0.23 | 0.22 | 0.22 | 0.15 | 0.14 | 0.13 |
| YoY growth (%) | 9.8 | -8.3 | -4.5 | -23.5 | -25.8 | -17.9 | -39.7 | -38.9 | -42.6 |
| QoQ growth (%) | -1.5 | -9.6 | -7.3 | -7.3 | -4.5 | 0.0 | -31.8 | -6.1 | -10.3 |
| Wireless EBITDA (Rs m) | 16,763 | 16,623 | 16,859 | 16,616 | 16,629 | 18,489 | 13,132 | 12,545 | 11,815 |
| YoY growth (%) | 45.6 | 24.1 | 13.4 | 5.0 | -0.8 | 11.2 | -22.1 | -24.5 | -28.9 |
| QoQ growth (%) | 6.0 | -0.8 | 1.4 | -1.4 | 0.1 | 11.2 | -29.0 | -4.5 | -5.8 |
| Wireless EBITDA margin (%) | 40.3 | 40.4 | 38.9 | 37.7 | 36.9 | 38.6 | 32.7 | 31.2 | 28.9 |
| YoY expansion (basis points) | 152.0 | 65.6 | -106.4 | -231.9 | -334.7 | -178.6 | -613.7 | -647.5 | -805.3 |
| QoQ expansion (basis points) | 30.8 | 7.2 | -147.5 | -122.3 | -72.1 | 163.3 | -582.6 | -156.1 | -230.0 |
| Blended Churn | 1.4% | 1.4% | 1.3% | 1.0% | 0.8% | 1.3% | 1.3% | 2.0% | 2.8% |
| VAS as % of total revenue | 6.9% | 7.6% | 7.3% | 7.4% | na | na | na | na | na |
| YoY growth (%) | 9.5 | 33.3 | 17.7 | 15.6 | na | na | na | na | na |
| QoQ growth (%) | 7.8 | 10.1 | -3.9 | 1.4 | na | na | na | na | na |
| Total Cell Sites | na | na | na | na | na | na | na | na | na |
| YoY growth (%) | na | na | na | na | na | na | na | na | na |
| QoQ growth (%) | na | na | na | na | na | na | na | na | na |
| Wireless Capex (Rs m) | 46,442 | 56,926 | 33,260 | 32,508 | 17,084 | 9,402 | 8,964 | 11,037 | 2,016 |
| YoY growth (%) | 371.0 | 280.2 | -33.1 | -46.4 | -63.2 | -83.5 | -73.0 | -66.0 | -88.2 |
| QoQ growth (%) | -23.4 | 22.6 | -41.6 | -2.3 | -47.4 | -45.0 | -4.7 | 23.1 | -81.7 |

Source: Company data, Macquarie Research, June 2010

Fig 12 Key quarterly operating and financial metrics – wireless business: Idea

| Idea Cellular - Actuals for 4QFY10 | | | | | | | | | |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| March Year ends; Rs million | 4QFY08 | 1QFY09 | 2QFY09 | 3QFY09 | 4QFY09 | 1QFY10A | 2QFY10 | 3QFY10 | 4QFY10A |
| Wireless Revenues (Rs m) | 19,724 | 21,735 | 22,992 | 26,209 | 28,627 | 28,883 | 28,909 | 30,610 | 33,011 |
| YoY growth (%) | 51.1 | 47.1 | 47.2 | 53.4 | 45.1 | 32.9 | 25.7 | 16.8 | 15.3 |
| QoQ growth (%) | 15.5 | 10.2 | 5.8 | 14.0 | 9.2 | 0.9 | 0.1 | 5.9 | 7.8 |
| Subscribers (m) | 22.13 | 27.19 | 30.38 | 34.21 | 38.89 | 42.77 | 46.76 | 52.30 | 63.82 |
| YoY growth (%) | 45.8 | 57.0 | 56.2 | 54.5 | 43.0 | 40.8 | 36.7 | 34.5 | 49.2 |
| QoQ growth (%) | 13.8 | 22.9 | 11.7 | 12.6 | 13.7 | 10.0 | 9.3 | 11.9 | 22.0 |
| Gross ARPU (Rs) | 297 | 294 | 266 | 271 | 261 | 236 | 215 | 206 | 190 |
| YoY growth (%) | #DIV/0! | -11.2 | -12.2 | -7.2 | -12.0 | -19.7 | -19.1 | -23.8 | -27.4 |
| QoQ growth (%) | 1.8 | -1.0 | -9.4 | 1.6 | -3.5 | -9.7 | -8.7 | -4.3 | -8.0 |
| Avg. monthly MoUs per subscriber | 411 | 431 | 421 | 416 | 402 | 399 | 375 | 389 | 398 |
| YoY growth (%) | 6.2 | 13.1 | 16.9 | 10.3 | -2.2 | -7.4 | -10.9 | -6.5 | -1.0 |
| QoQ growth (%) | 9.0 | 4.9 | -2.3 | -1.2 | -3.4 | -0.7 | -6.0 | 3.7 | 2.3 |
| ARPM (Rs) | 0.72 | 0.68 | 0.62 | 0.64 | 0.63 | 0.58 | 0.56 | 0.51 | 0.48 |
| YoY growth (%) | -11.8 | -18.9 | -22.5 | -13.5 | -12.8 | -14.9 | -9.7 | -20.3 | -24.4 |
| QoQ growth (%) | -2.4 | -5.6 | -9.0 | 3.2 | -1.6 | -7.9 | -3.4 | -8.9 | -6.4 |
| Total minutes carried (m) | 27,824 | 33,087 | 36,315 | 40,254 | 44,224 | 48,729 | 50,339 | 57,841 | 68,275 |
| YoY growth (%) | 79.9 | 93.5 | 92.8 | 79.2 | 58.9 | 47.3 | 38.6 | 43.7 | 54.4 |
| QoQ growth (%) | 23.9 | 18.9 | 9.8 | 10.8 | 9.9 | 10.2 | 3.3 | 14.9 | 18.0 |
| Avg. EBITDA per minute (Rs) | 0.26 | 0.26 | 0.20 | 0.17 | 0.17 | 0.16 | 0.15 | 0.12 | 0.12 |
| YoY growth (%) | #DIV/0! | -21.5 | -34.7 | -39.9 | -35.9 | -39.0 | -26.2 | -26.2 | -28.6 |
| QoQ growth (%) | -6.5 | -1.6 | -23.9 | -14.1 | -0.4 | -6.3 | -7.9 | -14.1 | -3.6 |
| Wireless EBITDA (Rs m) | 6,731 | 8,242 | 7,151 | 6,806 | 7,416 | 7,701 | 7,307 | 7,203 | 8,328 |
| YoY growth (%) | #DIV/0! | 53.4 | 35.2 | 16.5 | 10.2 | -6.6 | 2.2 | 5.8 | 12.3 |
| QoQ growth (%) | 15.3 | 22.4 | -13.2 | -4.8 | 9.0 | 3.8 | -5.1 | -1.4 | 15.6 |
| Wireless EBITDA margin (%) | 34.1 | 37.9 | 31.1 | 26.0 | 25.9 | 26.7 | 25.3 | 23.5 | 25.2 |
| YoY expansion (basis points) | 3,412.8 | 154.7 | -275.7 | -822.0 | -822.3 | -1,125.8 | -582.7 | -243.7 | -67.7 |
| QoQ expansion (basis points) | -6.1 | 379.3 | -681.8 | -513.4 | -6.4 | 75.8 | -138.7 | -174.4 | 169.6 |
| Blended Churn | 4.6% | 4.0% | 3.9% | 4.3% | 5.2% | 6.7% | 7.2% | 9.1% | 7.7% |
| Total Cell Sites | 24,793 | 27,594 | 33,377 | 39,289 | 44,230 | 48,067 | 50,915 | 55,804 | 66,187 |
| YoY growth (%) | na | 109.7 | 95.1 | 85.4 | 78.4 | 74.2 | 52.5 | 42.0 | 49.6 |
| QoQ growth (%) | 17.0 | 11.3 | 21.0 | 17.7 | 12.6 | 8.7 | 5.9 | 9.6 | 18.6 |

Source: Company data, Macquarie Research, June 2010

Fig 13 Key quarterly operating and financial metrics – wireless business: MTNL and Tata Teleservices Maha.

| MTNL- Actuals for 4QFY10 | | | | | | | | | | |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|---------------|
| March Year ends; Rs million | 3QFY08 | 4QFY08 | 1QFY09 | 2QFY09 | 3QFY09 | 4QFY09 | 1QFY10 | 2QFY10 | 3QFY10 | 4QFY10 |
| Wireless Revenues (Rs m) | 2,329 | 2,409 | 2,298 | 2,332 | 2,269 | 2,089 | 1,870 | 1795.57 | 1656.42 | 1840 |
| YoY growth (%) | 6.3 | 22.0 | 2.5 | -7.6 | -2.6 | -13.3 | -18.6 | -23.0 | -27.0 | -11.9 |
| QoQ growth (%) | -7.7 | 3.4 | -4.6 | 1.5 | -2.7 | -7.9 | -10.5 | -4.0 | -7.7 | 11.1 |
| Subscribers (m) | 3.21 | 3.53 | 3.72 | 3.96 | 4.19 | 4.48 | 4.58 | 4.68 | 4.60 | 5.09 |
| YoY growth (%) | 26.5 | 20.1 | 32.2 | 32.2 | 30.5 | 26.9 | 23.1 | 18.2 | 9.8 | 13.6 |
| QoQ growth (%) | 7.2 | 10.0 | 5.3 | 6.4 | 5.8 | 7.0 | 2.1 | 2.2 | -1.7 | 10.7 |
| Blended ARPU GSM (Rs) | 242 | 237 | 213 | 207 | 188 | 162 | 138 | 133 | 116 | 127 |
| YoY growth (%) | -12.6 | 3.7 | -15.7 | -27.2 | -22.2 | -31.5 | -35.0 | -35.5 | -38.6 | -21.6 |
| QoQ growth (%) | -14.8 | -2.3 | -10.0 | -2.8 | -9.0 | -14.0 | -14.6 | -3.6 | -13.3 | 9.9 |
| Tata Tele Maha. - Actuals for 3Q FY10 | | | | | | | | | | |
| | 3QFY08 | 4QFY08 | 1QFY09 | 2QFY09 | 3QFY09 | 4QFY09 | 1QFY10A | 2QFY10A | 3QFY10A | 4QFY10A |
| Subscribers (m) | 4.33 | 4.68 | 5.19 | 5.70 | 6.15 | 6.96 | 7.44 | 9.04 | 10.90 | 12.34 |
| YoY growth (%) | na | na | 64% | 50% | 42% | 49% | 43% | 59% | 77% | 77% |
| QoQ growth (%) | 14% | 8% | 11% | 10% | 8% | 13% | 7% | 22% | 21% | 13% |
| Gross ARPU (Rs) | 254 | 254 | 232 | 210 | 196 | 178 | 154 | 148 | 143 | 125 |
| YoY growth (%) | na | na | -23% | -21% | -23% | -30% | -34% | -30% | -27% | -30% |
| QoQ growth (%) | -4% | 0% | -9% | -9% | -7% | -9% | -13% | -4% | -3% | -13% |
| Avg. monthly MoUs per subscriber | 313 | 302 | 369 | 336 | 323 | 311 | 292 | 271 | 266 | 250 |
| YoY growth (%) | na | na | -7% | -6% | 3% | 3% | -21% | -19% | -18% | -20% |
| QoQ growth (%) | -12% | -4% | 22% | -9% | -4% | -4% | -6% | -7% | -2% | -6% |
| ARPM (Rs) | 0.81 | 0.84 | 0.63 | 0.62 | 0.61 | 0.57 | 0.53 | 0.55 | 0.54 | 0.5 |
| YoY growth (%) | na | na | -18% | -16% | -25% | -32% | -16% | -11% | -11% | -12% |
| QoQ growth (%) | 9% | 4% | -25% | -2% | -2% | -7% | -7% | 4% | -2% | -7% |
| Total minutes carried (m) | na | 4083 | 5463 | 5487 | 5741 | 6113 | 6301 | 6705 | 7957 | 8713 |
| YoY growth (%) | na | na | na | na | na | 50% | 15% | 22% | 39% | 43% |
| QoQ growth (%) | na | na | 34% | 0% | 5% | 6% | 3% | 6% | 19% | 10% |
| Blended Churn | 1.80% | 2.20% | 0.80% | 0.80% | 1.80% | 1.10% | 1.20% | 2.80% | 0.50% | 2.20% |
| VAS as % of total revenue | 10.40% | 11.80% | 12.30% | 13.40% | 13.40% | 13.90% | 15.40% | 14.30% | 13.90% | 14.80% |
| YoY growth (%) | na | na | 48.2 | 44.1 | 28.8 | 17.8 | 25.2 | 6.7 | 3.7 | 6.5 |
| QoQ growth (%) | 11.8 | 13.5 | 4.2 | 8.9 | - | 3.7 | 10.8 | (7.1) | (2.8) | 6.5 |
| Total Population Centres covered | na | 7,966 | 8,026 | 8,115 | 9,378 | 10,664 | 10,904 | 11,055 | 11,303 | 11,421 |
| YoY growth (%) | na | na | na | na | na | 34% | 36% | 36% | 21% | 7% |
| QoQ growth (%) | na | na | 1% | 1% | 16% | 14% | 2% | 1% | 2% | 1% |

Source: Company data, Macquarie Research, June 2010

Fig 14 Key quarterly operating and financial metrics – Vodafone India

| | 1QFY09 | 2QFY09 | 3QFY09 | 4QFY09 | 1QFY10 | 2QFY10 | 3QFY10A | 4QFY10A |
|---|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Subscribers (m) | 49 | 55 | 61 | 69 | 76 | 83 | 91 | 101 |
| YoY growth (%) | 60.0 | 62.2 | 70.9 | 55.8 | 55.4 | 51.7 | 50.0 | 46.7 |
| QoQ growth (%) | 11.5 | 11.0 | 11.5 | 12.9 | 11.2 | 8.4 | 10.3 | 10.3 |
| Gross ARPU (Rs) | 332 | 305 | 297 | 274 | 247 | 222 | 209 | 197 |
| YoY growth (%) | na | (15.5) | (14.9) | (21.7) | (25.7) | (27.2) | (29.6) | (28.1) |
| QoQ growth (%) | (5.1) | (8.1) | (2.6) | (7.7) | (10.0) | (10.0) | (5.9) | (5.7) |
| Avg. monthly MoUs per subscriber | 374 | 364 | 355 | 336 | 330 | 319 | 318 | 325 |
| YoY growth (%) | na | (2.2) | (7.4) | (14.1) | (11.9) | (12.6) | (10.5) | (3.1) |
| QoQ growth (%) | (4.2) | (2.6) | (2.5) | (5.6) | (1.8) | (3.3) | (0.1) | 2.1 |
| ARPM (Rs) | 0.89 | 0.84 | 0.84 | 0.82 | 0.75 | 0.70 | 0.66 | 0.61 |
| YoY growth (%) | na | (13.6) | (8.1) | (8.9) | (15.7) | (16.8) | (21.4) | (25.8) |
| QoQ growth (%) | (0.9) | (5.7) | (0.2) | (2.3) | (8.4) | (6.9) | (5.7) | (7.7) |
| Total minutes carried (m) | 52,349 | 56,745 | 61,606 | 65,276 | 71,775 | 76,135 | 83,172 | 93,735 |
| YoY growth (%) | na | 57.6 | 54.4 | 39.7 | 37.1 | 34.2 | 35.0 | 43.6 |
| QoQ growth (%) | 12.0 | 8.4 | 8.6 | 6.0 | 10.0 | 6.1 | 9.2 | 12.7 |

Source: Company data, Macquarie Research, June 2010

Important disclosures:

| Recommendation definitions | Volatility index definition* | Financial definitions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|--|--------|--------|--------|--------|--|----|-----|--|------------|--------|--------|--------|--------|--------|--------|--|---------|--------|--------|--------|--------|--------|--------|--|--------------|--------|--------|-------|-------|-------|--------|--|
| <p>Macquarie - Australia/New Zealand Outperform – return >5% in excess of benchmark return Neutral – return within 5% of benchmark return Underperform – return >5% below benchmark return</p> <p>Macquarie – Asia/Europe Outperform – expected return >+10% Neutral – expected return from -10% to +10% Underperform – expected return <-10%</p> <p>Macquarie First South - South Africa Outperform – expected return >+10% Neutral – expected return from -10% to +10% Underperform – expected return <-10%</p> <p>Macquarie - Canada Outperform – return >5% in excess of benchmark return Neutral – return within 5% of benchmark return Underperform – return >5% below benchmark return</p> <p>Macquarie - USA Outperform (Buy) – return >5% in excess of Russell 3000 index return Neutral (Hold) – return within 5% of Russell 3000 index return Underperform (Sell) – return >5% below Russell 3000 index return</p> <p>Recommendations – 12 months</p> <p>Note: Quant recommendations may differ from Fundamental Analyst recommendations</p> | <p>This is calculated from the volatility of historical price movements.</p> <p>Very high–highest risk – Stock should be expected to move up or down 60–100% in a year – investors should be aware this stock is highly speculative.</p> <p>High – stock should be expected to move up or down at least 40–60% in a year – investors should be aware this stock could be speculative.</p> <p>Medium – stock should be expected to move up or down at least 30–40% in a year.</p> <p>Low–medium – stock should be expected to move up or down at least 25–30% in a year.</p> <p>Low – stock should be expected to move up or down at least 15–25% in a year.</p> <p>* Applicable to Australian/NZ/Canada stocks only</p> | <p>All "Adjusted" data items have had the following adjustments made: Added back: goodwill amortisation, provision for catastrophe reserves, IFRS derivatives & hedging, IFRS impairments & IFRS interest expense Excluded: non recurring items, asset revals, property revals, appraisal value uplift, preference dividends & minority interests</p> <p>EPS = adjusted net profit / efpowa* ROA = adjusted ebit / average total assets ROA Banks/Insurance = adjusted net profit / average total assets ROE = adjusted net profit / average shareholders funds Gross cashflow = adjusted net profit + depreciation *equivalent fully paid ordinary weighted average number of shares</p> <p>All Reported numbers for Australian/NZ listed stocks are modelled under IFRS (International Financial Reporting Standards).</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Recommendation proportions – For quarter ending 31 March 2010</p> <table border="1"> <thead> <tr> <th></th> <th>AU/NZ</th> <th>Asia</th> <th>RSA</th> <th>USA</th> <th>CA</th> <th>EUR</th> <th></th> </tr> </thead> <tbody> <tr> <td>Outperform</td> <td>50.55%</td> <td>62.20%</td> <td>42.25%</td> <td>42.39%</td> <td>62.16%</td> <td>46.74%</td> <td>(for US coverage by MCUSA, 6.53% of stocks covered are investment banking clients)</td> </tr> <tr> <td>Neutral</td> <td>36.63%</td> <td>19.02%</td> <td>47.89%</td> <td>50.35%</td> <td>31.89%</td> <td>34.78%</td> <td>(for US coverage by MCUSA, 9.62% of stocks covered are investment banking clients)</td> </tr> <tr> <td>Underperform</td> <td>12.82%</td> <td>18.78%</td> <td>9.86%</td> <td>7.27%</td> <td>5.95%</td> <td>18.48%</td> <td>(for US coverage by MCUSA, 0.00% of stocks covered are investment banking clients)</td> </tr> </tbody> </table> | | | | AU/NZ | Asia | RSA | USA | CA | EUR | | Outperform | 50.55% | 62.20% | 42.25% | 42.39% | 62.16% | 46.74% | (for US coverage by MCUSA, 6.53% of stocks covered are investment banking clients) | Neutral | 36.63% | 19.02% | 47.89% | 50.35% | 31.89% | 34.78% | (for US coverage by MCUSA, 9.62% of stocks covered are investment banking clients) | Underperform | 12.82% | 18.78% | 9.86% | 7.27% | 5.95% | 18.48% | (for US coverage by MCUSA, 0.00% of stocks covered are investment banking clients) |
| | AU/NZ | Asia | RSA | USA | CA | EUR | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Outperform | 50.55% | 62.20% | 42.25% | 42.39% | 62.16% | 46.74% | (for US coverage by MCUSA, 6.53% of stocks covered are investment banking clients) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Neutral | 36.63% | 19.02% | 47.89% | 50.35% | 31.89% | 34.78% | (for US coverage by MCUSA, 9.62% of stocks covered are investment banking clients) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Underperform | 12.82% | 18.78% | 9.86% | 7.27% | 5.95% | 18.48% | (for US coverage by MCUSA, 0.00% of stocks covered are investment banking clients) | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Company Specific Disclosures:

Important disclosure information regarding the subject companies covered in this report is available at www.macquarie.com/research/disclosures.

Analyst Certification:

The views expressed in this research accurately reflect the personal views of the analyst(s) about the subject securities or issuers and no part of the compensation of the analyst(s) was, is, or will be directly or indirectly related to the inclusion of specific recommendations or views in this research. The analyst principally responsible for the preparation of this research receives compensation based on overall revenues of Macquarie Group Ltd ABN 94 122 169 279 (AFSL No. 318062) (MGL) and its related entities (the Macquarie Group) and has taken reasonable care to achieve and maintain independence and objectivity in making any recommendations.

General Disclaimers:

Macquarie Securities (Australia) Ltd; Macquarie Capital (Europe) Ltd; Macquarie Capital Markets Canada Ltd; Macquarie Capital Markets North America Ltd; Macquarie Capital (USA) Inc; Macquarie Capital Securities Ltd and its Taiwan branch; Macquarie Capital Securities (Singapore) Pte Ltd; Macquarie Securities (NZ) Ltd; Macquarie First South Securities (Pty) Limited; Macquarie Capital Securities (India) Pvt Ltd; Macquarie Capital Securities (Malaysia) Sdn Bhd; and Macquarie Securities (Thailand) Ltd are not authorized deposit-taking institutions for the purposes of the Banking Act 1959 (Commonwealth of Australia), and their obligations do not represent deposits or other liabilities of Macquarie Bank Limited ABN 46 008 583 542 (MBL) or MGL. MBL does not guarantee or otherwise provide assurance in respect of the obligations of any of the above mentioned entities. MGL provides a guarantee to the Monetary Authority of Singapore in respect of the obligations and liabilities of Macquarie Capital Securities (Singapore) Pte Ltd for up to SGD 35 million. This research has been prepared for the general use of the wholesale clients of the Macquarie Group and must not be copied, either in whole or in part, or distributed to any other person. If you are not the intended recipient you must not use or disclose the information in this research in any way. If you received it in error, please tell us immediately by return e-mail and delete the document. We do not guarantee the integrity of any e-mails or attached files and are not responsible for any changes made to them by any other person. MGL has established and implemented a conflicts policy at group level (which may be revised and updated from time to time) (the "Conflicts Policy") pursuant to regulatory requirements (including the FSA Rules) which sets out how we must seek to identify and manage all material conflicts of interest. Nothing in this research shall be construed as a solicitation to buy or sell any security or product, or to engage in or refrain from engaging in any transaction. In preparing this research, we did not take into account your investment objectives, financial situation or particular needs. Before making an investment decision on the basis of this research, you need to consider, with or without the assistance of an adviser, whether the advice is appropriate in light of your particular investment needs, objectives and financial circumstances. There are risks involved in securities trading. The price of securities can and does fluctuate, and an individual security may even become valueless. International investors are reminded of the additional risks inherent in international investments, such as currency fluctuations and international stock market or economic conditions, which may adversely affect the value of the investment. This research is based on information obtained from sources believed to be reliable but we do not make any representation or warranty that it is accurate, complete or up to date. We accept no obligation to correct or update the information or opinions in it. Opinions expressed are subject to change without notice. No member of the Macquarie Group accepts any liability whatsoever for any direct, indirect, consequential or other loss arising from any use of this research and/or further communication in relation to this research. Clients should contact analysts at, and execute transactions through, a Macquarie Group entity in their home jurisdiction unless governing law permits otherwise.

Country-Specific Disclaimers:

Australia: In Australia, research is issued and distributed by Macquarie Securities (Australia) Ltd (AFSL No. 238947), a participating organisation of the Australian Securities Exchange. **New Zealand:** In New Zealand, research is issued and distributed by Macquarie Securities (NZ) Ltd, a NZX Firm. **Canada:** In Canada, research is prepared, approved and distributed by Macquarie Capital Markets Canada Ltd, a participating organisation of the Toronto Stock Exchange, TSX Venture Exchange & Montréal Exchange. Macquarie Capital Markets North America Ltd., which is a registered broker-dealer and member of FINRA, accepts responsibility for the contents of reports issued by Macquarie Capital Markets Canada Ltd in the United States and sent to US persons. Any person wishing to effect transactions in the securities described in the reports issued by Macquarie Capital Markets Canada Ltd should do so with Macquarie Capital Markets North America Ltd. The Research Distribution Policy of Macquarie Capital Markets Canada Ltd is to allow all clients that are entitled to have equal access to our research. **United Kingdom:** In the United Kingdom, research is issued and distributed by Macquarie Capital (Europe) Ltd, which is authorised and regulated by the Financial Services Authority (No. 193905). **Germany:** In

Germany, research is issued and distributed by Macquarie Capital (Europe) Ltd, Niederlassung Deutschland, which is authorised and regulated in the United Kingdom by the Financial Services Authority (No. 193905). **France:** In France, research is issued and distributed by Macquarie Capital (Europe) Ltd, which is authorised and regulated in the United Kingdom by the Financial Services Authority (No. 193905). **Hong Kong:** In Hong Kong, research is issued and distributed by Macquarie Capital Securities Ltd, which is licensed and regulated by the Securities and Futures Commission. **Japan:** In Japan, research is issued and distributed by Macquarie Capital Securities (Japan) Limited, a member of the Tokyo Stock Exchange, Inc. and Osaka Securities Exchange Co. Ltd (Financial Instruments Firm, Kanto Financial Bureau (kin-sho) No. 231, a member of Japan Securities Dealers Association and Financial Futures Association of Japan). **India:** In India, research is issued and distributed by Macquarie Capital Securities (India) Pvt Ltd, which is a SEBI registered Stock Broker having membership with National Stock Exchange of India Limited (INB231246738) and Bombay Stock Exchange Limited (INB011246734). **Malaysia:** In Malaysia, research is issued and distributed by Macquarie Capital Securities (Malaysia) Sdn. Bhd. (Company registration number: 463469-W) which is a Participating Organisation of Bursa Malaysia Berhad and a holder of Capital Markets Services License issued by the Securities Commission. **Taiwan:** Information on securities/instruments that are traded in Taiwan is distributed by Macquarie Capital Securities Ltd, Taiwan Branch, which is licensed and regulated by the Financial Supervisory Commission. No portion of the report may be reproduced or quoted by the press or any other person without authorisation from Macquarie. **Thailand:** In Thailand, research is issued and distributed by Macquarie Securities (Thailand) Ltd, a licensed securities company that is authorized by the Ministry of Finance, regulated by the Securities and Exchange Commission of Thailand and is an exchange member no. 28 of the Stock Exchange of Thailand. The Thai Institute of Directors Association has disclosed the Corporate Governance Report of Thai Listed Companies made pursuant to the policy of the Securities and Exchange Commission of Thailand. Macquarie Securities (Thailand) Ltd does not endorse the result of the Corporate Governance Report of Thai Listed Companies but this Report can be accessed at: <http://www.thai-iod.com/en/publications.asp?type=4>. **South Africa:** In South Africa, research is issued and distributed by Macquarie First South Securities (Pty) Limited, a member of the JSE Limited. **Singapore:** In Singapore, research is issued and distributed by Macquarie Capital Securities (Singapore) Pte Ltd (Company Registration Number: 198702912C), a Capital Markets Services license holder under the Securities and Futures Act to deal in securities and provide custodial services in Singapore. Pursuant to the Financial Advisers (Amendment) Regulations 2005, Macquarie Capital Securities (Singapore) Pte Ltd is exempt from complying with sections 25, 27 and 36 of the Financial Advisers Act. All Singapore-based recipients of research produced by Macquarie Capital (Europe) Limited, Macquarie Capital Markets Canada Ltd, Macquarie First South Securities (Pty) Limited and Macquarie Capital (USA) Inc. represent and warrant that they are institutional investors as defined in the Securities and Futures Act. **United States:** In the United States, research is issued and distributed by Macquarie Capital (USA) Inc., which is a registered broker-dealer and member of FINRA. Macquarie Capital (USA) Inc. accepts responsibility for the content of each research report prepared by one of its non-US affiliates when the research report is distributed in the United States by Macquarie Capital (USA) Inc. Macquarie Capital (USA) Inc.'s affiliate's analysts are not registered as research analysts with FINRA, may not be associated persons of Macquarie Capital (USA) Inc., and therefore may not be subject to FINRA rule restrictions on communications with a subject company, public appearances, and trading securities held by a research analyst account. Any persons receiving this report directly from Macquarie Capital (USA) Inc. and wishing to effect a transaction in any security described herein should do so with Macquarie Capital (USA) Inc. Important disclosure information regarding the subject companies covered in this report is available at www.macquarie.com/research/disclosures, or contact your registered representative at 1-888-MAC-STOCK, or write to the Supervisory Analysts, Research Department, Macquarie Securities, 125 W.55th Street, New York, NY 10019.

© Macquarie Group

| | | | | | | |
|---|---|--|--|---|---|--|
| Auckland Tel: (649) 377 6433 | Bangkok Tel: (662) 694 7999 | Calgary Tel: (1 403) 218 6650 | Hong Kong Tel: (852) 2823 3588 | Jakarta Tel: (62 21) 515 1818 | Johannesburg Tel: (2711) 583 2000 | Kuala Lumpur Tel: (60 3) 2059 8833 |
| London Tel: (44 20) 3037 4400 | Manila Tel: (63 2) 857 0888 | Melbourne Tel: (613) 9635 8139 | Montreal Tel: (1 514) 925 2850 | Mumbai Tel: (91 22) 6653 3000 | Perth Tel: (618) 9224 0888 | Seoul Tel: (82 2) 3705 8500 |
| Shanghai Tel: (86 21) 6841 3355 | Singapore Tel: (65) 6231 1111 | Sydney Tel: (612) 8232 9555 | Taipei Tel: (886 2) 2734 7500 | Tokyo Tel: (81 3) 3512 7900 | Toronto Tel: (1 416) 848 3500 | New York Tel: (1 212) 231 2500 |

Available to clients on the world wide web at www.macquarieresearch.com and through Thomson Financial, FactSet, Reuters, Bloomberg, CapitalIQ and TheMarkets.com.

Asia Research

Head of Equity Research

| | |
|-----------------------------------|-------------------|
| John O'Connell (Global Co – Head) | (612) 8232 7544 |
| David Rickards (Global Co – Head) | (44 20) 3037 4399 |
| Chris Hunt (Asia – Head) | (852) 3922 1119 |
| Tim Smart (Asia – Deputy Head) | (852) 3922 3565 |

Automobiles/Auto Parts

| | |
|-----------------------|------------------|
| Leah Jiang (China) | (8621) 2412 9020 |
| Clive Wiggins (Japan) | (813) 3512 7856 |
| Dan Lucas (Japan) | (813) 3512 6050 |
| ES Kwak (Korea) | (822) 3705 8644 |
| Linda Huang (Taiwan) | (8862) 2734 7521 |

Banks and Non-Bank Financials

| | |
|----------------------------------|------------------|
| Ismael Pili (Asia) | (813) 3512 5979 |
| Nick Lord (Asia) | (852) 3922 4774 |
| Sarah Wu (China) | (852) 3922 4068 |
| Jemmy Huang (Hong Kong, Taiwan) | (8862) 2734 7530 |
| Mudit Painuly (India) | (9122) 6653 3044 |
| Suresh Ganapathy (India) | (9122) 6653 3042 |
| Ferry Wong (Indonesia) | (6221) 515 7335 |
| Chan Hwang (Korea) | (822) 3705 8643 |
| Michael Na (Korea) | (822) 2095 7222 |
| Chin Seng Tay (Malaysia, S'pore) | (65) 6231 2837 |
| Nadine Javellana (Philippines) | (632) 857 0890 |
| Matthew Smith (Taiwan) | (8862) 2734 7514 |
| Alastair Macdonald (Thailand) | (662) 694 7741 |

Chemicals/Textiles

| | |
|----------------------------|------------------|
| Christina Lee (Hong Kong) | (852) 3922 3571 |
| Jal Irani (India) | (9122) 6653 3040 |
| Shawn Park (Korea) | (822) 3705 8669 |
| Sunaina Dhanuka (Malaysia) | (603) 2059 8993 |

Conglomerates

| | |
|--------------------|------------------|
| Gary Pinge (Asia) | (852) 3922 3557 |
| Leah Jiang (China) | (8621) 2412 9020 |

Consumer and Gaming

| | |
|--------------------------------|------------------|
| Gary Pinge (Asia) | (852) 3922 3557 |
| Jessie Qian (China, Hong Kong) | (852) 3922 3568 |
| Toby Williams (Japan) | (813) 3512 7392 |
| HongSuk Na (Korea) | (822) 3705 8678 |
| Edward Ong (Malaysia) | (603) 2059 8982 |
| Alex Pomento (Philippines) | (632) 857 0899 |
| Linda Huang (Taiwan) | (8862) 2734 7521 |

Emerging Leaders

| | |
|-------------------------|------------------|
| Jake Lynch (Asia) | (8621) 2412 9007 |
| Minoru Tayama (Japan) | (813) 3512 6058 |
| Robert Burghart (Japan) | (813) 3512 7853 |

Industrials

| | |
|-------------------------------|------------------|
| Inderjeetsingh Bhatia (India) | (9122) 6653 3166 |
| Christopher Cintavey (Japan) | (813) 3512 7432 |
| Janet Lewis (Japan) | (813) 3512 7475 |
| Chang Han Joo (Korea) | (822) 3705 8511 |
| Sunaina Dhanuka (Malaysia) | (603) 2059 8993 |
| David Gambrell (Thailand) | (662) 694 7753 |

Insurance

| | |
|------------------------|-----------------|
| Mark Kellock (Asia) | (852) 3922 3567 |
| Makarim Salman (Japan) | (813) 3512 7421 |

Media

| | |
|--------------------------------|------------------|
| Jessie Qian (China, Hong Kong) | (852) 3922 3568 |
| Shubham Majumder (India) | (9122) 6653 3049 |
| George Hogan (Japan) | (813) 3512 7851 |
| Prem Jearajasingam (Malaysia) | (603) 2059 8989 |
| Alex Pomento (Philippines) | (632) 857 0899 |

Sales

Regional Heads of Sales

| | |
|----------------------------------|------------------|
| Chris Gray (ASEAN) | (65) 6231 2888 |
| Justin Crawford (Asia) | (852) 3922 2065 |
| Peter Slater (Boston) | (1 617) 598 2502 |
| Jeffrey Shiu (China & Hong Kong) | (852) 3922 2061 |
| Thomas Renz (Geneva) | (41) 22 818 7712 |
| Andrew Mouat (India) | (9122) 6653 3200 |
| Stanley Dunda (Indonesia) | (6221) 515 1555 |
| Kenneth Yap (Indonesia) | (6221) 515 1555 |
| JJ Kim (Korea) | (822) 3705 8799 |
| Jason Lee (Malaysia) | (603) 2059 8888 |
| Gino C Rojas (Philippines) | (632) 857 0761 |
| Greg Norton-Kidd (New York) | (1 212) 231 2527 |
| Luke Sullivan (New York) | (1 212) 231 2507 |
| Scot Mackie (New York) | (1 212) 231 2848 |

Oil and Gas

| | |
|-----------------------------|------------------|
| Laban Yu (Asia) | (852) 3922 4691 |
| Christina Lee (Hong Kong) | (852) 3922 3571 |
| Jal Irani (India) | (9122) 6653 3040 |
| Polina Diyachkina (Japan) | (813) 3512 7886 |
| Shawn Park (Korea) | (822) 3705 8669 |
| Edward Ong (Malaysia) | (603) 2059 8982 |
| Sunaina Dhanuka (Malaysia) | (603) 2059 8993 |
| Linda Huang (Taiwan) | (8862) 2734 7521 |
| Trevor Buchinski (Thailand) | (662) 694 7829 |

Pharmaceuticals

| | |
|---------------------------|------------------|
| Christina Lee (Hong Kong) | (852) 3922 3571 |
| Abhishek Singhal (India) | (9122) 6653 3052 |
| Naomi Kumagai (Japan) | (813) 3512 7474 |

Property

| | |
|--------------------------------|------------------|
| Callum Bramah (Asia) | (852) 3922 4731 |
| Eva Lee (China, Hong Kong) | (852) 3922 3573 |
| Hiroshi Okubo (Japan) | (813) 3512 7433 |
| Chang Han Joo (Korea) | (822) 3705 8511 |
| Tuck Yin Soong (Singapore) | (65) 6231 2838 |
| Elaine Cheong (Singapore) | (65) 6231 2839 |
| Corinne Jian (Taiwan) | (8862) 2734 7522 |
| Patti Tomaitrichitr (Thailand) | (662) 694 7727 |

Resources / Metals and Mining

| | |
|------------------------------|------------------|
| Andrew Dale (Asia) | (852) 3922 3587 |
| YeeMan Chin (China) | (852) 3922 3562 |
| Graeme Train (China) | (8621) 2412 9035 |
| Christina Lee (Hong Kong) | (852) 3922 3571 |
| Rakesh Arora (India) | (9122) 6653 3054 |
| Adam Worthington (Indonesia) | (65) 6231 2981 |
| Riaz Hyder (Indonesia) | (6221) 2598 8486 |
| Polina Diyachkina (Japan) | (813) 3512 7886 |

Technology

| | |
|-------------------------|------------------|
| Michael Bang (Asia) | (822) 3705 8659 |
| Patrick Yau (Hong Kong) | (852) 3922 1264 |
| Zona Chen (Hong Kong) | (852) 3922 3578 |
| Nitin Mohta (India) | (9122) 6653 3050 |
| Damian Thong (Japan) | (813) 3512 7877 |
| David Gibson (Japan) | (813) 3512 7880 |
| George Chang (Japan) | (813) 3512 7854 |
| Michiko Kakiya (Japan) | (813) 3512 7868 |
| Yukihiro Goto (Japan) | (813) 3512 5984 |
| Daniel Kim (Korea) | (822) 3705 8641 |
| Abraham Leu (Taiwan) | (8862) 2734 7511 |
| Chia-Lin Lu (Taiwan) | (8862) 2734 7526 |
| Daniel Chang (Taiwan) | (8862) 2734 7516 |
| James Chiu (Taiwan) | (8862) 2734 7517 |
| Jeffrey Su (Taiwan) | (8862) 2734 7512 |
| Samson Yu (Taiwan) | (8862) 2734 7532 |
| Jimmy Hsu (Taiwan) | (8862) 2734 7533 |

Telecoms

| | |
|-------------------------------|------------------|
| Shubham Majumder (Asia) | (9122) 6653 3049 |
| Ramakrishna Maruvada (ASEAN) | (65) 6231 2842 |
| Bin Liu (China) | (852) 3922 3634 |
| Tim Smart (China) | (852) 3922 3565 |
| Riaz Hyder (Indonesia) | (6221) 2598 8486 |
| Nathan Ramler (Japan) | (813) 3512 7875 |
| Prem Jearajasingam (Malaysia) | (603) 2059 8989 |

Transport & Infrastructure

| | |
|----------------------------|-----------------|
| Anderson Chow (Asia) | (852) 3922 4773 |
| Jonathan Windham (Asia) | (852) 3922 5417 |
| Wei Sim (China, Hong Kong) | (852) 3922 3598 |
| Janet Lewis (Japan) | (813) 3512 7475 |
| Chang Han Joo (Korea) | (822) 3705 8511 |
| ES Kwak (Korea) | (822) 3705 8644 |
| Sunaina Dhanuka (Malaysia) | (603) 2059 8993 |

Utilities

| | |
|-------------------------------|------------------|
| Adam Worthington (Asia) | (65) 6231 2981 |
| Carol Cao (China, Hong Kong) | (852) 3922 4075 |
| Jeff Evans (India) | (9122) 3356 3053 |
| Prem Jearajasingam (Malaysia) | (603) 2059 8989 |
| Alex Pomento (Philippines) | (632) 857 0899 |

Commodities

| | |
|--------------|------------------|
| Jim Lennon | (4420) 3037 4271 |
| Max Layton | (4420) 3037 4273 |
| Duncan Hobbs | (4420) 3037 4497 |
| Bonnie Liu | (8621) 2412 9008 |
| Graeme Train | (8621) 2412 9035 |
| Rakesh Arora | (9122) 6653 3054 |

Data Services

| | |
|------------------------|-----------------|
| Andrea Clohessy (Asia) | (852) 3922 4076 |
| Eric Yeung | (852) 3922 4077 |

Economics

| | |
|-----------------------------|-----------------|
| Richard Jerram (Asia) | (813) 3512 7855 |
| Rajeev Malik (ASEAN, India) | (65) 6231 2841 |
| Richard Gibbs (Australia) | (612) 8232 3935 |
| Paul Cavey (China) | (852) 3922 3570 |

Quantitative

| | |
|--------------------------|-----------------|
| Martin Emery (Asia) | (852) 3922 3582 |
| Viking Kwok (Asia) | (852) 3922 4735 |
| George Platt (Australia) | (612) 8232 6539 |
| Patrick Hansen (Japan) | (813) 3512 7876 |

Strategy/Country

| | |
|-------------------------------|------------------|
| Michael Kurtz (Asia) | (8621) 2412 9002 |
| Daniel McCormack (Asia) | (852) 3922 4073 |
| Mark Matthews (Asia) | (852) 3922 3585 |
| Rakesh Arora (India) | (9122) 6653 3054 |
| Ferry Wong (Indonesia) | (6221) 515 7335 |
| David Gibson (Japan) | (813) 3512 7880 |
| Peter Eadon-Clarke (Japan) | (813) 3512 7850 |
| Chan Hwang (Korea) | (822) 3705 8643 |
| Prem Jearajasingam (Malaysia) | (603) 2059 8989 |
| Edward Ong (Malaysia) | (603) 2059 8982 |
| Alex Pomento (Philippines) | (632) 857 0899 |
| Patrick Yau (Singapore) | (65) 6231 2835 |
| Daniel Chang (Taiwan) | (8862) 2734 7516 |
| Alastair Macdonald (Thailand) | (662) 694 7741 |

Find our research at

| | |
|---|--|
| Macquarie: | www.macquarie.com.au/research |
| Thomson: | www.thomson.com/financial |
| Reuters: | www.knowledge.reuters.com |
| Bloomberg: | MAC GO |
| Factset: | http://www.factset.com/home.aspx |
| CapitalIQ | www.capitaliq.com |
| TheMarkets.com | www.themarkets.com |
| Email macresearch@macquarie.com for access | |

Regional Heads of Sales cont'd

| | |
|----------------------------------|-------------------|
| Sheila Schroeder (San Francisco) | (1 415) 762 5001 |
| Angus Kent (Thailand) | (662) 694 7601 |
| Michael Newman (Tokyo) | (813) 3512 7920 |
| Charles Nelson (UK/Europe) | (44) 20 3037 4832 |
| Rob Fabbro (UK/Europe) | (44) 20 3037 4865 |
| Nick Ainsworth (Generalist) | (852) 3922 2010 |

Sales Trading

| | |
|---------------------------|-------------------|
| Adam Zaki (Asia) | (852) 3922 2002 |
| Mike Keen (Europe) | (44) 20 3037 4905 |
| Yat Quan Tan (Hong Kong) | (852) 3922 2028 |
| Stanley Dunda (Indonesia) | (6221) 515 1555 |
| Mario Argyrides (Korea) | (822) 3705 8610 |
| Edward Robinson (London) | (44) 20 3037 4902 |

Sales Trading cont'd

| | |
|------------------------------|------------------|
| Chris Reale (New York) | (1 212) 231 2616 |
| Michael Santos (Philippines) | (632) 857 0813 |
| Matthew Ryan (Singapore) | (65) 6231 2888 |
| Isaac Huang (Taiwan) | (8862) 2734 7582 |
| Dominic Shore (Thailand) | (662) 694 7707 |
| Phil Sellaroli (Tokyo) | (813) 3512 7837 |

Alternative Strategies

| | |
|--------------------------------------|-----------------|
| Convertibles - Roland Sharmar | (852) 3922 2095 |
| Depository Receipts - Robert Ansell | (852) 3922 2094 |
| Derivatives - Wayne Edelist | (852) 3922 2134 |
| Futures - Tim Smith | (852) 3922 2113 |
| Structured Products - Andrew Terlich | (852) 3922 2013 |