

December 15, 2009

GLOBAL

The Mobile Internet Report

Ramping Faster than Desktop Internet, the Mobile Internet Will Be Bigger than Most Think

Material wealth creation / destruction should surpass earlier computing cycles. The mobile Internet cycle, the 5th cycle in 50 years, is just starting. Winners in each cycle often create more market capitalization than in the last. New winners emerge, some incumbents survive – or thrive – while many past winners falter.

The mobile Internet is ramping faster than desktop Internet did, and we believe more users may connect to the Internet via mobile devices than desktop PCs within 5 years.

Five IP-based products / services are growing / converging and providing the underpinnings for dramatic growth in mobile Internet usage – 3G adoption + social networking + video + VoIP + impressive mobile devices.

Apple + Facebook platforms serving to raise the bar for how users connect / communicate – their respective ramps in user and developer engagement may be unprecedented.

Decade-plus Internet usage / monetization ramps for mobile Internet in Japan plus desktop Internet in developed markets provide roadmaps for global ramp and monetization.

Massive mobile data growth is driving transitions for carriers and equipment providers.

Emerging markets have material potential for mobile Internet user growth. Low penetration of fixed-line telephone and already vibrant mobile value-added services mean that for many EM users and SMEs, the Internet will be mobile.

We use a data-rich, theme-based framework for thinking about how the rapidly emerging / changing mobile Internet may evolve. One thing is clear: new computing cycles create / destroy material wealth – and the mobile Internet cycle should be no different. For our compilation of *well positioned / potentially challenged / unclearly positioned companies*, see pages 11-13.

This report is structured as a PowerPoint presentation based on the 8 themes highlighted to the right. Each theme is preceded by an overview that sets the stage for the slides. Additionally, we compiled 'The Mobile Internet Report Setup' presentation (pages 9-59), which highlights the key takeaways of our work. This report is optimally viewed on a screen or as a color print out.

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Key Themes

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To purchase a printed copy of *The Mobile Internet Report*, please go to www.morganstanley.com/mobileinternetbook or contact your Morgan Stanley representative.

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For analyst certification and other important disclosures, refer to the Disclosure Section, located at the end of this report.

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We acknowledge the contributions of Ravi Lath to this report.

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7) Compelling Opportunities in Emerging Markets

With nearly 4 billion mobile subscribers, but only ~260 million of them expected to be on 3G networks by year-end 2009, we believe emerging markets offer immense potential demand for the mobile Internet – more than many investors appreciate. In our opinion, low fixed-line penetration means that for many, the mobile Internet will be the Internet. Costs of mobile are just 3-5% of fixed broadband (DSL) per household, and vibrant mobile value-added services offer great appeal to carriers and users alike. But low GDP per capita restricts spending on handsets and service plans, and low post-paid penetration and small carrier subsidies likely hinder adoption of smartphones.

Mobile services, from agriculture and health to banking and newspapers, have spread rapidly across many emerging markets, all based on SMS. Carriers have adapted to this low-ARPU environment through outsourcing network management, sharing wireless towers and equipment, and compressing wireless data (cost-saving lessons the developing world could learn).

The 20-25% inflection point for 3G penetration in emerging markets will likely depend in part on falling equipment prices. We expect it to come in 2012, and it could be bigger than people think: In our view, there should be over 1 billion 3G subscribers then, many times the number in Japan, the US, and Europe when those markets began to take off. In smaller emerging markets, the mobile Internet is already having an impact: broadband added 8% to Mobily's 3Q09 revenue growth in Saudi Arabia, while mobile broadband and mobile banking contributed 12% percentage points to Safaricom's FH1:10 revenue growth in Kenya.

Data revenue in emerging markets in 2012 could range from \$2.7 billion to \$5.4 billion, depending on the ARPU from music, gaming, video, and other mobile broadband apps. The number of Internet users in the top 10 emerging markets surpassed those in the top 10 developed markets last year, and we expect the same to occur with mobile Internet before long. Already there are signs of monetization, especially in China: China Mobile already has its own ecosystem, for example, and the number of Chinese mobile subscribers reading newspapers via SMS and MMS equals nearly 40% of daily newspaper circulation in the country.

The dominance of prepaid wireless plans and high device and data plan costs (relative to GDP) are slowing 3G adoption. In our review of rollouts in Asia and Africa, take-up and data revenue growth have been slow (just 1-3 percentage points per year since 2005), with negligible impact on ARPU and EBITA margins. Users on prepaid plans think twice about downloading data, so once flat-rate pricing begins in earnest –

as it did with AOL in the US in 1996 and docomo in Japan in this decade – usage should begin to accelerate.

Subscriber growth/value propositions will vary across markets, of course. We expect robust subscriber growth to drive revenue for carriers in Emerging Asia, the Middle East, and Africa, thanks to low mobile subscriber penetration. Chinese carriers, by contrast, look to capitalize on advanced Value Added Service (VAS) platforms, but until now Indian carriers have seen minimal ROI on investments in 3G spectrum and networks. We believe mobile broadband will be an effective strategy for growth in the Middle East and Africa as a cost-effective Internet access solution.

China in particular is an interesting case study. It has relatively high usage and demand for mobile Internet and data, auguring more aggressive 3G take-up than in other emerging markets. Strong subscriber growth is offsetting falling voice ARPU, with services providing incremental revenue gains. The stage appears to be set for 3G in China, with 46% of the Internet population using 2.xG mobile data services as of 1H09, according to CNNIC, while a CR-Nielsen / CNNIC survey indicates that 54% of consumers would switch wireless carriers to get the ideal 3G handset. Our base case shows 6.7% wireless service revenue CAGR through 2015. On the other hand, major infrastructure investments are needed, and handset prices are still too high for many consumers.

In India, massive subscriber growth and network congestion offer incentives for carriers to ramp up more efficient 3G networks, and mobile Internet access is likely to spread rapidly among affluent citizens, with higher income and low PC penetration. As in China, VAS could be meaningful revenue sources for carriers. But, in our view, limited spectrum and high capex needs will limit carrier ROI, as will a highly competitive market with five 3G operators; 3G handset costs are also still too high. Our base case suggests carriers will need 4-7 years (depending on incremental ARPU and spectrum license auction costs) to see payback for their initial investment in spectrum and network. At these levels, balance sheets could come under some strain with no incremental returns for years for existing operators.

In our view, low penetration in Malaysia, Thailand, the Philippines, and Indonesia means that growth could be quite robust, and upgrades of 3G networks to HSPA+ speeds could be inexpensive and rapid. In Emerging Europe, the Middle East, and Africa, substantial growth and rising penetration will likely also proceed rapidly, but affordability remains a concern in many regions, with broadband penetration likely more than five years from an inflection point. In Russia, our base case calls for a 3.6% service revenue CAGR through 2015.

Key Theme #7

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Key Theme #7

- 1) **Wealth Creation / Destruction is Material in New Computing Cycles – Now in Early Innings of Mobile Internet Cycle, the 5th Cycle of Last Half Century.**
- 2) **Mobile Ramping Faster than Desktop Internet Did and Will Be Bigger Than Most Think – 5 Trends Converging (3G + Social Networking + Video + VoIP + Impressive Mobile Devices).**
- 3) **Apple Leading in Mobile Innovation + Impact, for Now – Depth of App Ecosystems + User Experience + Pricing Will Likely Determine Long-Term Winners.**
- 4) **Game-Changing Communications / Commerce Platforms (Social Networking + Mobile) Emerging Very Rapidly.**
- 5) **Growth / Monetization Roadmaps Provided by Japan Mobile + Desktop Internet.**
- 6) **Massive Data Growth Driving Carrier / Equipment Transitions.**
- 7) **Compelling Opportunities in Emerging Markets.**
- 8) **Regulators Can Help Advance / Slow Mobile Internet Evolution.**

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Key Theme #7 – Compelling Opportunities in Emerging Markets

Emerging Markets (EM) have material potential for mobile Internet user growth. Low penetration of fixed-line telephone + already vibrant mobile VAS mean that for many EM users and small / medium enterprises (SMEs), the Internet will only be mobile.

We are still in the nascent stages of the market, but there are already encouraging signs of adoption of mobile broadband driven by falling prices for already low-cost ‘netbooks’, availability of smartphones, and rollout of 3G.

We expect carriers in emerging Asia & Africa to be better positioned than carriers in Eastern Europe and the Middle East when markets hit inflection points, driven by stronger subscriber growth.

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Compelling Opportunities in Emerging Markets

Significant Long-Term Potential

Low fixed line / broadband penetration → mobile is the Internet
 Already vibrant mobile value-added services
 Low GDP / ARPU → Innovative solutions in carrier cost saving

Near-Term Adoption Barriers are Falling

Falling prices on end-user devices – smartphones + netbooks are already lowering the barriers to entry, similar to the mobile voice phenomenon in EM over the last 5 years

Analysis / Forecasts by Region

Emerging Asia (China / India / Other)
 EEMEA (Emerging Europe / Middle East / Africa)

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*Emerging Markets =
Significant Long-Term Mobile Internet Potential*

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**Emerging Markets =
Significant Long-Term Mobile Internet Potential**

1) Material 3G Subscriber Potential

→ Owing to relatively low penetration

2) The Internet Will Be Mobile

→ Owing, in part, to low fixed-line / broadband penetration

3) Vibrant 2.xG Mobile Value-Added Services (MVAS)

→ Innovation around SMS and mobile banking especially robust + useful

4) Carriers Adapted to Survive + Thrive on Low ARPU

→ Only the fittest survive; valuable cost saving lessons for developed world

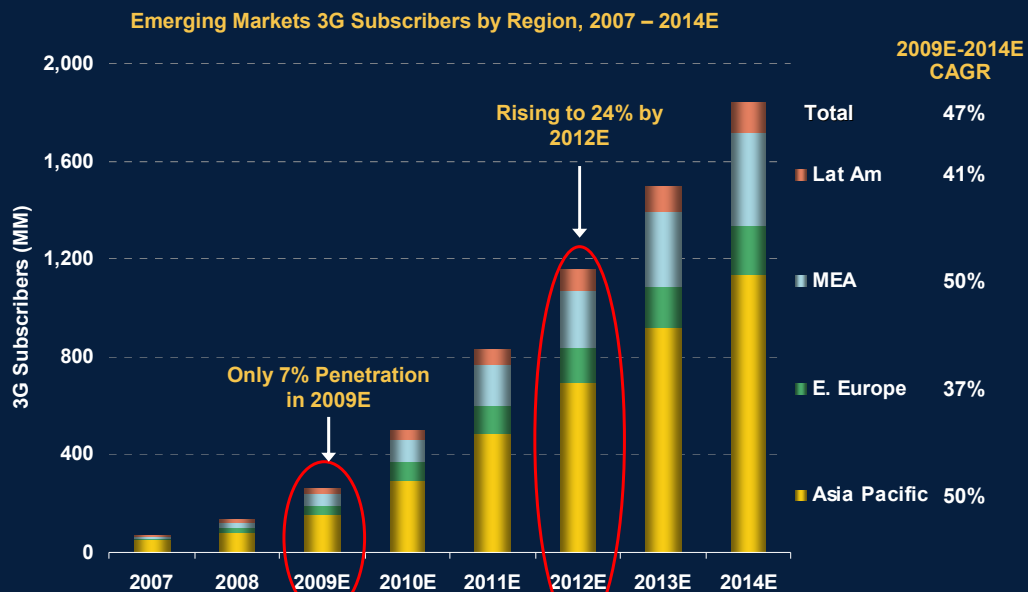
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Emerging Markets =
Significant Long-Term Mobile Internet Potential

While 3G penetration is low today, we estimate material level of 3G subscribers at 2012 inflection point

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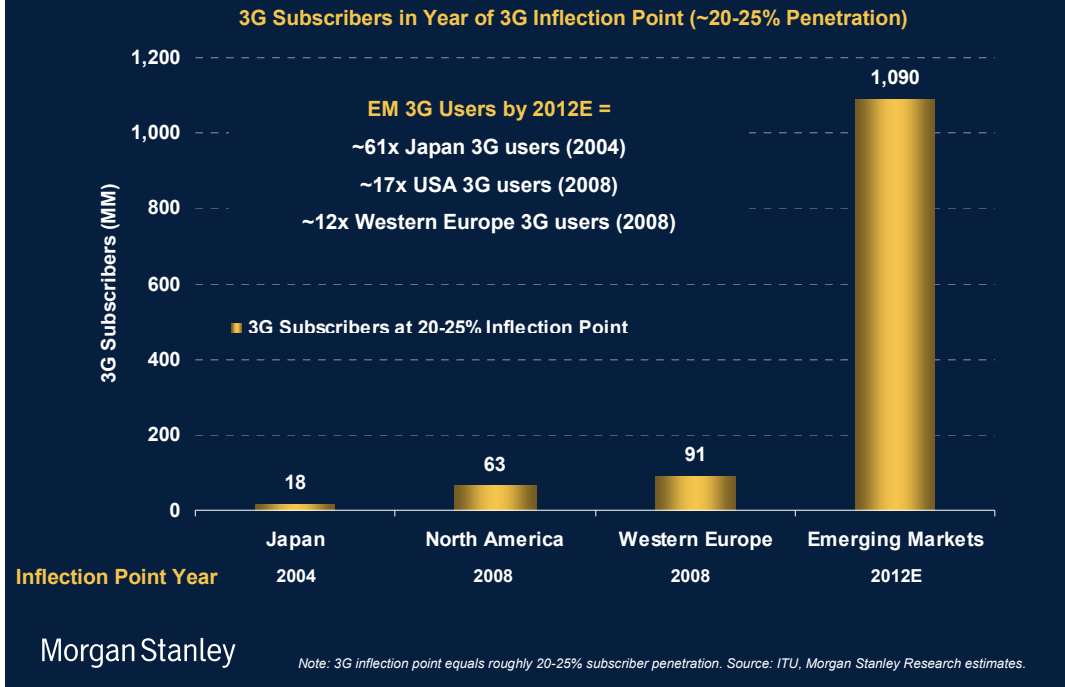
EM - Material 3G Subscriber Potential While Still at Relatively Low Penetration Levels



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Note: 3G technologies include WCDMA, HSPA, TD-SCDMA, 1xEV-DO, LTE and WiMAX.
Source: Ovum estimates, Morgan Stanley Research.

At Inflection Point, Long-Term EM Opportunity at Different Order of Magnitude – by 2012, EM 3G Users = ~6x Total Developed Market 3G Users

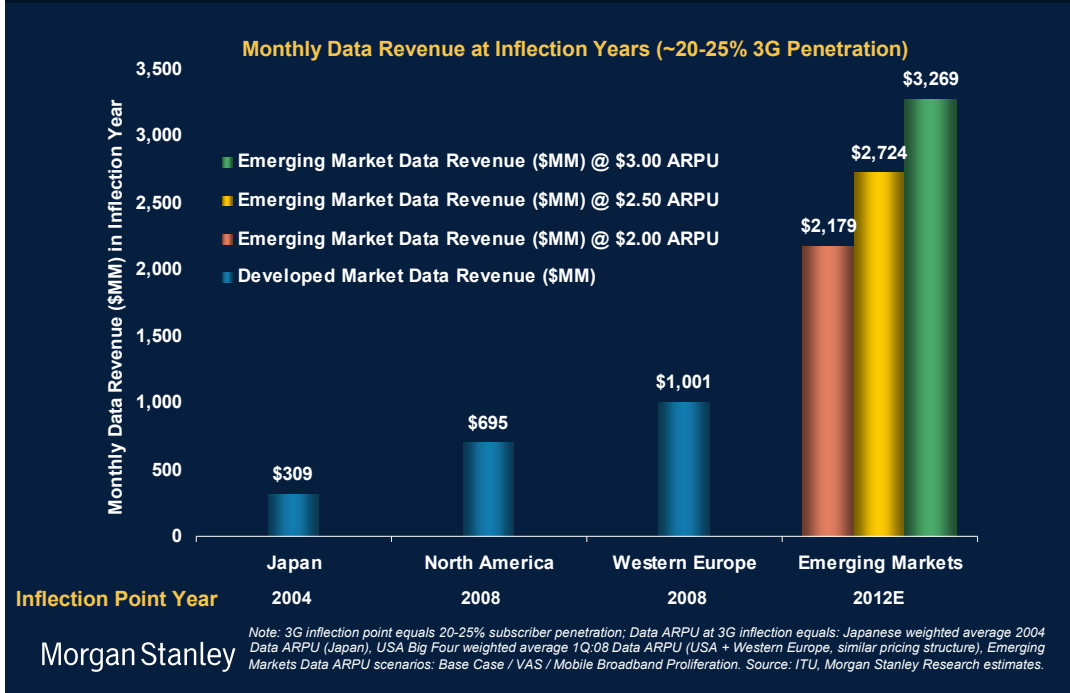


Emerging Market Mobile Data Revenue Assumptions in 2012E When 3G Users Hit Inflection Point

- Base Case ARPU Assumption
 - \$2.00 monthly data ARPU (20% of total ARPU*)
 - 1.1B Emerging Market 3G subscribers
 - \$2.2B monthly mobile data revenue
- VAS Upside Case ARPU Assumption
 - \$2.50 monthly data ARPU (25% of total ARPU)
 - \$2.00 base case ARPU + \$0.50 incremental ARPU from Value Added Services such as mobile paper / mobile TV...)
 - 1.1B Emerging Market 3G subscribers
 - \$2.7B monthly mobile data revenue
- Bull Case ARPU Assumption
 - \$3.00 monthly data ARPU (30% of total ARPU)
 - \$2.50 VAS upside case ARPU + \$0.50 incremental ARPU from notebook mobile broadband usage replacing desktop dial-up / broadband usage)
 - 1.1B Emerging Market 3G subscribers
 - \$3.2B monthly mobile data revenue

Note: 2012E Total ARPU estimate of \$10 based on current EM ARPU of roughly \$10, 20% data revenue share based on current average data revenue share for large-scale carriers (conservative / in-line given China Mobile's 1H09 monthly ARPU of ~\$10.50 / 23% data revenue share). VAS incremental ARPU of \$0.50 are our estimates based on the incremental revenue carriers could generate over the next four years from mobile market / mobile TV / other new offerings. Mobile broadband / data card incremental ARPU based on our estimates. Source: ITU, Morgan Stanley Research.

**Opportunities Could Be Significant at Inflection Point –
~1B 3G Subscribers Driving Monthly Data Revenue of ~\$2-3B by 2012E**



**Emerging Markets =
Significant Long-Term Mobile Internet Potential**

*The Internet will be mobile owing, in part,
to low fixed-line / broadband penetration*

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Over Time, Impact of Mobile Internet in Emerging Markets Will Likely Be Significant

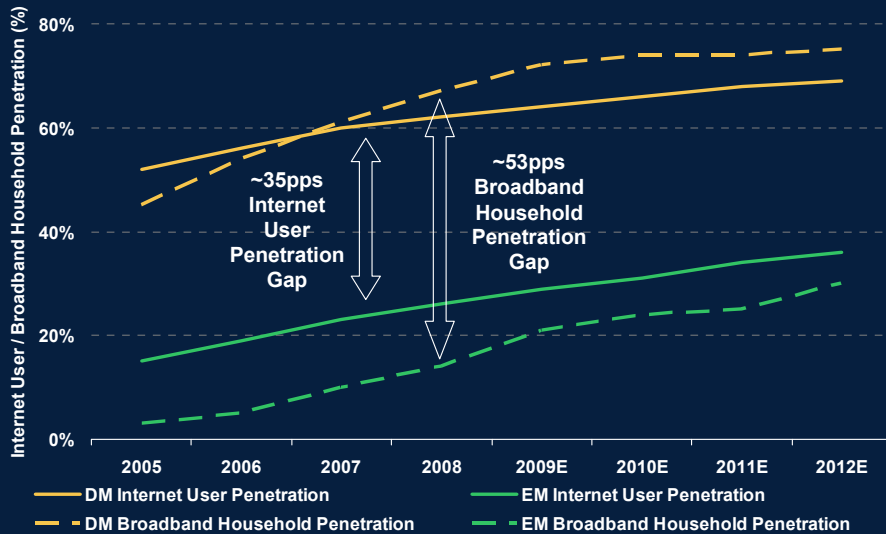
The reason why mobile phones are so valuable to people in the poor world is that they are providing access to telecommunications for the very first time, rather than just being portable adjuncts to existing fixed-line phones, as in the rich world. "For you it was incremental - here it's revolutionary," says Isaac Nsereko of MTN, Africa's biggest operator. According to a recent study, adding an extra ten mobile phones per 100 people in a typical developing country boosts growth in GDP per person by 0.8 percentage points.

- The Economist, "Mobile Marvels, a Special Report on Telecoms in Emerging Markets," 9/24/09

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Broadband Internet Penetration Remains Particularly Low in Emerging Markets...

Median Internet Users / Broadband Household Penetration in Developed Markets (DM) / Emerging Markets (EM), 2005 – 2012E

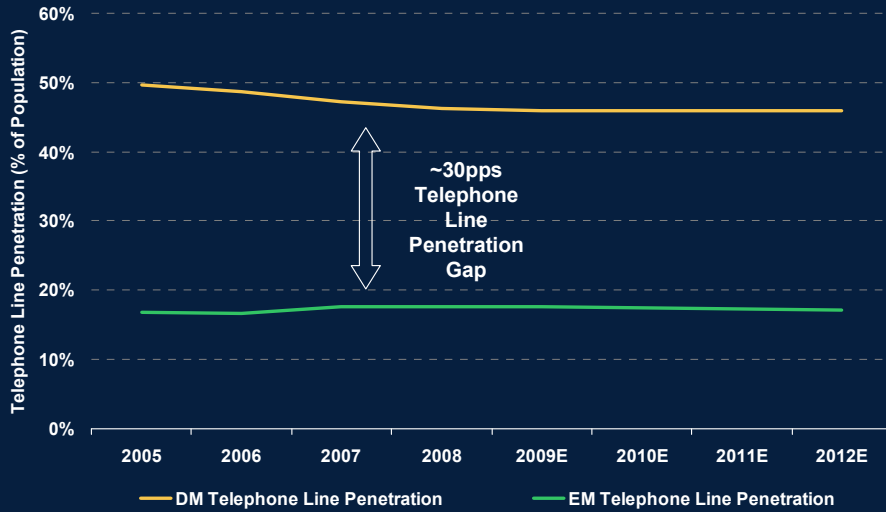


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Note: Pps is percentage points. Internet user penetration per population, while broadband penetration is per household. Data from top 52 countries based on GDP. Source: ITU, Morgan Stanley TMT Database estimates.

...Caused in Part by Sub-20% Fixed-Line Telephone Penetration (Sub-5% in Some Countries)

Median Telephone Line Penetration in Developed Markets (DM) / Emerging Markets (EM), 2005 – 2012E

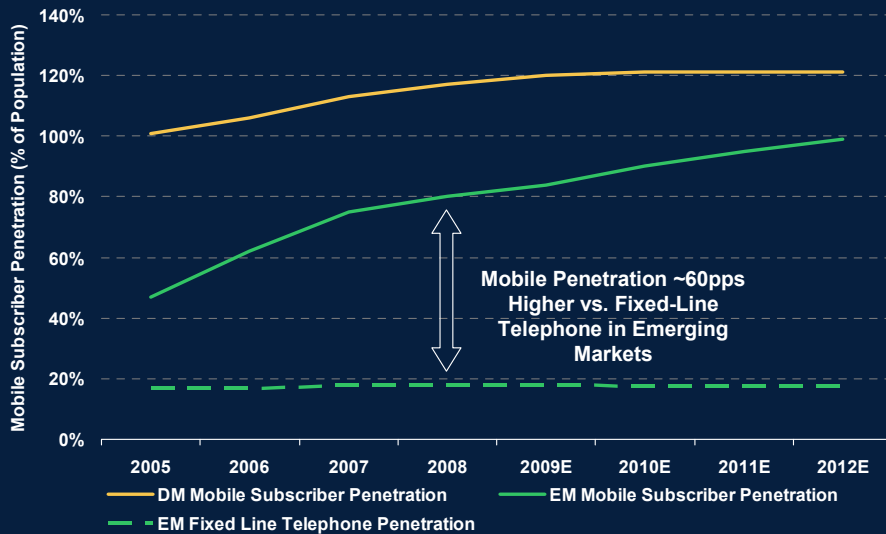


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Note: Data from top 52 countries based on GDP. Source: ITU, Morgan Stanley TMT Database estimates.

Mobile Penetration Is Significantly Higher vs. Fixed-Line in EM, Providing a Large Connected User Base Ready for Internet

Median Mobile Subscriber Penetration in Developed Markets (DM) / Emerging Markets (EM), 2005 – 2012E



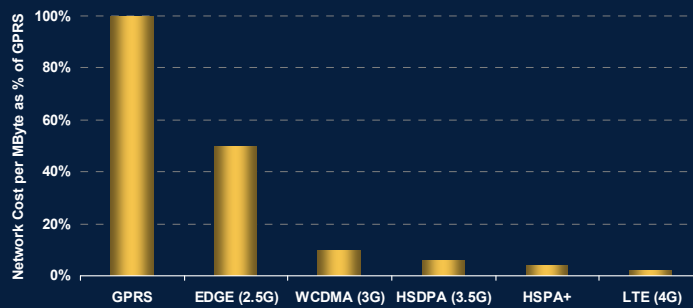
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Note: Data from top 52 countries based on GDP. Penetration is per population. Mobile penetration above 100% due to multi-SIM cards per user. Source: ITU, Morgan Stanley TMT Database estimates.

3G / Wireless = 'Only Choice' for Many to Connect to the Internet

- **First-time Internet Access** – In Emerging Markets with limited fixed-line telephone access (including low quality last mile copper), mobile could provide first-time access to communications for a large population
- **Cheaper to deploy mobile broadband (WiMAX + 3G) vs. wireline broadband (DSL)** – \$40 cost to cover a household via WiMAX vs. \$800-1,200 via DSL; ~5x cost-per-bit reduction vs. 3G networks; Cost-efficient solution for “last mile” broadband access, especially in Emerging Markets where DSL / cable penetration remains low.

Cost per Byte of Successive Wireless Technologies Falling Substantially



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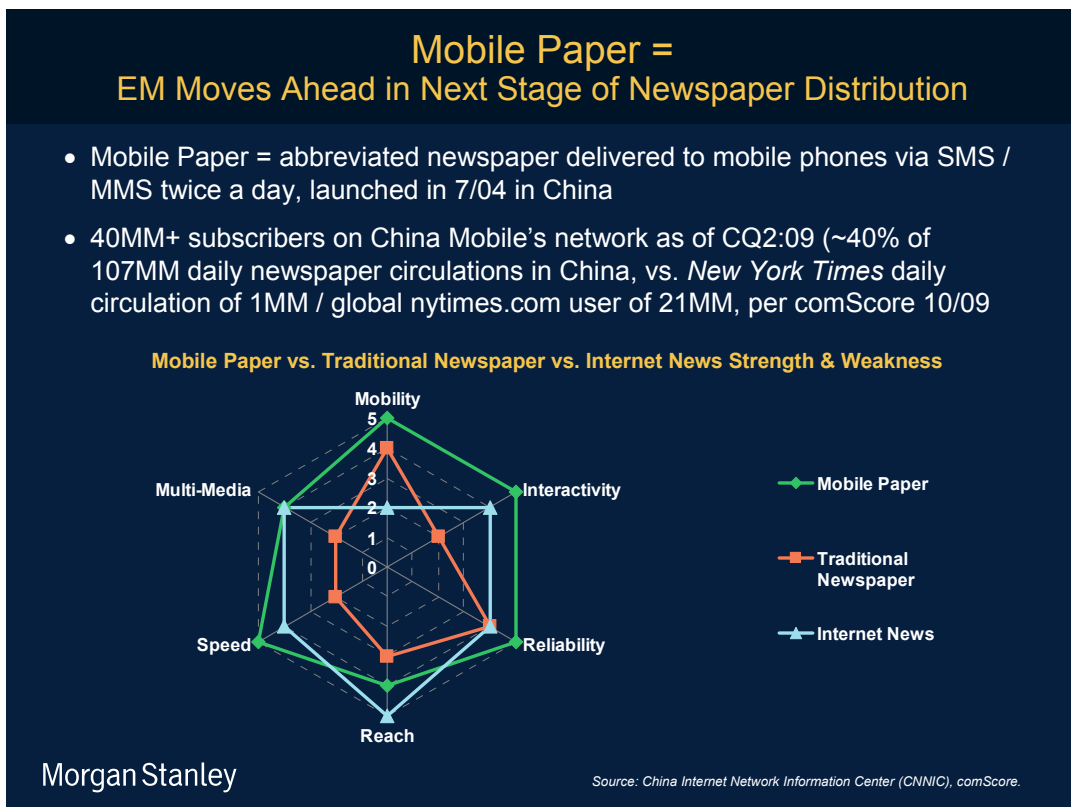
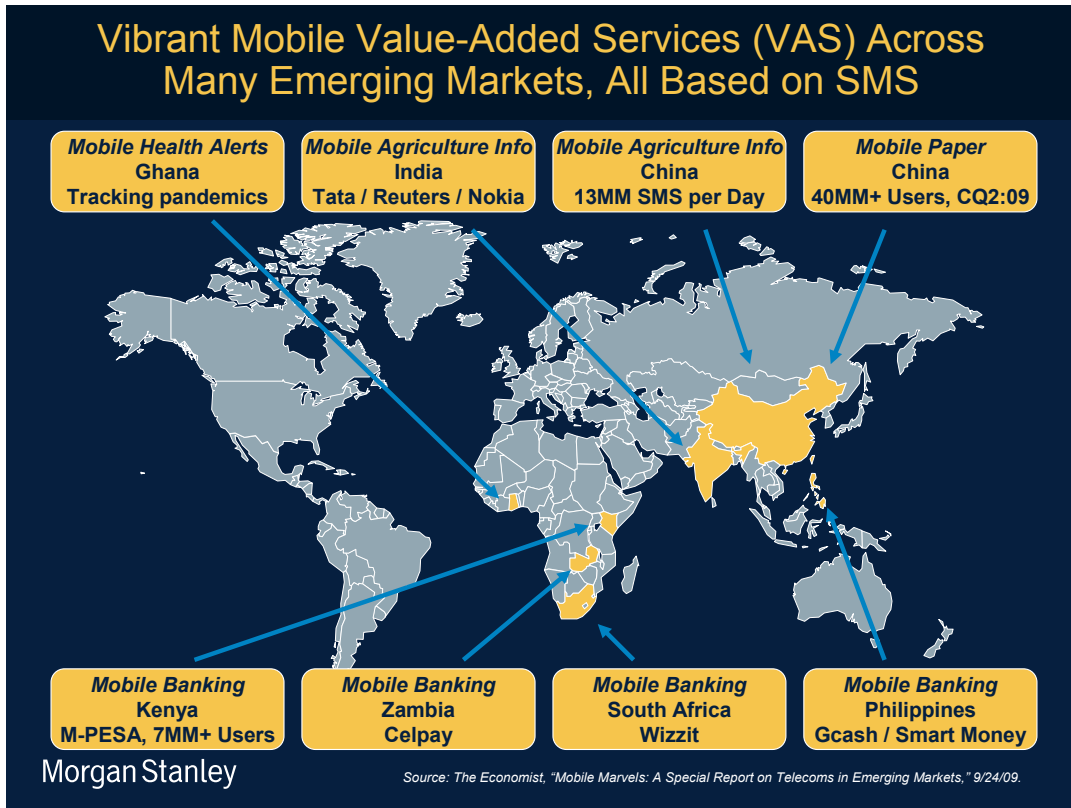
Source: WiMAX forum, Morgan Stanley Research.

Emerging Markets = Significant Long-Term Mobile Internet Potential

Vibrant 2.xG mobile value-added services (MVAS) built on SMS and mobile banking are especially robust + useful (emerging markets = ~685B SMS messages sent in CQ2:09 – 57% of global total / 34B MMS messages sent in CQ2:09 – 81% of global total)

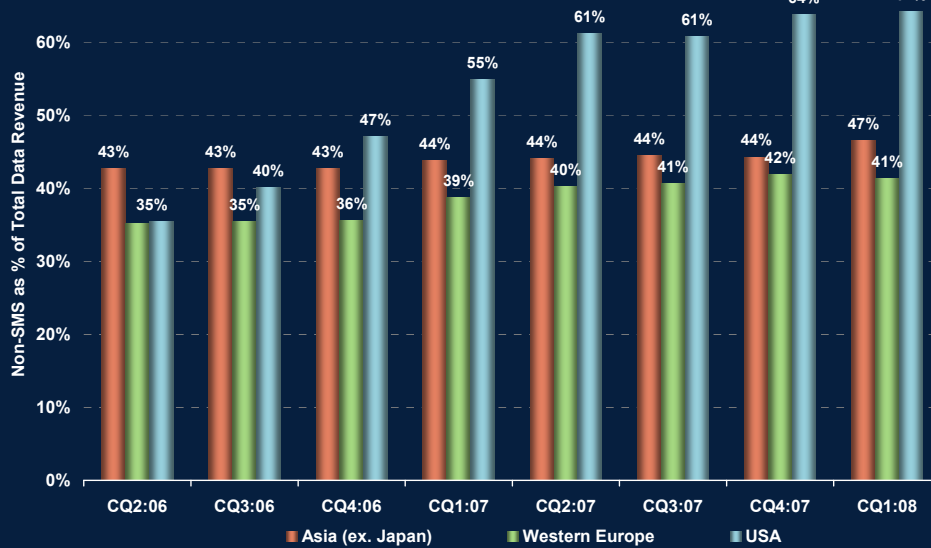
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Source: WCIS Informa.



Emerging Asia VAS Revenue Share Already Leading W. Europe – Likely a Leading Indicator of Mobile Internet Potential in EM

Non-SMS Revenue as Percentage of Total Mobile Data Revenue, CQ2:06 – CQ1:08



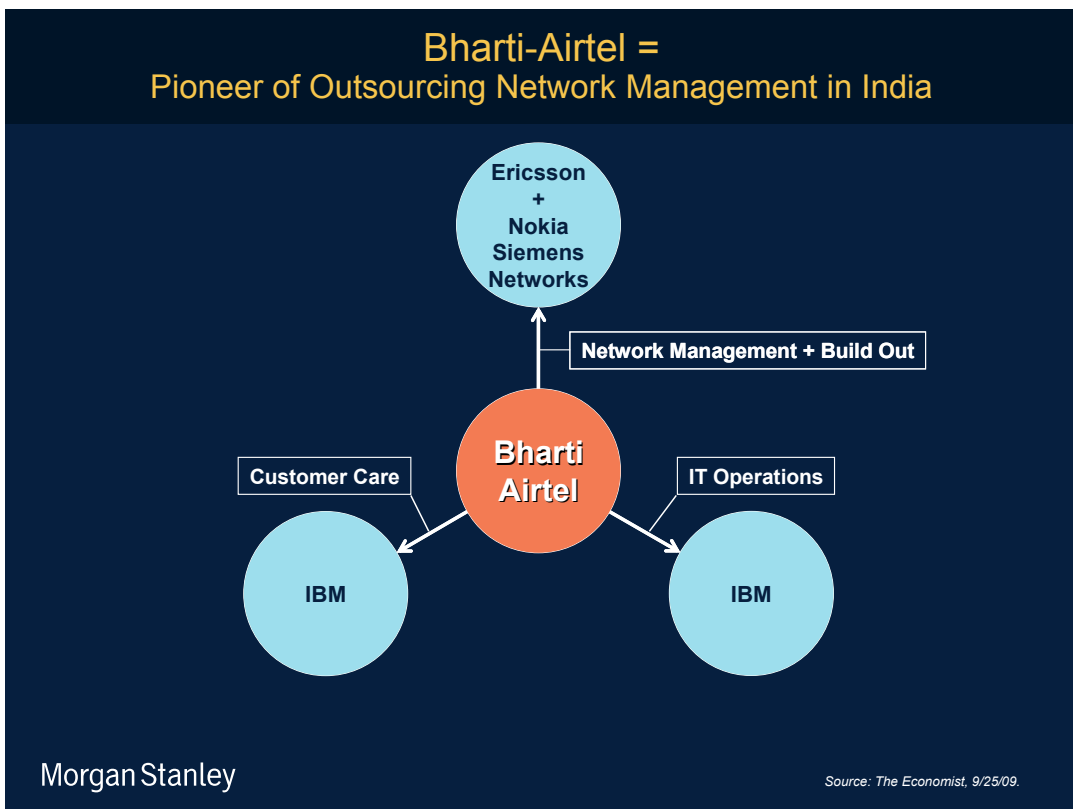
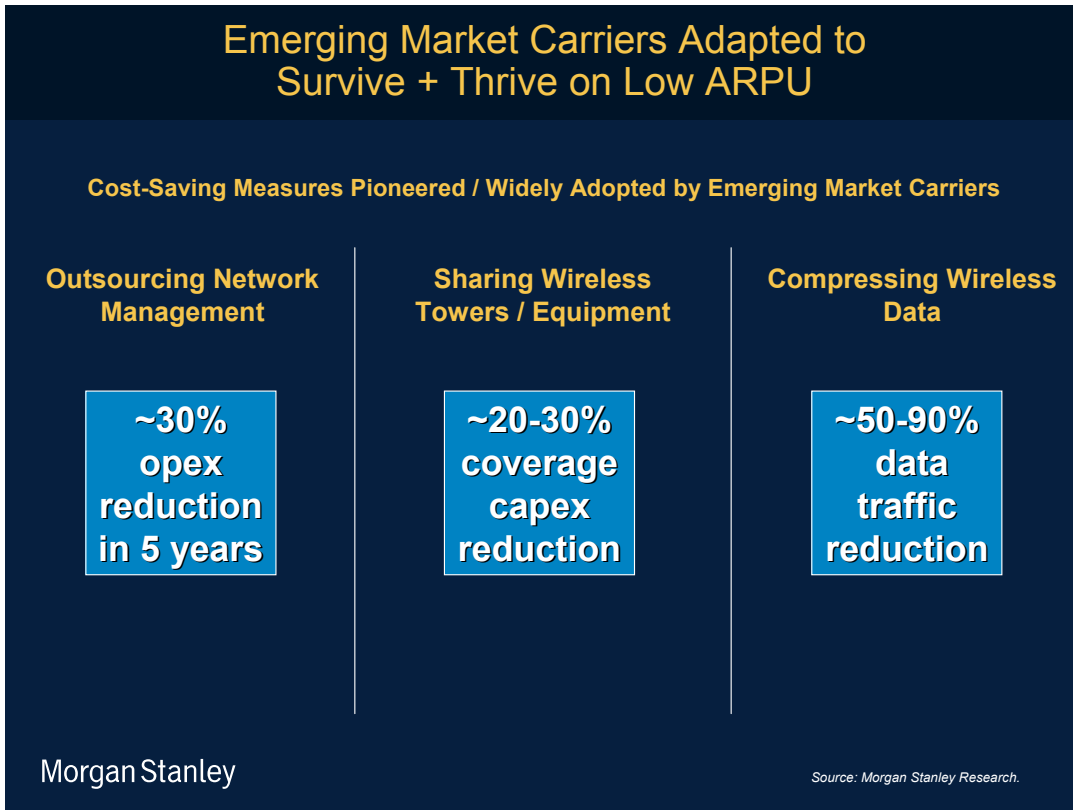
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Note: Japan adopted mobile email as the default messaging technology with the introduction of i-Mode in 1999, thus 100% of its MVAS revenue is non-SMS. For other markets, non-SMS mobile usage includes mobile Internet, email, MMS (multimedia messages), mp3, and color ringtone downloads. Source: Informa, Morgan Stanley Research.

Emerging Markets = Significant Long-Term Mobile Internet Potential

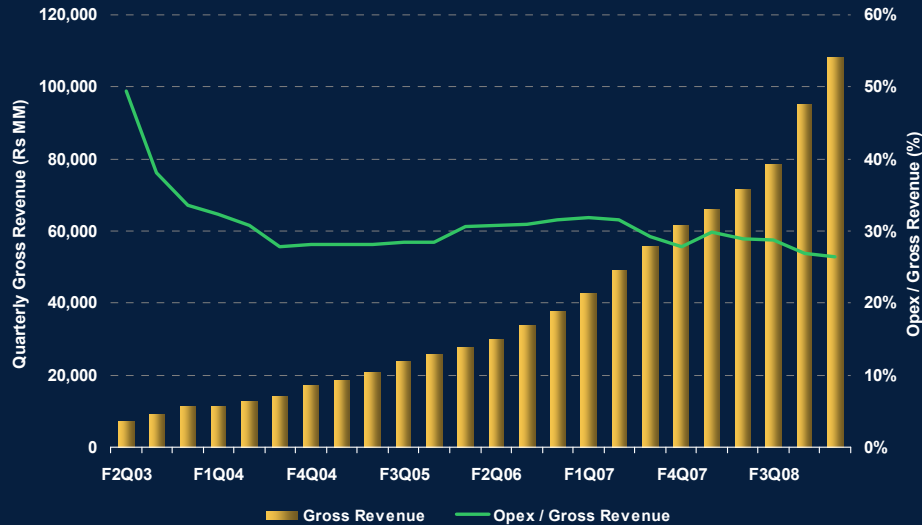
Carriers adapted to survive + thrive on low ARPU, providing valuable cost saving lessons for developed world

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Bharti-Airtel = Cost Savings from Outsourcing Reflected in Improved Financial Metrics

Bharti Airtel's Gross Revenue & Opex / Gross Revenue, 2Q03 – 1Q09



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Source: Company data, Vinay Jaising, Morgan Stanley Research.

Sharing Wireless Towers / Equipment – Potentially Reducing Capex / Opex for Chinese Carriers

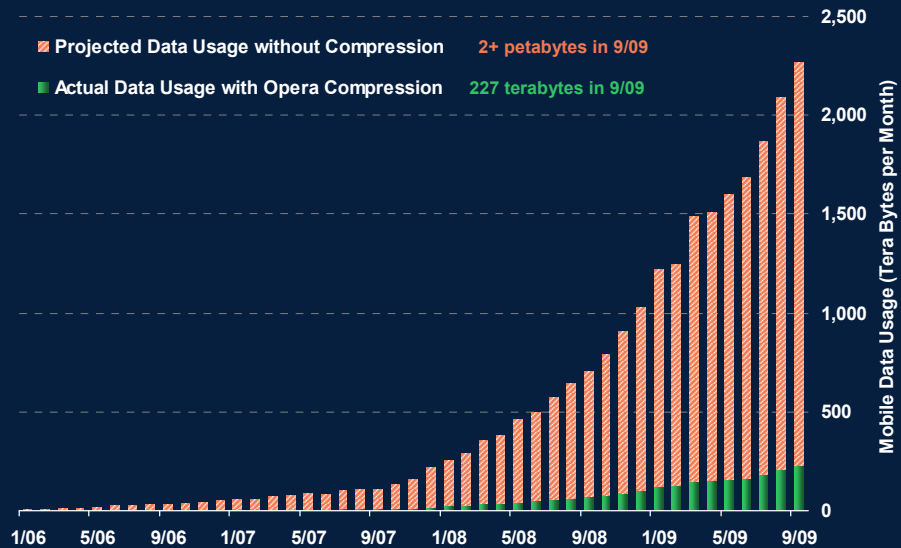
- China's Ministry of Industry and Information Technology and the state-owned Assets Supervision and Administration Commission jointly published a notice on 9/28/08 to limit the redundant network construction of Chinese telecommunications operators and to avoid the waste of resources caused by the redundant systems.
- All wireless carriers in China (China Mobile / Unicom / Telecom) will share resources such as telecom towers, engine rooms, access transmissions, optical fiber, indoor distribution, and power sources. They will realize the cooperation through exchange of resources and leasing.

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Source: China Wireless News, 11/08.

Compressing Wireless Data Could Reduce Mobile Data Traffic on Carrier Networks by Up to 90%

Opera Mini Monthly Mobile Data Usage, Actual vs. Projected, 1/06 – 9/09



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Note: Projected data traffic assumes a compression ratio of 90%, i.e. projected = 10x actual traffic. Source: Opera.

Wireless Data Compression = Big Cost Saver in Emerging Markets

- Server-Side Compression – Utilized by Opera Mini mobile browser (36MM global users, +150% Y/Y in 9/09) to provide up to 90% file size reduction
- Especially Popular in Emerging Markets – 8 of top 10 countries (incl. all top 7) ranked by Opera Mini users are emerging markets
- Significant Cost Savings – Up to 90% lower mobile data cost on a pay-as-you-go basis

Top Opera Mini Emerging Countries	Mobile Data Consumption (MB per User per Month)	Mobile Data Cost (US\$ per MB)	Monthly Savings* (US\$ per User)
Poland	6	\$0.88	\$44
China	2	1.50	32
Vietnam	5	0.61	29
Indonesia	6	0.43	23
Ukraine	10	0.17	15
Russia	7	0.22	13
South Africa	4	0.27	10
India	6	0.12	6

Note: Monthly savings assume ~90% compression ratio and do not take into account pricing for users who have unlimited data plans. Source: Opera.

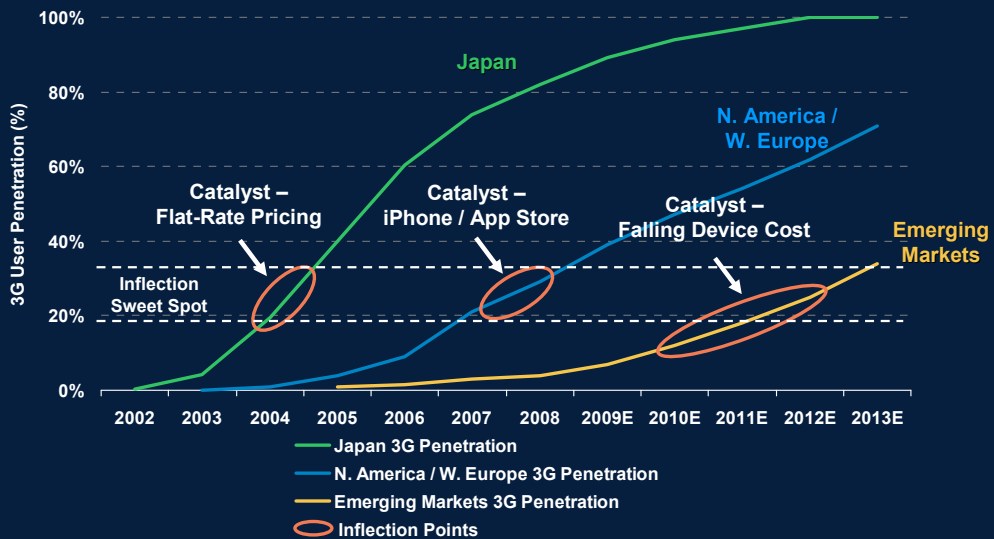
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*Emerging Markets -
Some Near-Term 3G Adoption Barriers*

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**3G Penetration Inflection Point Depends, in Part, on
Falling Equipment Prices**

3G Penetration, Japan vs. N. America / W. Europe vs. Emerging Markets, 2002 – 2013E



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Source: Ovum, Informa WCIS+, Morgan Stanley Research estimates.

Near-Term 3G Adoption Barriers = Low Post-Paid Ratio + Lack of Low-Priced Mobile Data Plan

Low post-paid ratio, but prepaid data packages becoming more prevalent

→ high device costs to users

- Post-paid plans enable carriers to leverage expected future revenue to subsidize high smartphone / netbook costs
- Carriers in emerging markets with low post-paid ratios cannot afford to heavily subsidize devices given low ARPU and high churn
- iPhone remains prohibitively expensive in many EM countries

Lack of low-priced data plan

→ limits usage of mobile Internet

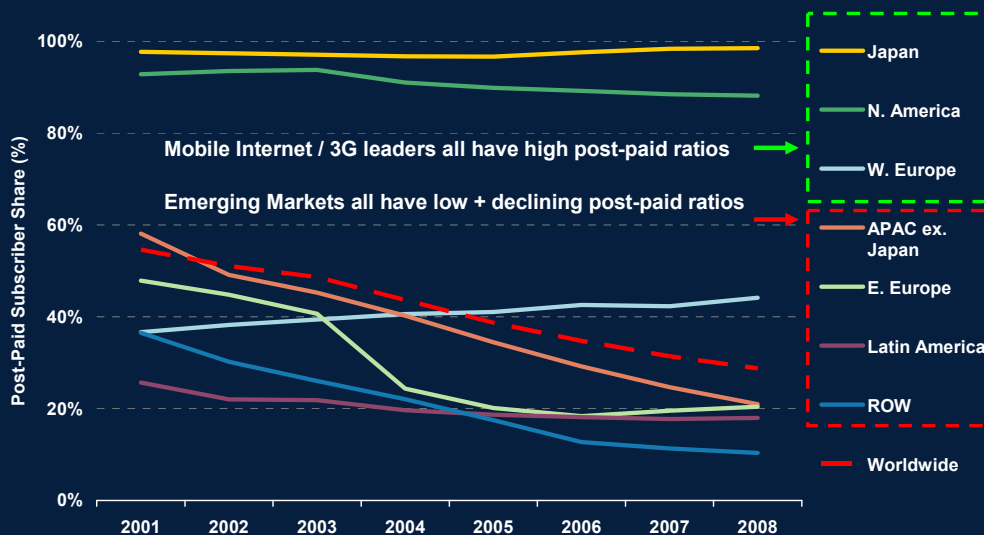
- On a relative scale, mobile data plan cost in emerging markets are 5-10x higher vs. developed markets (measured as annual data plan cost as % of per capita GDP)

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Source: Morgan Stanley Research.

Post-Paid Ratio Low + Declining in Emerging Markets – Leading to Higher Device Cost to Consumers

Global Post-Paid Subscriber Ratios by Region, 2001-2008



Morgan Stanley

Source: Informa WCIS+, Morgan Stanley Research.

Low Post-Paid Ratio + Low GDP per Capita = Hurdle to Mass Adoption of 3G / Smartphone (like iPhone) in EM Countries

Rank by Post-Paid %	Top 25 Countries by Subscribers	iPhone Sold Since 6/07 (MM)	C2008 Post-Paid %	Annual GDP per Capita (PPP \$ in 000s)	C2008 Mobile Subscribers (MM)	Post-Paid Subscribers (MM)	Pre-Paid Subscribers (MM)
1	S. Korea	0	99%	\$26K	46	46	0
2	Japan	1	98	35	106	104	2
3	USA	13	89	47	270	240	30
4	France	2	66	34	57	38	20
5	Spain	1	59	31	52	31	21
6	Germany	2	46	35	102	47	55
7	Poland	0	45	17	44	20	24
8	UK	2	37	36	76	28	48
9	China	0	29	6	619	180	439
10	Turkey	0	21	14	66	14	52
11	Brazil	0	20	10	152	30	122
12	South Africa	0	17	10	48	8	40
13	Italy	1	15	31	87	13	74
14	Russia	1	12	16	188	22	166
15	Mexico	0	11	13	78	9	69
16	Thailand	0	11	8	62	7	55
17	India	0	10	3	331	33	298
18	Iran	0	8	11	48	4	44
19	Vietnam	0	8	3	69	5	64
20	Ukraine	0	7	--	51	3	48
21	Bangladesh	0	3	--	45	2	44
22	Philippines	0	3	4	68	2	66
23	Indonesia	0	3	4	131	4	127
24	Pakistan	0	3	3	90	2	88
25	Nigeria	0	0	2	63	0	63
Total		26MM			2,950MM	891MM	2,059MM

S. Korea / Japan – Domestic mobile Internet offerings already more advanced than iPhone

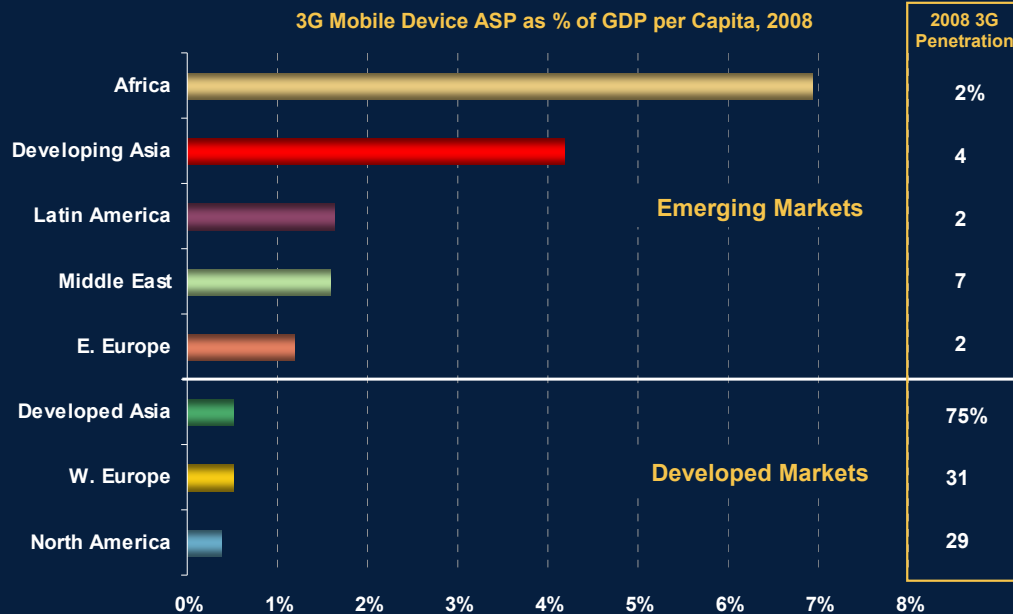
Proven success for iPhone – Developed countries w/ high GDP / high post-paid customers

Little success for iPhone, so far – Developing countries w/ low GDP / very low post-paid ratio / high overall subscribers

Morgan Stanley

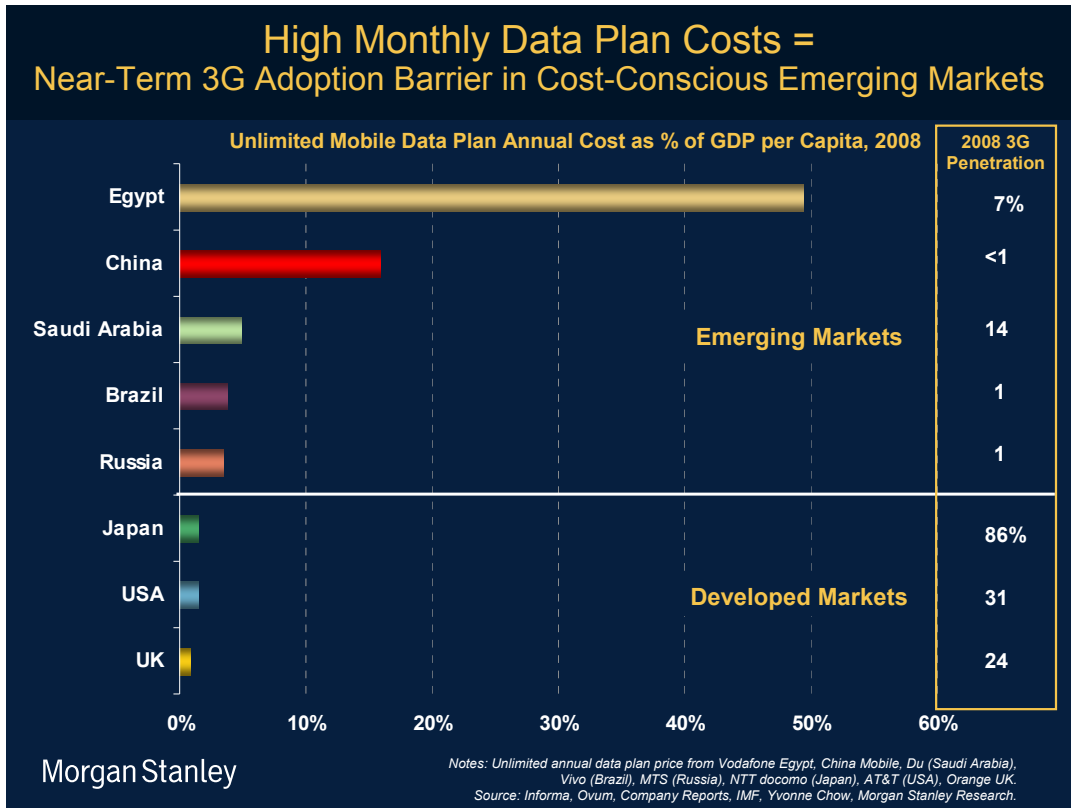
Note: iPhone units sold in each country are estimates based on AdMob usage data, as of 9/09. Source: Informa WCI/S+, IMF, AdMob, Morgan Stanley Research.

High Device Costs = Near-Term 3G Adoption Barrier in Cost-Conscious Emerging Markets



Morgan Stanley

Source: Informa, Ovum, iSuppli, IMF, Yvonne Chow, Morgan Stanley Research.



Mobile Internet Operating Impact on EM Carriers is Starting to Materialize

- In EM, we see mobile broadband as a source of new revenue for the telecom industry while in DM it is more of a substitution of revenues from fixed to mobile.
- To date, 3G subscriber take-up rate has been slow, but we believe technology and price points are now ready for mass adoption – 3G+ subscribers as percent of total on average increased ~1-3pps (% points) every year in Emerging Markets from 2005-2009. But, equipment price points are now significantly more attractive – US\$250-300 for a netbook – and the WCDMA-based networks with HSPA+ are now ready for data speeds that are more comparable to fixed lines.
- Mobile data is already helping to grow revenues in EM – In Saudi Arabia, we have seen broadband revenue add 8 percentage points to Mobily’s revenue growth in 3Q09; in Kenya, mobile broadband and mobile banking added 12 percentage points.
- Impact on EBITDA margins is a positive – Mobile broadband typically carries a 10-15 percentage points higher EBITDA margin than traditional voice. There are no interconnect costs at the gross margin level and it can leverage large amounts of opex from the traditional voice side of the business.

Source: Sean Gardiner, Morgan Stanley Research.

Emerging Markets Regional Analysis / Forecast

Morgan Stanley

Key Theme #7 – Mobile Internet Potential in Emerging Markets Should Not Be Underestimated

- **Regional outlook for mobile Internet impact on EM carriers –**
 - **China** - expect 3G and mobile Internet to be key driver for VAS revenue growth. China Mobile has advanced VAS platform, with mobile music, gaming, video, and the first carrier-controlled application store. However, China Mobile's less advanced 3G technology (TD-SCDMA) has forced it to invest significantly in network infrastructure.
 - **India** - expect Bharti and Reliance Communications to win spectrum in upcoming auction, owing to stronger balance sheets than new entrants. However, this could be a winner's curse, as ROI on spectrum and network investment could be low for several years.
 - **Other Emerging Asia** – mobile broadband already taking off in Malaysia / Philippines; Indonesia + Thailand have / planning to issue licenses. Given high literacy levels but limited fixed broadband, mobile is expected to be the main "access" point for Internet. Expect larger operators with balance sheet / spectrum / backhaul to benefit. These include Telkom Indonesia, AIS, PLDT and Axiata.
 - **E. Europe, Middle East and Africa** – high mobile / low fixed-line penetration should drive mobile to become the primary Internet access. Expected beneficiaries include Safaricom and Mobily.

Morgan Stanley

Regional Analysis / Forecast - China

Morgan Stanley

China – Strong Subscriber Growth Offsets 3G Barriers in Short Term – 3G Adoption / VAS Could Provide Significant Upside Long Term

China – Long-Term Positives for 3G

- Mobile Internet usage surprisingly strong, despite minimal 3G –
 - China has high WAP Internet usage (45% of total users in 2008, up from 34% in 2007) relative to most emerging markets, signifying higher demand for mobile Internet / data
- Mobile subscriber growth continues to provide revenue tailwind for carriers despite falling ARPU
 - Despite declining ARPU in recent quarters (-7% Y/Y in CQ1:09), China Mobile has continued to increase revenue (+16% Y/Y in C2008), driven by strong subscriber growth (+24% in 2008).
- Value-Added Services (VAS) Could Provide Incremental Revenue for Carriers –
 - China Mobile VAS revenue +37% in 2008, owing to strength in Mobile Music and Mobile Gaming

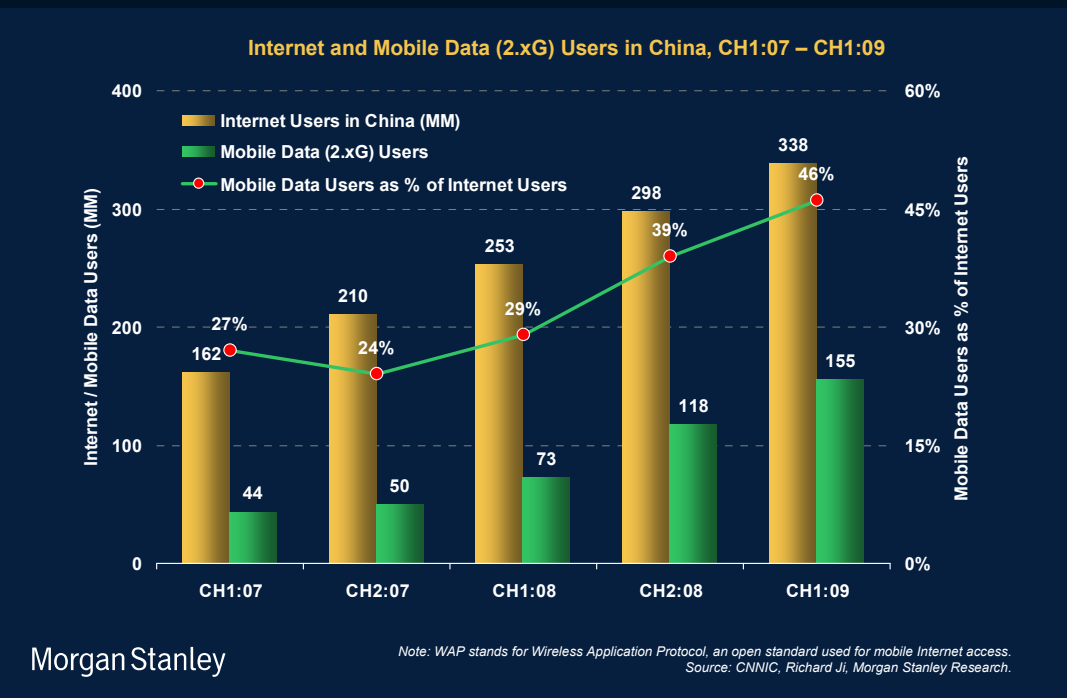
China – Short-Term Barriers to 3G Adoption

- Mobile leader awarded less-advanced 3G technology
 - China Mobile (~74% mobile subscriber market share in CQ4:08) was awarded the 3G license for TD-SCDMA, the homegrown Chinese 3G technology
 - Due to this technology disadvantage, we foresee a potential massive share shift for 3G subscribers, with China Mobile capturing only ~40% of the market vs. 35% for China Telecom / 25% for China Unicom
- 3G handsets need substantial subsidies to reach attractive ASP for Chinese consumers
 - 3G handset prices have been declining globally as components become less expensive, but we believe ASPs are still too high for Chinese consumers; carriers would need to subsidize handsets down to ~\$100 to become attractive

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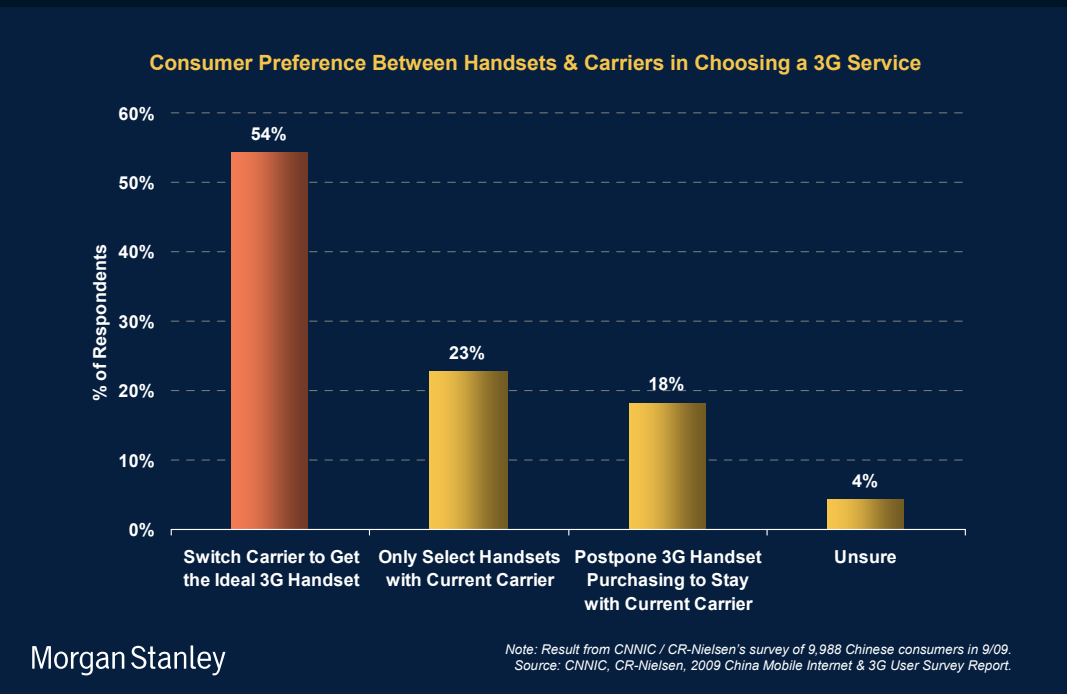
Note: WAP stands for Wireless Application Protocol, an open standard used for mobile Internet access. WAP usage calculated as GPRS (General Packet Radio Service) users as a percent of total mobile subscribers.
Source: Informa WCIS+, Morgan Stanley Research.

Chinese Consumers Are Ready for 3G – 155MM 2.xG Mobile Data Users, 46% of Internet Population in China in CH1:09









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Chinese Consumers Have Relatively Little Brand Loyalty to Wireless Carriers – 54% Would Switch Carriers to Get Ideal 3G Handset



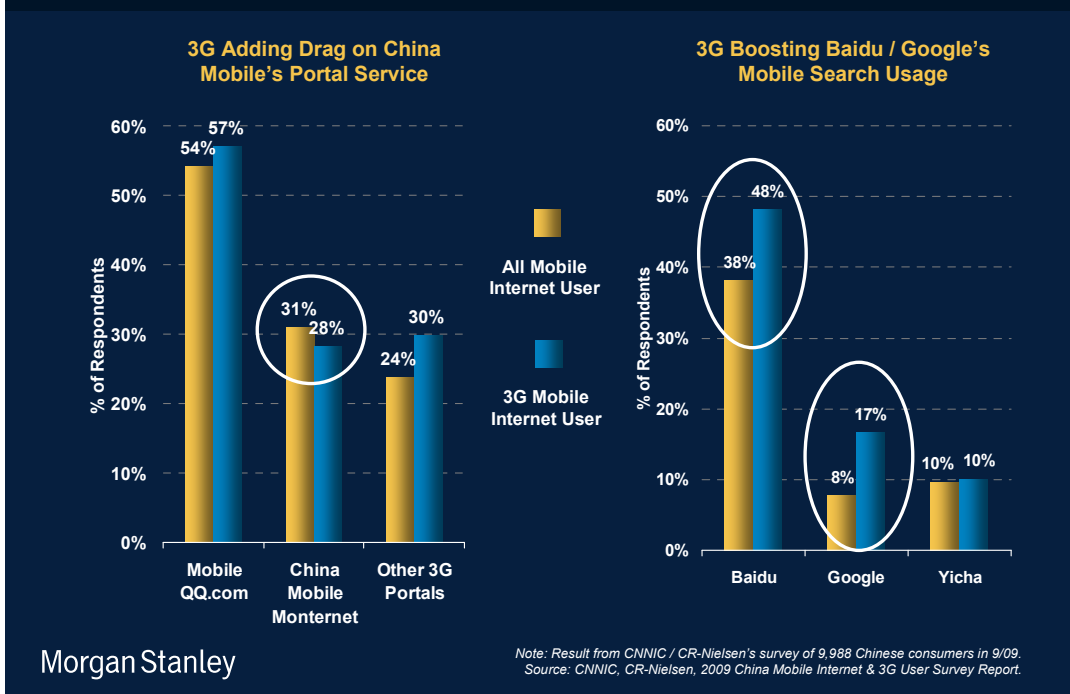
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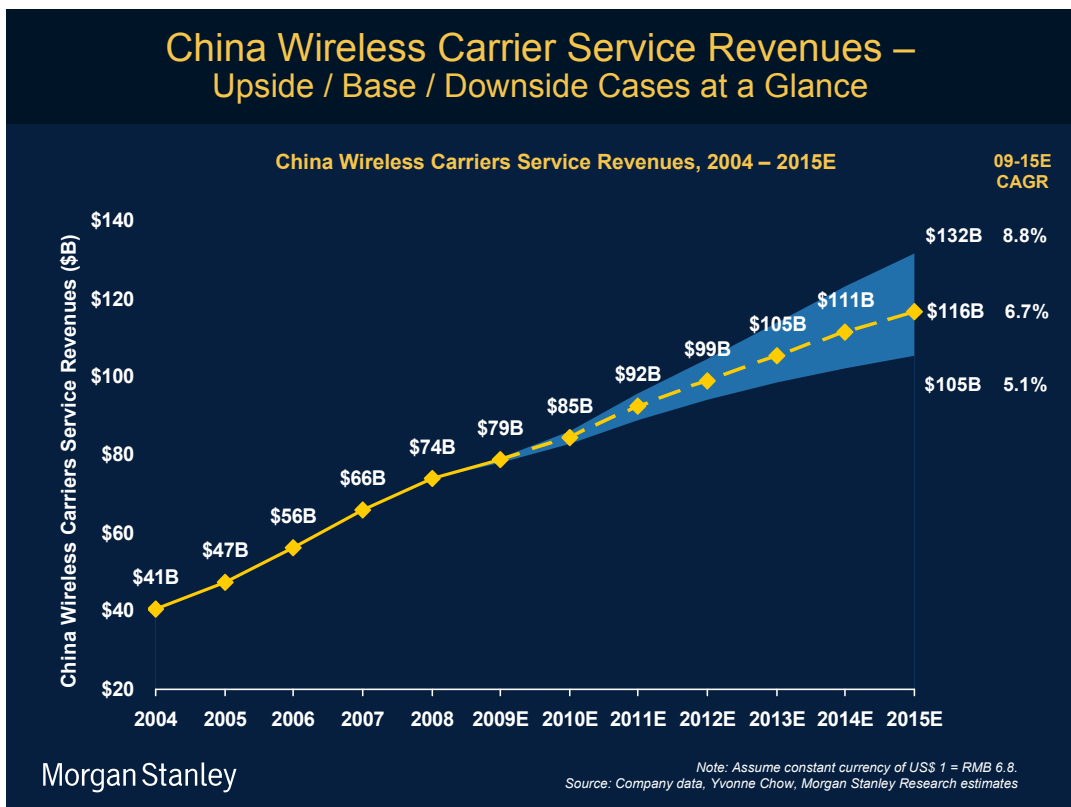
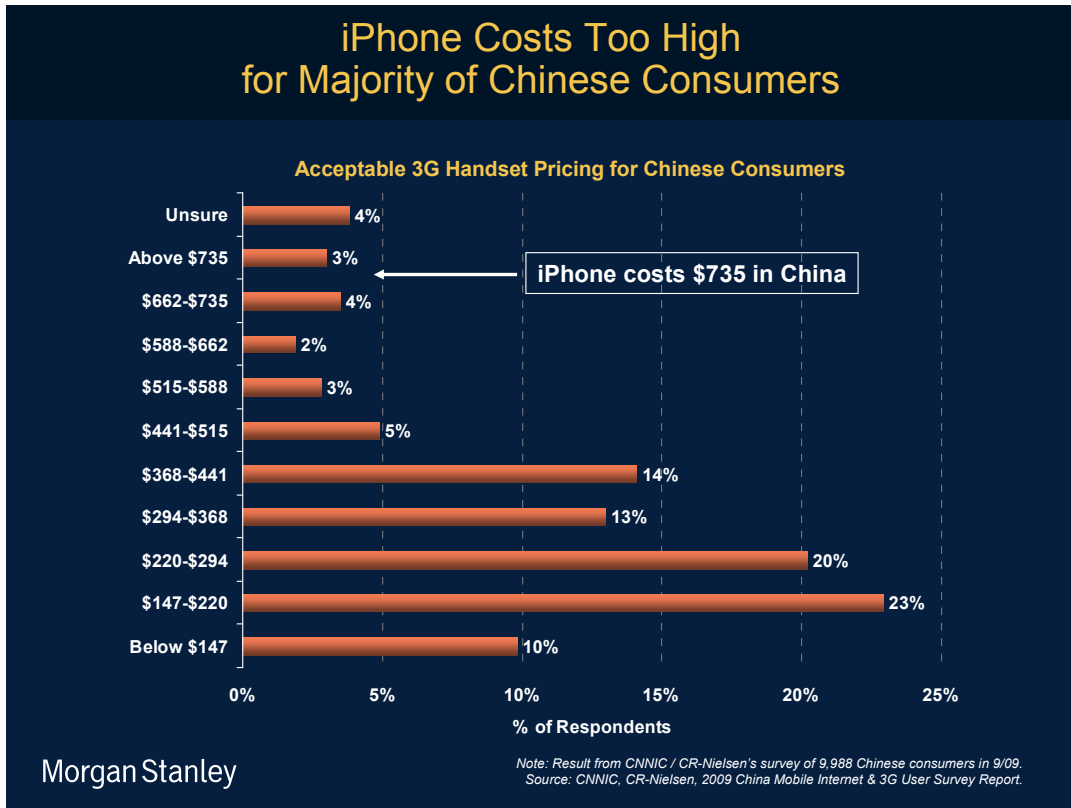
3G Creates New Battle Ground for China's Wireless Carriers – China Telecom Gaining Share vs. China Mobile / Unicom

Wireless Carrier	 中国移动通信 CHINA MOBILE	 China unicom 中国联通	 中国电信 CHINA TELECOM
3G Service Branding	 引领 3 G 生活	 3G 引领生活	 天翼 surfing
3G Technology	TD-SCDMA	WCDMA	CDMA 1x EV-DO
10/09 Market Share	73%	20%	7%
10/09 Net Adds Share	54%	13%	33%

Morgan Stanley Source: Company data, Informa WCIS+, Morgan Stanley Research.

3G Already Impacting China's Mobile Portal / Search Usage Patterns





Key Scenario Drivers for China Wireless Industry Service Revenue

Upside Case	8.8% '09-'15E Service Revenue CAGR	Better-than-expected 3G demand drives data revenue to grow faster than in the base case, and contribution from data revenue will surpass that from voice in 10 years' time. In the bull case, we expect data revenue as a % of total industry service revenue to increase from 13% in 2009E to 35% in 2015E, and data revenue growth for CU and CT to be faster than the incumbent CM due to 3G technology advantage over the next 5 years. We estimate (1) CU's and CT's data revenue as a % of total service revenue would increase from 12% and 21% in 2009E, to 37% and 44% respectively; and (2) CM's would rise from 13% in 2009E to 33% in 2015E.
Base Case	6.7% '09-'15E Service Revenue CAGR	Voice is expected to be a majority revenue driver for the China telco industry over the next 10 years. But its contribution will be replaced gradually by data, helped by moderate 3G and mobile internet demand. We expect data revenue as a % of total industry service revenue to increase from 13% in 2009E to 27% in 2015E in the base case; data revenue growth for CU and CT should be faster than for the incumbent CM due to 3G technology advantages over the next 5 years. We estimate (1) CU's and CT's data revenue increases from 11% and 20% in 2009E, to 28% and 33% in 2015E; and (2) CM's rises from 12% in 2009E to 25% in 2015E.
Downside Case	5.1% '09-'15E Service Revenue CAGR	Sluggish demand results in slow data revenue growth for the industry. We estimate (1) data increases as a % of total industry service revenue from 12% in 2009E to just 19% in 2015E; (2) CU's and CT's data revenue increases 11% and 19% in 2009E, to 24% and 26% respectively; and (2) CM's would rise from 12% in 2009E to 16% in 2015E.

Morgan Stanley

Note: Assume constant currency of US\$ 1 = RMB 6.8.
Source: Company data, Yvonne Chow, Morgan Stanley Research

China Wireless Carrier Net Profits – Upside / Base / Downside Cases at a Glance



Morgan Stanley

Note: Assume constant currency of US\$ 1 = RMB 6.8.
Source: Company data, Yvonne Chow, Morgan Stanley Research estimates

China Wireless Revenue Base Case Scenario Implies Revenue Growth Slows, but Majority of Growth to Come from Data Revenue

China Wireless Industry Revenue Growth Contribution Breakdown, 2005– 2015E

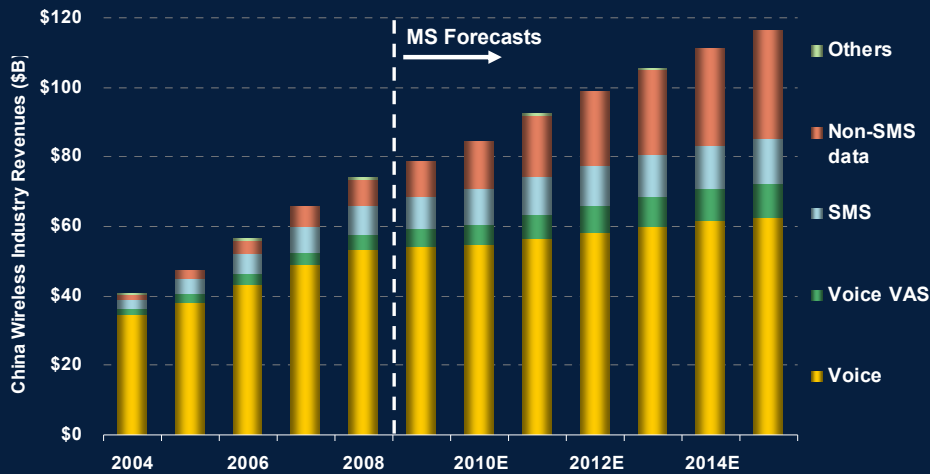


Morgan Stanley

Note: Assume constant currency of US\$ 1 = RMB 6.8.
Source: Company data, Yvonne Chow, Morgan Stanley Research estimates

Wireless Voice Revenue in China Should Be Relatively Flat Going Forward; Revenue Growth to Come from Data

Base-Case China Wireless Industry Service Revenue, Voice vs. Data vs. Others, 2004 – 2015E

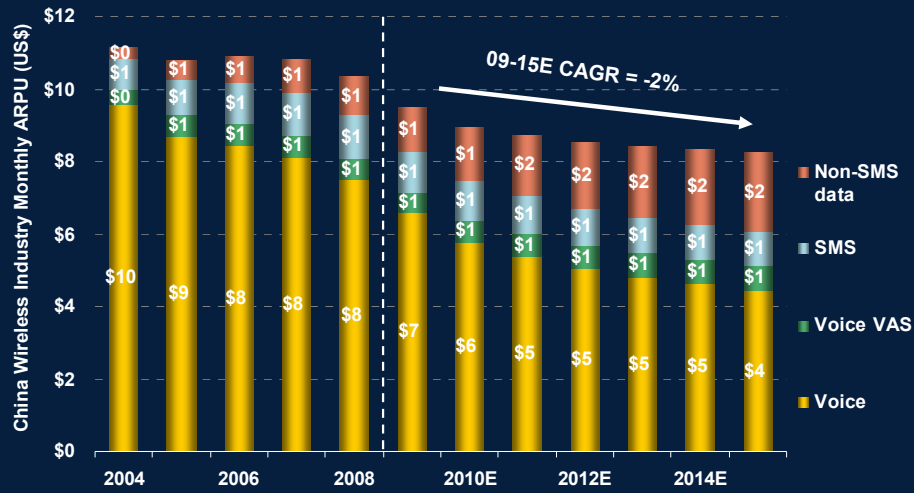


Morgan Stanley

Note: Assume constant currency of US\$ 1 = RMB 6.8.
Source: Company data, Yvonne Chow, Morgan Stanley Research estimates

Data ARPU Growth Expected to Partially Offset Voice ARPU Decline for China

Average China Wireless Carrier Monthly ARPU (Average Revenue Per User) Breakdown, 2004 – 2015E



Morgan Stanley

Note: Assume constant currency of US\$ 1 = RMB 6.8.
Source: Company data, Yvonne Chow, Morgan Stanley Research estimates

Regional Analysis / Forecast - India

Morgan Stanley

India – Near-term Barriers to 3G Adoption Huge Subscriber Base Drives Long-term Potential

India – Long-Term Need for 3G

- 3G could provide necessary relief to traffic-constrained network
 - 3G networks, with significantly higher voice efficiency than current 2G networks, could help reduce network congestion, especially in certain high traffic areas
- Mobile Internet access more likely than desktop for affluent citizens
 - Low PC penetration + high literacy rate + higher expectation of income growth for upper / middle class = increased demand for mobile Internet usage
- VAS adds incremental revenue for carriers
 - 3G adoption has the potential to slow, or possibly even stop, carrier ARPU declines for post-paid and high-end prepaid subscribers by inducing higher VAS usage

India – Short-Term Barriers to 3G Adoption

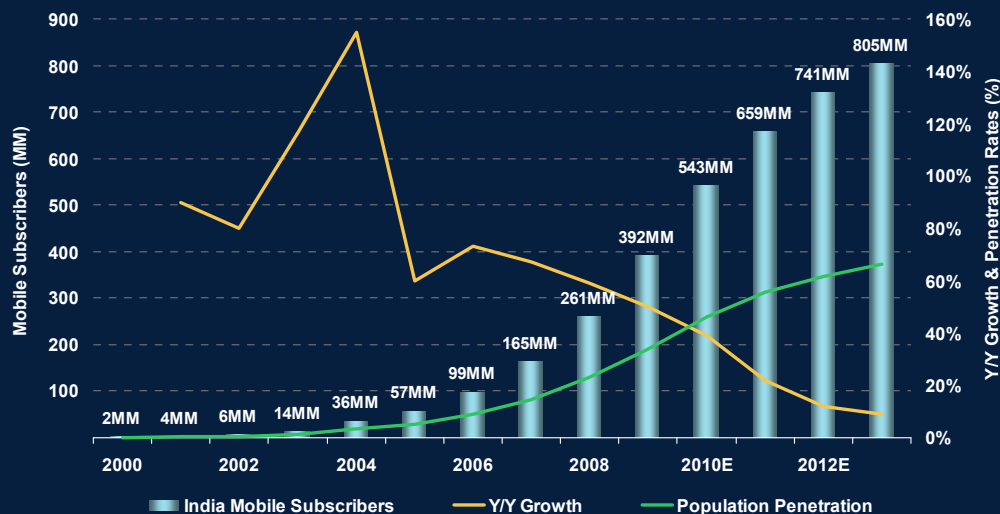
- Expensive spectrum licenses increase carriers' capital investment for initial 3G network / lowers ROI
 - Competitive auction for limited 3G spectrum (~10 carriers bidding for the 4 spectrum licenses not already allocated to government owned MTNL / BSNL) will lead to a higher license fee initially
- Competitive market could pressure ARPU
 - Indian market could have five 3G operators for an addressable population of ~90 MM subs (vs. 4 main operators with ~270 MM subs in USA), placing downward pressure on ARPU.
- 3G handset costs too high for prepaid users
 - Prepaid users are unlikely to trade up from their current cheap handsets of ~\$30 to 3G-enabled handsets costing over ~\$110 (~10% of annual income for average citizen).

Morgan Stanley

Source: Vinay Jaising, Morgan Stanley Research.

66% Mobile Subs Penetration by 2013E Will Stress Network in High Density Areas, 3G a Necessary Relief Owing to Higher Voice Efficiency

India Mobile Subscribers / Y/Y Growth / Population Penetration, 2000 – 2013E



Morgan Stanley

Source: Vinay Jaising, Morgan Stanley Research estimates.

India – Upcoming Auction to Bring 3G to Massive Subscriber Base Incumbents Likely to Win Spectrum Given ~\$1B Price Tag

- **Indian government recently announced policies / pricing of upcoming 3G auction (expected by CH1:10E)** – The minimum bids for 3G / WiMAX spectrum have been set at ~\$715 MM / ~\$357MM, respectively. A total of five 3G licenses + three WiMAX licenses will be sold, allowing five players to offer 3G services in every circle. One of the licenses has already been reserved for state-owned telecom carriers BSNL + MTNL, who are currently initiating their 3G network rollout and will pay the highest bid price for their spectrum allocation after the auction is completed.
- **Incumbent 2G carriers with strong balance sheets will likely win spectrum auction** – We believe Bharti, Reliance Communications, Vodafone, Idea, and Tata could be aggressive bidders, whereas we do not believe the new operator/entrants have the balance sheets to support 3G.

Morgan Stanley Estimate of India 3G Spectrum License Cost / Total 3G Investment / Required Network Capex

	India 3G Spectrum Licence Cost per Carrier (\$MM)	Total 3G Investment (\$MM), based on Number of Players		Capital Expenditure Required for Network Rollout (\$MM)
		5	10	
Maximum Auction Price	\$1,300	\$6,500	\$13,000	\$4,570
Base Case Auction Price	\$1,000	\$5,000	\$10,000	\$4,570
Minimum Auction Price	\$802	\$4,010	\$8,020	\$4,570

Morgan Stanley

Source: Vinay Jaising, Morgan Stanley Research.

Carriers Earn Incremental ARPU / Revenue from 3G Users – but Carriers Could Face Winners Curse If Capex Is too High

- **Despite incremental revenue from 3G network, ROE looks unattractive** – We believe 3G network rollout could lead to incremental business potential of ~\$4.4-\$6.6B, assuming incremental monthly ARPU of \$4-6. However, we are bearish on 3G operations in India from a ROE perspective, as we believe there is a risk of a “Winner’s Curse”, since after paying for the license fee and incurring necessary capex for network expansion, it may be difficult for the operators to generate material returns on capital employed.

Morgan Stanley Estimate of Incremental ARPU / Revenue from 3G Network Rollout

Current Wireless Sub Base (MM)	457		
Current Post-Paid Subs as % of Total	20%		
Current Post-Paid Subs	91.4		
Average ARPU (FQ1:10E)	\$5.04		
Current Prepaid ARPU	\$3.36		
Current Post-Paid ARPU	\$18.88		
Addressable 3G Market (MM Subs)	91		
3G Incremental ARPU Scenarios	\$4.00	\$5.00	\$6.00
3G Incremental Industry Revenue (\$MM)	\$4,387	\$5,484	\$6,581
EBITDA Margin	35%	35%	35%
EBITDA (\$MM)	\$1,535	\$1,919	\$2,303

Morgan Stanley

Source: Vinay Jaising, Morgan Stanley Research.

Base Case: Winning 3G Spectrum Does Not Equal Easy Profits as High Capex + Moderate Incremental Revenue = Long Payback Periods

- Depending on auction price, initial capital investment on spectrum could take between 4 and 7 years to pay back with five carriers entering the market – In our base case spectrum price scenario, we estimate spectrum license costs will be ~\$1B and that it will take roughly four to six years for carriers to break even on this investment. Our maximum auction price scenario assumes an auction price of \$1.3B, owing to increased competition for 3G licenses bidding up the spectrum price, which translates into a longer pay back period of 5 to 7 years.

Morgan Stanley Estimate of Average Payback Years for Spectrum + Network Capex – 5 Carriers

	Minimum Spectrum Price Case (Spectrum = \$802MM)			Base Spectrum Price Case (Spectrum = \$1,000MM)			Maximum Spectrum Price Case (Spectrum = \$1,300MM)		
Total Investment in Spectrum	4,010	4,010	4,010	5,000	5,000	5,000	6,500	6,500	6,500
Total Investment on Network	4,570	4,570	4,570	4,570	4,570	4,570	4,570	4,570	4,570
Total Capital Expenditure	8,580	8,580	8,580	9,570	9,570	9,570	11,070	11,070	11,070
Incremental ARPU	\$4	\$5	\$6	\$4	\$5	\$6	\$4	\$5	\$6
Incremental EBITDA (\$MM)*	1,535	1,919	2,303	1,535	1,919	2,303	1,535	1,919	2,303
Payback Years	5.6	4.5	3.7	6.2	5.0	4.2	7.2	5.8	4.8

Morgan Stanley

Source: Vinay Jaising, Morgan Stanley Research estimates.

Bear Case: Winning 3G Spectrum Does Not Equal Easy Profits as High Capex + Moderate Incremental Revenue = Long Payback Periods

- Depending on auction price, initial capital investment on spectrum could take between 6 and 12 years to pay back with ten carriers entering the market – In our base case spectrum pricing scenario, we estimate spectrum license costs will be ~\$1B and that it will take roughly five to seven years to recoup investment on spectrum and network equipment. Our bear case assumes an auction price of \$1.3B, owing to increased competition for 3G licenses bidding up the spectrum price, which translates into a longer pay back period of 8 to 12 years.

Morgan Stanley Estimate of Average Payback Years for Spectrum + Network Capex – 10 Carriers

	Minimum Spectrum Price Case (Spectrum = \$802MM)			Base Spectrum Price Case (Spectrum = \$1,000MM)			Maximum Spectrum Price Case (Spectrum = \$1,300MM)		
Investment in Spectrum	8,020	8,020	8,020	10,000	10,000	10,000	13,000	13,000	13,000
Investment on Network	4,570	4,570	4,570	4,570	4,570	4,570	4,570	4,570	4,570
Total Capital Expenditure	12,590	12,590	12,590	14,570	14,570	14,570	17,570	17,570	17,570
Incremental ARPU	\$4	\$5	\$6	\$4	\$5	\$6	\$4	\$5	\$6
Incremental EBITDA (\$MM)*	1,535	1,919	2,303	1,535	1,919	2,303	1,535	1,919	2,303
Payback Years	8.2	6.6	5.5	9.5	7.6	6.3	11.4	9.2	7.6

Morgan Stanley

Source: Vinay Jaising, Morgan Stanley Research estimates.

Capex Required for 3G Network Could Strain Carrier Balance Sheets – Investments in 2010E Don't Yield Incremental Returns for Several Years

- 3G rollout is a positive for carriers' networks, but a negative for their balance sheets – Although 3G (higher voice efficiency) would mitigate the spectrum constraint in highly congested areas, the significant capex associated with building a Pan-Indian network could lower the ROI of existing operators and strain their balance sheets.

	Reliance				
	Bharti Airtel	Communication	Idea Cellular		
3G Spectrum Cost (MM)	\$1,000	\$1,000	\$1,000		
Annual Maintenance Cost	\$500	\$250	\$200		
	Capex to Sales Ratio				
	F2007	F2008	F2009E	F2010E	F2011E
Bharti Airtel	50%	53%	39%	50%	21%
Reliance Communication	59%	122%	79%	53%	25%
Idea Cellular	40%	82%	59%	83%	36%
	Net Debt to Equity Ratio				
	F2008	F2009E	F2010E	F2011E	
Bharti Airtel	0.19	0.16	0.23	0.09	
Reliance Communication	0.48	0.65	0.75	0.66	
Idea Cellular	1.7	0.28	0.71	0.71	
	Return on Capital Expenditure				
	F2008	F2009E	F2010E	F2011E	
Bharti Airtel	30%	29%	24%	23%	
Reliance Communication	12%	10%	10%	10%	
Idea Cellular	15%	7%	9%	11%	

Significant Capital Investment Could Strain Carrier Balance Sheet in 2010E

Carriers Forced to Take on Debt, but Won't See Incremental Returns on Capital Expenditures for Several Years

Morgan Stanley

Source: Vinay Jaising, Morgan Stanley Research estimates.

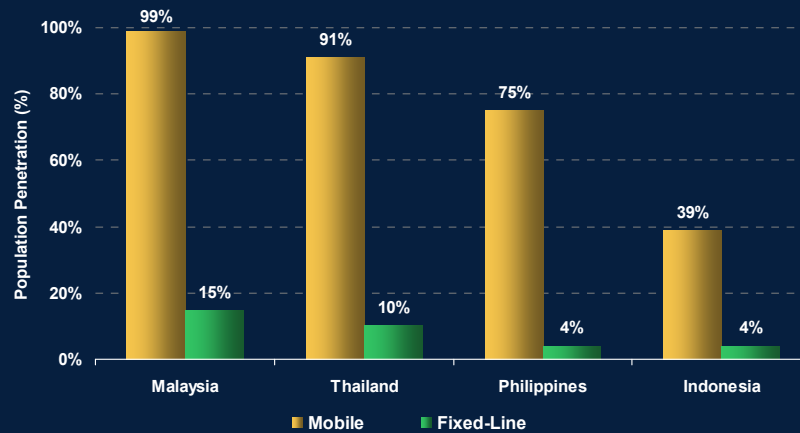
Regional Analysis / Forecast – Emerging Asia (ex. China / India)

Morgan Stanley

Other Emerging Asia – Low Fixed-Line / High Mobile Penetration Creates Opportunities for Mobile Broadband

- Low Fixed line / broadband penetration in emerging Asia makes 3G / wireless broadband the only alternative for people seeking to “connect to the net”

2008 Mobile vs. Fixed-Line Penetration Levels in Malaysia / Thailand / Philippines / Indonesia



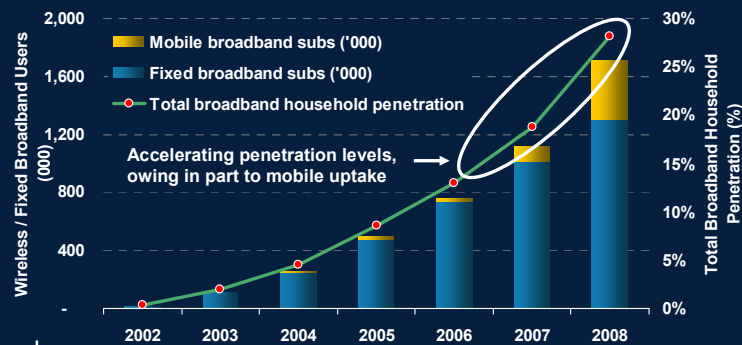
Morgan Stanley

Source: Company data, Navin Killa, Morgan Stanley Research.

Malaysia – Mobile Driving Total Broadband Subscriber + Penetration Growth

- Broadband growth has increased rapidly in the past 24 months due to increasing affordability, rising competition, and emerging wireless broadband solutions
- Celcom is the industry leader in wireless broadband. It reached a mobile broadband subscriber base of 420,000 in CQ2:09, which gives it a market share of 65-70%
- P1, which launched its mobile broadband service last August, was believed to have around 80,000 users by CQ2:09 and is targeting as many as 250,000 users by the end of C2009
- Digi has only recently launched 3G / wireless broadband, but its modest capex has prevented it from becoming a meaningful broadband competitor so far

Malaysia Mobile / Fixed Broadband Subscribers and Penetration, 2002 – 2008

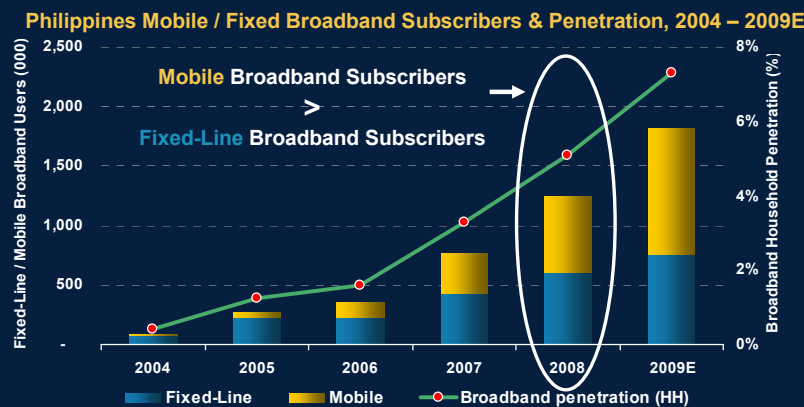


Morgan Stanley

Source: Company data, Navin Killa, Morgan Stanley Research.

Philippines – Mobile Overtook Fixed-Line Broadband in 2008

- Broadband growth has picked up in Philippines since 2007 as several competing wireless technologies (HSPA / WiMAX...) have emerged
- While broadband household penetration is still low (mid-single digits), we expect the penetration level to double in the next 3-5 years
- There has been a steady increase in wireless broadband subscribers, who are now more than fixed broadband subscribers

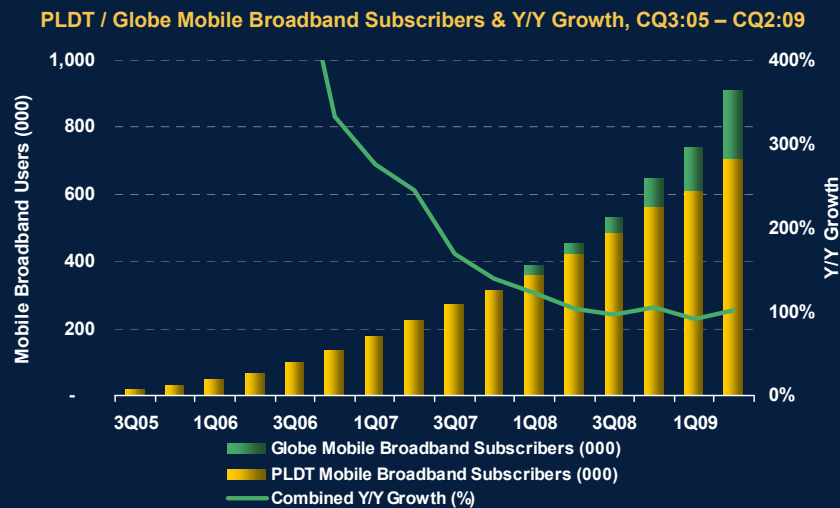


Morgan Stanley

Source: Navin Killa, Morgan Stanley Research estimates.

Philippines – Mobile Broadband Growth Remains Robust

- PLDT leads the broadband market with around 80% market share
- Both PLDT and Globe have shifted their broadband focus to wireless given low capex, ease of deployment and consumer preference



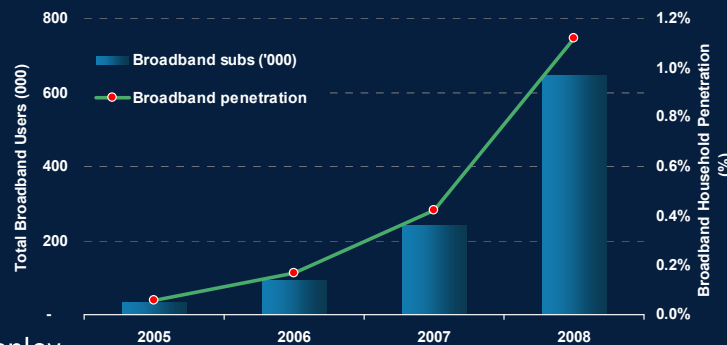
Morgan Stanley

Note: Globe mobile broadband subscriber data not available prior to CQ1:08.
Source: Company data, Navin Killa, Morgan Stanley Research.

Indonesia – Mobile Could Accelerate Still-Nascent Overall Broadband Adoption

- Broadband growth is picking up but lack of PC ownership and high cost of network upgrades has resulted in slower than expected broadband take-up
- Wireless broadband likely will be the preferred Internet access mechanism in a fixed line-starved country like Indonesia
- The outlook for wireless broadband growth is robust. All wireless operators have started pushing wireless broadband with Telkom's product "Flash" already gaining popularity. We believe Telkom has a head-start over its competitors in this space
- Telkom's access to TELKOM's transmission / fiber infrastructure helps drive wireless broadband growth since backhaul costs are still prohibitively high in Indonesia

Indonesia Broadband Subscribers & Household Penetration, 2005 – 2008



Morgan Stanley

Source: Company data, Navin Killa, Morgan Stanley Research.

3G / HSPA in Emerging Asia – Buildout Gaining Traction

- 3G / HSPA is the most widely available alternative to "connect to the net." With 3G networks in most EM Asian countries having been built in the last 12-18 months, the cost and time of upgrading these to HSPA+ speeds is quite low.

Country	Operator	Timing of 3G Network Build
Malaysia	Celcom	3G licenses awarded in March 2006, rollout started in the same year
	Maxis	3G licenses awarded in March 2006, rollout started in the same year
	Digi	DiGi acquired 3G spectrum from TIME dotCom in November 2007 and started 3G rollout in 2008.
Indonesia	Telkomsel	3G licenses awarded in February 2006, rollout started in the same year
	Indosat	3G licenses awarded in February 2006, rollout started in the same year
	Excelcom	3G licenses awarded in February 2006, rollout started in the same year
Thailand	AIS	The National Telecommunications Commission (NTC) is expected to auction 3G spectrum in the next 6 months.
	DTAC	
	True Move	
Philippines	Smart, Globe, DigiTel	In early 2006, the NTC awarded 3G mobile spectrum to Smart, Globe, DigiTel, and CURE (subsequently acquired by Smart). All operators commenced network build in the same year.

Morgan Stanley

Source: Company data, Navin Killa, Morgan Stanley Research.

WiMAX in Emerging Asia – Still in Nascent Stages

- WiMAX deployment in Asia still in nascent stages – Malaysia and Philippines have seen WiMAX deployment, Indonesia has recently awarded licenses. India / Thailand yet to issue licenses. China working towards proprietary WiMAX version.

Country	Comments
Malaysia	Malaysian Communications and Multimedia Commission (MCMC) issued four WiMAX licenses using the 2.3GHz spectrum to REDtone, Greenpacket, YTL, and Asiaspace in March 2007. While Greenpacket, REDtone and Asiaspace have already launched their WiMAX services, YTL plans a nationwide rollout by July 2010. We think Malaysia would be an interesting case study for the viability of WiMAX as a fixed line broadband substitute in emerging markets. TM's broadband service is still not available in several areas in Malaysia, and WiMAX could address the broadband market in semi-urban areas.
Indonesia	Eight WiMAX licenses were awarded for different zones in July 2009, and services are expected to be commercially available from early 2010. Telkom expects that it will have services up and running by 1Q10 in Maluku, for which it won a license.
Thailand	The National Telecommunications Commission (NTC) plans to issue WiMAX spectrum licenses after the auction of the 3G spectrum, which is expected to happen in the next 6 months. The NTC is considering whether to allow the 3G-licence winners to own the WiMAX licenses, as well.
Philippines	Globe Telecom is the first to deploy WiMAX, with services initially available in selected areas in South Luzon, National Capital Region, Visayas, and Mindanao. Smart Communications has obtained an approval from the National Telecommunications Commission (NTC) to acquire the full ownership of Primeworld Digital Systems, which has a 30MHz bandwidth frequency assignment in the 2,300-2,400 MHz block, which means it can use the frequencies nationwide for WiMAX services.

Morgan Stanley

Source: Company data, Navin Killa, Morgan Stanley Research.

Regional Analysis / Forecast – EEMEA (Eastern Europe, Middle East and Africa)

Morgan Stanley

EEMEA – Carriers Leverage Cost-Effective Wireless Broadband to Supply Universal Internet Access + Increase Data Revenue

EEMEA – Long-Term Need for 3G

- **Mobile broadband expected to grow substantially**
 - Low PSTN penetration in most EEMEA countries gives mobile broadband advantage over fixed broadband as Internet access solution
 - Mobile broadband is more cost-effective – \$40 cost to cover a household via WiMAX vs. \$800-1,200 via DSL; ~5x cost-per-bit reduction vs. 3G networks; cost-efficient solution for “last mile” broadband access
- **Smartphone shipments expected to triple over next five years, implying mobile Internet + VAS upside**
 - Increased 3G penetration + more powerful devices drive mobile Internet / data usage
- **Technology advances reduce mobile network costs per MB**
 - Lower cost infrastructure + mobile broadband growth gives operators incentive to roll out transmission network

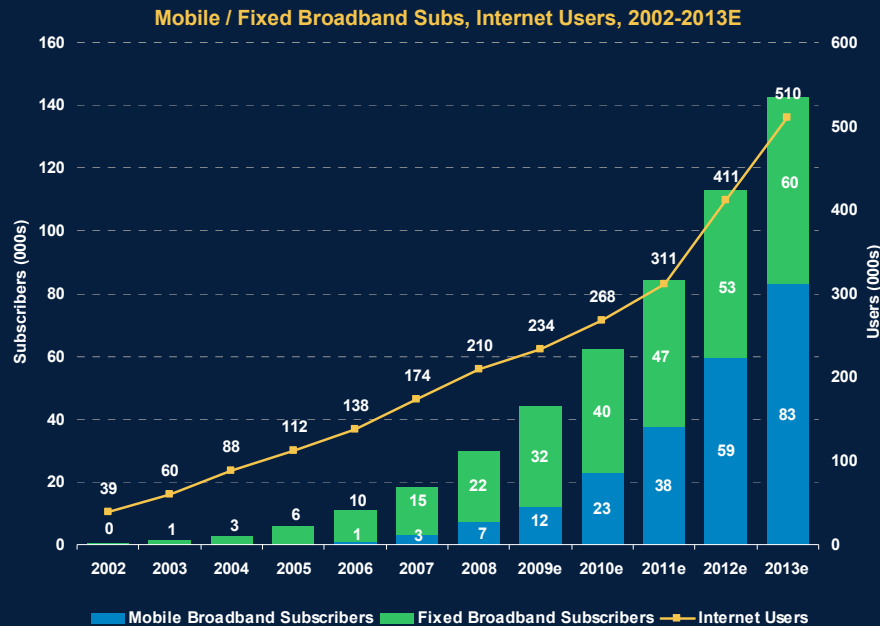
EEMEA – Short-Term Barriers to 3G Adoption

- **Affordability of end user devices**
 - Netbooks currently retail for around US\$250-300 in emerging markets; operators say a more mass market price point is closer to US\$150
- **Affordability of 3G services still low in many EEMEA regions**
 - 3G data plan monthly cost in EEMEA remains in parity, in absolute dollar terms, with developed world, but we are seeing an increasing number of prepaid data plans, which allow the user to spread the cost.
 - As a % of GDP, 3G data plan monthly costs remain very expensive in the region.

Morgan Stanley

Source: Sean Gardiner, Morgan Stanley Research.

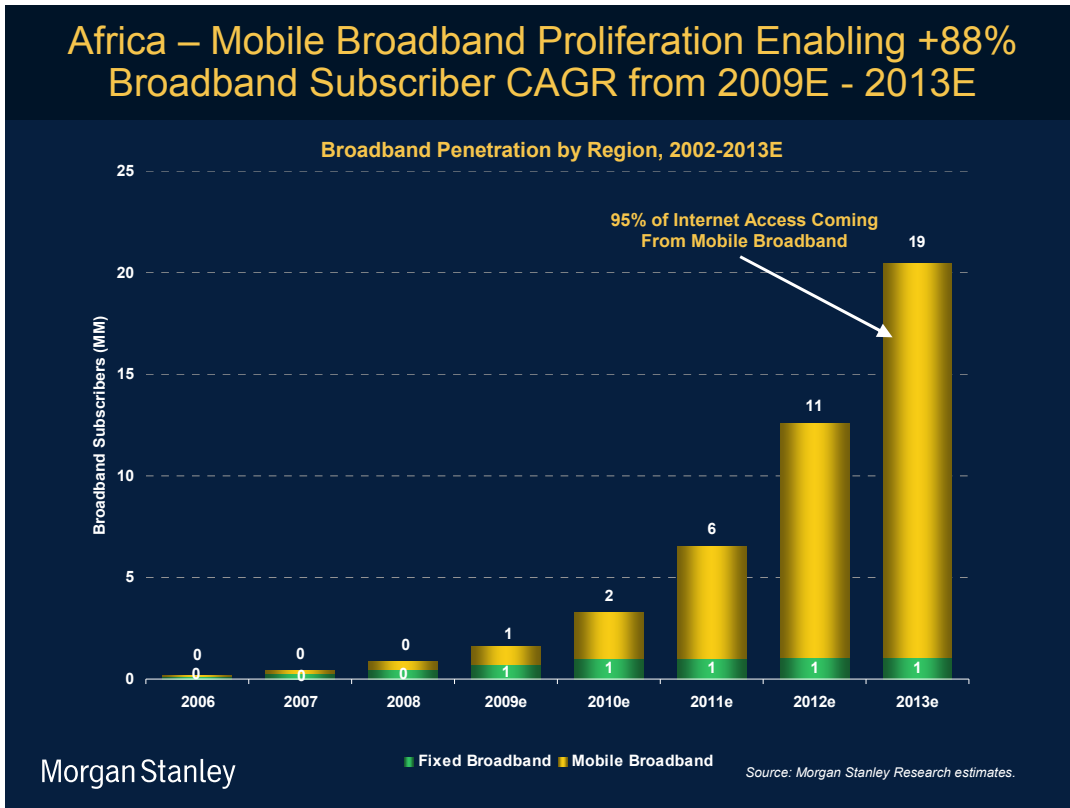
EEMEA – Internet Users Expected to Double from 2009E to 2013E, with Mobile Broadband Supplying ~60% of Total Access



Morgan Stanley

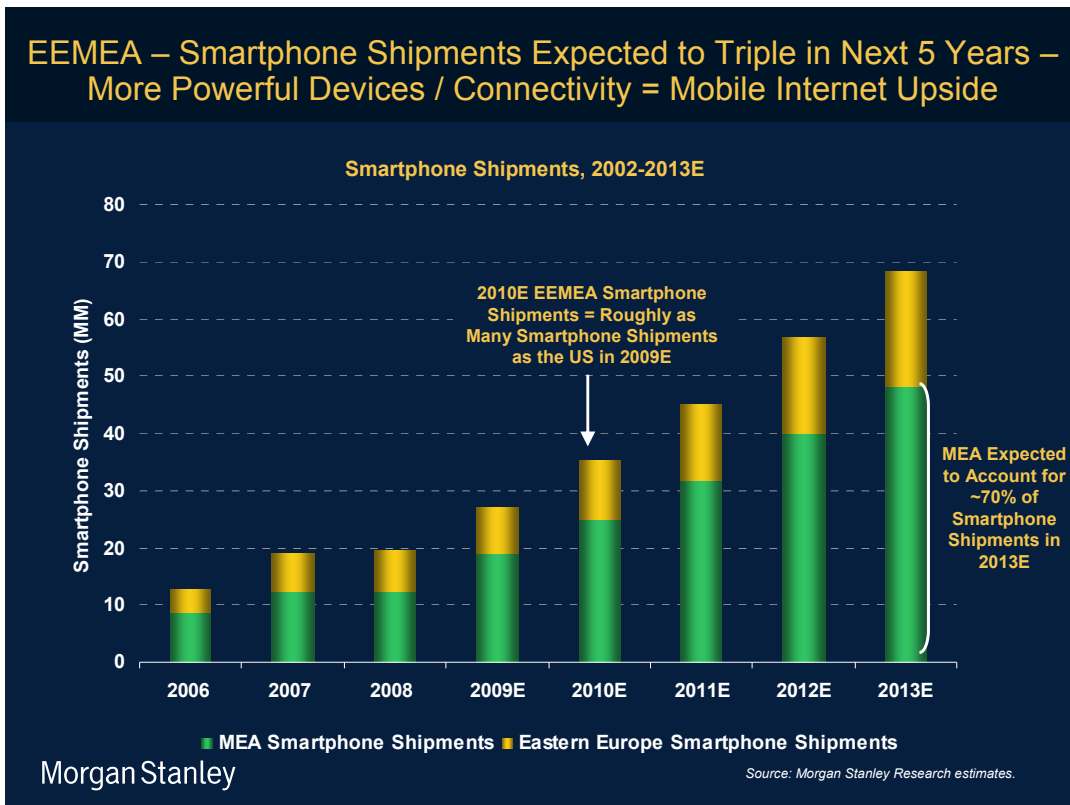
Source: Morgan Stanley Research estimates.

Africa – Mobile Broadband Proliferation Enabling +88% Broadband Subscriber CAGR from 2009E - 2013E



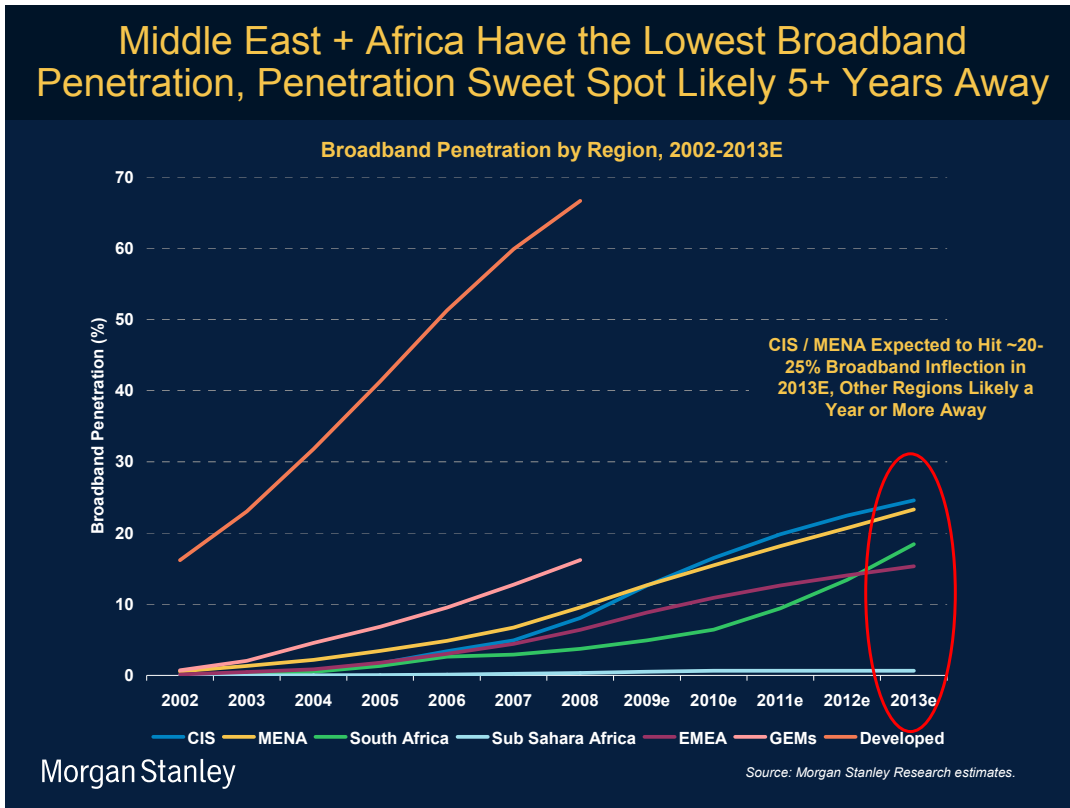
Morgan Stanley

EEMEA – Smartphone Shipments Expected to Triple in Next 5 Years – More Powerful Devices / Connectivity = Mobile Internet Upside



Morgan Stanley

Middle East + Africa Have the Lowest Broadband Penetration, Penetration Sweet Spot Likely 5+ Years Away



Russia Wireless Service Revenues – Upside / Base / Downside Cases at a Glance



Key Scenario Drivers for Russia Wireless Industry Service Revenue

Upside Case	5.6% '09-'15E RUB Service Revenue CAGR	Evidence of benefits from pricing strategy drive higher ARPU growth at 4.5% '09-'15E CAGR. The growth in ARPU is supported by an increase in both data usage and data revenue share (as a % of total service revenue). Total market size to reach to 1.8% of Russia GDP in 2015E vs. 1.75% in 2009E.
Base Case	3.6% '09-'15E RUB Service Revenue CAGR	Voice revenue remains as the majority revenue driver for the Russian mobile industry over the next 10 years, though data revenue contribution is expected to gradually increase. We expect ARPU falling 2-8% (on constant currency basis) in 2009 as a result of the worsening economic environment in 2009, followed by recovery from '09-'15E at a CAGR of ~3%. SIM-card penetration to stabilize at 150% by 2015 vs. current 143%. Total market size to decrease to 1.6% of Russia GDP in 2015 vs. 1.75% in 2009E.
Down-side Case	-3.1% '09-'15E RUB Service Revenue CAGR	A return to more aggressive competition in Russia's mobile industry, as seen in 2004, could result in ARPU declines. An additional risk comes from potential further top-line pressure in the corporate segment in 2010E-2011E as sustained macro pressure prolongs economic recovery. Total market size to fall to 1.1% of Russia GDP in 2015E vs. 1.75% in 2009E.

Morgan Stanley

Source: Alexander Vassiouk, Morgan Stanley Research.

Key Theme #7 – Compelling Opportunities in Emerging Markets

Emerging Markets (EM) have material potential for mobile Internet user growth. Low penetration of fixed-line telephone + already vibrant mobile VAS mean that for many EM users and small / medium enterprises (SMEs), the Internet will only be mobile.

We are still in the nascent stages of the market, but there are already encouraging signs of adoption of mobile broadband driven by the fall in low cost 'netbooks', availability of smartphones, and rollout of 3G.

We expect carriers in emerging Asia & Africa to be better positioned than carriers in Eastern Europe and the Middle East when markets hit inflection points, driven by stronger subscriber growth.

Morgan Stanley

December 15, 2009
The Mobile Internet Report

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Morgan Stanley is currently acting as exclusive financial advisor to AdMob, Inc ("AdMob") in relation to their acquisition by Google Inc, as announced on November 9, 2009. The proposed transaction is subject to customary closing conditions. AdMob has agreed to pay fees to Morgan Stanley for its services that are subject to the consummation of the proposed transaction. Please refer to the notes at the end of the report.

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Global Stock Ratings Distribution

(as of November 30, 2009)

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Stock Rating Category	Coverage Universe		Investment Banking Clients (IBC)		
	Count	% of Total	Count	% of Total IBC	% of Rating Category
Overweight/Buy	915	38%	284	41%	31%
Equal-weight/Hold	1077	45%	312	45%	29%
Not-Rated/Hold	25	1%	2	0%	8%
Underweight/Sell	384	16%	89	13%	23%
Total	2,401		687		

Data include common stock and ADRs currently assigned ratings. An investor's decision to buy or sell a stock should depend on individual circumstances (such as the investor's existing holdings) and other considerations. Investment Banking Clients are companies from whom Morgan Stanley or an affiliate received investment banking compensation in the last 12 months.

Analyst Stock Ratings

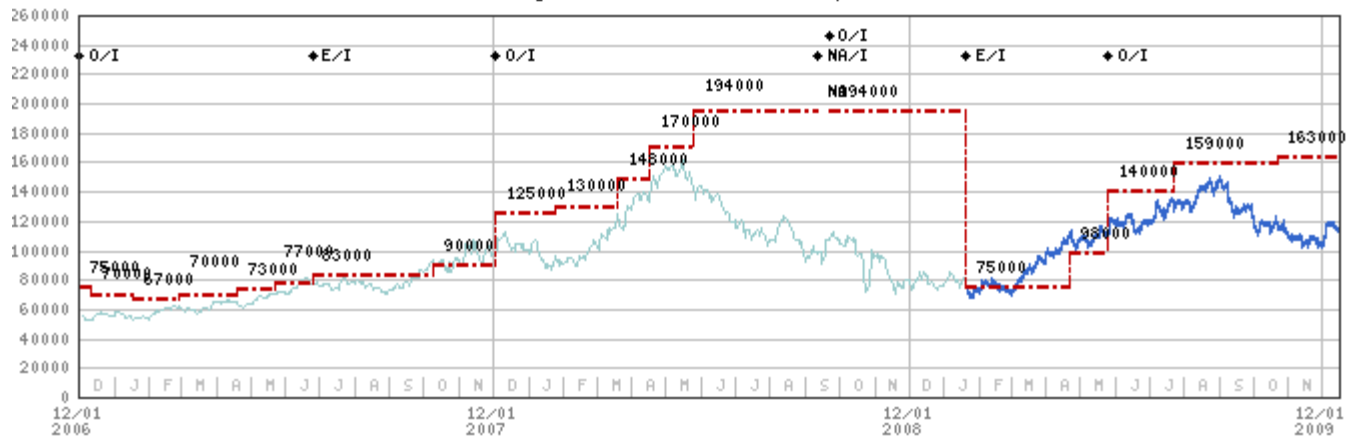
Overweight (O). The stock's total return is expected to exceed the average total return of the analyst's industry (or industry team's) coverage universe, on a risk-adjusted basis, over the next 12-18 months.
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Attractive (A): The analyst expects the performance of his or her industry coverage universe over the next 12-18 months to be attractive vs. the relevant broad market benchmark, as indicated below.
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Stock Price, Price Target and Rating History (See Rating Definitions)

LG Electronics (066570.KS) - As of 12/14/09 in KRW
Industry : S. Korea Hardware Components



Volatility shading indicates "more volatile" (V) flag. As of Nov-14-2008 the V flag has been discontinued.

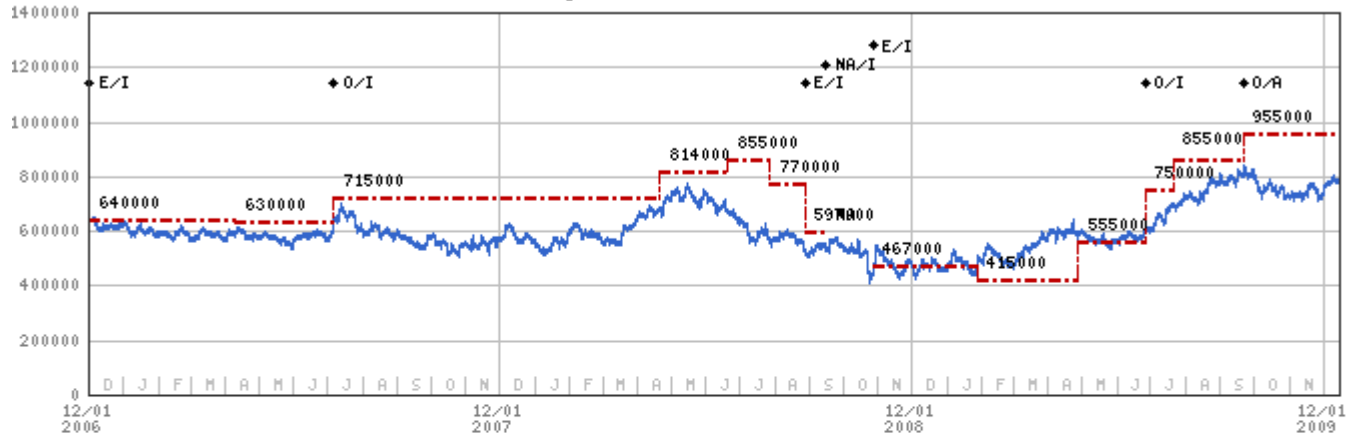
Stock Rating History: 12/1/06 : O/I; 6/25/07 : E/I; 12/3/07 : O/I; 9/12/08 : NA/I; 9/22/08 : O/I; 1/20/09 : E/I; 5/26/09 : O/I

Price Target History: 10/18/06 : 75000; 12/12/06 : 70000; 1/18/07 : 67000; 2/28/07 : 70000; 4/20/07 : 73000; 5/22/07 : 77000; 6/25/07 : 83000; 10/10/07 : 90000; 12/3/07 : 125000; 1/25/08 : 130000; 3/20/08 : 148000; 4/17/08 : 170000; 5/26/08 : 194000; 9/12/08 : NA; 9/22/08 : 194000; 1/20/09 : 75000; 4/22/09 : 98000; 5/26/09 : 140000; 7/23/09 : 159000; 10/22/09 : 163000

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target --- No Price Target Assigned (NA)
 Stock Price (Not Covered by Current Analyst) --- Stock Price (Covered by Current Analyst) ---
 Stock and Industry Ratings (abbreviations below) appear as ♦ Stock Rating/Industry View
 Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) More Volatile (V) No Rating Available (NA)
 Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

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Samsung Electronics (005930.KS) - As of 12/14/09 in KRW
Industry : S. Korea Semiconductors



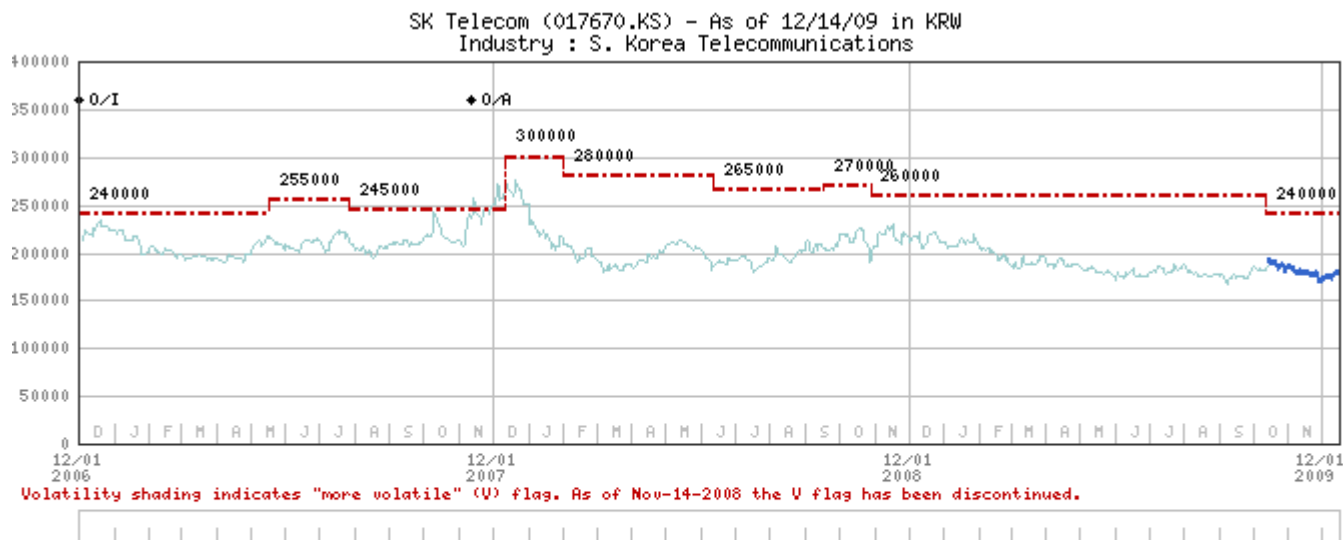
Volatility shading indicates "more volatile" (V) flag. As of Nov-14-2008 the V flag has been discontinued.

Stock Rating History: 12/1/06 : E/I; 7/6/07 : O/I; 8/28/08 : E/I; 9/16/08 : NA/I; 10/27/08 : E/I; 6/26/09 : O/I; 9/21/09 : O/A

Price Target History: 6/23/06 : 640000; 4/10/07 : 630000; 7/6/07 : 715000; 4/21/08 : 814000; 6/20/08 : 855000; 7/28/08 : 770000; 8/28/08 : 597000; 9/16/08 : NA; 10/27/08 : 467000; 1/28/09 : 415000; 4/27/09 : 555000; 6/26/09 : 750000; 7/21/09 : 855000; 9/21/09 : 955000

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target --- No Price Target Assigned (NA)
 Stock Price (Not Covered by Current Analyst) — Stock Price (Covered by Current Analyst) ■
 Stock and Industry Ratings (abbreviations below) appear as ♦ Stock Rating/Industry View
 Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) More Volatile (V) No Rating Available (NA)
 Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

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Stock Rating History: 12/1/06 : O/I; 11/12/07 : O/A

Price Target History: 10/27/06 : 240000; 5/18/07 : 255000; 7/27/07 : 245000; 12/12/07 : 300000; 2/1/08 : 280000; 6/12/08 : 265000; 9/17/08 : 270000; 10/29/08 : 260000; 10/12/09 : 240000

Source: Morgan Stanley Research Date Format : MM/DD/YY Price Target -- No Price Target Assigned (NA)
 Stock Price (Not Covered by Current Analyst) — Stock Price (Covered by Current Analyst) —
 Stock and Industry Ratings (abbreviations below) appear as ♦ Stock Rating/Industry View
 Stock Ratings: Overweight (O) Equal-weight (E) Underweight (U) Not-Rated (NR) More Volatile (V) No Rating Available (NA)
 Industry View: Attractive (A) In-line (I) Cautious (C) No Rating (NR)

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