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2008 Wireless Handset Playbook

10% Unit Growth, Top 5 Gain, Nokia, RIM & LGE Over Motorola

- **Market To Slow in 08, Top 5 To Continue To Win Share** — After 5 years of 15-30% y/y unit growth we forecast 10% in 2008 as net adds are expected to decline with only a slight acceleration in replacement rates. Upside risks from greater and faster emerging market penetration (albeit at lower ASP) and 3G replacement cycle. Downside risks from impact of potential weak macro environment (e.g. US replacement sales).
- **Top Five Continue To Win Share (despite MOT)** — We expect the top five vendors to continue gaining share. Risk of margin pressure from overly ambitious vendor share targets are partially mitigated by focus on profitability of leading vendors (Motorola, SonyEricsson, Samsung) and deteriorating prospects for Tier 2/3 vendors (as recently seen by Mediatek).
- **Top European Pick: Nokia** — We see further share gains in 2008 driven by increasing scale, brand, IPR and distribution advantages (e.g. in emerging markets), much-improved product portfolio and new service offerings (e.g. OVI) as a means of differentiation and stickiness to Nokia devices. Valuation is undemanding at 14.4x 08 EPS (ex-cash)
- **Top US Pick: RIMM. Too Early For MOT** — We continue to view RIM's momentum as fundamentally driven rather than pure price momentum. RIM's carrier partnership strategy, evolving critical mass subscriber bases and management savvy are yielding superior results: we estimate CY08E revenue growth of 61%, operating profits of 30%, and EPS growth of 65%. For Motorola, we believe it may face a few more difficult quarters until it launches products based on its new software and silicon platforms. We believe it is too early to be aggressive on MOT shares given 1H 08 risks.
- **Top Asian Picks: LGE and HTC** — For LGE, we believe its design emphasis, improving platform efficiency and focus on mid and high-end segments will continue to bear fruit. We forecast 7-8% mobile device operating margin in 08. We expect HTC to continue to be one of the beneficiaries of smartphone growth, with new launches set to support share gains.
- **Near-Term Checks In Line With Expectations, Nokia Gaining Share** — Our 4Q checks with distributors/industry contacts all point towards demand tracking expectations, albeit with a low-end bias (e.g. strong net adds in India/China, prepaid in Europe). Nokia appears to have regained share in Europe while maintaining its emerging markets dominance.

See Appendix A-1 for Analyst Certification and important disclosures.

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2008 - Growth Slows, Top Five Gain, Nokia, RIMM & LGE over MOT

- While we expect handset volume growth to decelerate in 2008, we still forecast 10% growth (compared to 15% in 07 and 20% in 06). The main driver is slower new subscriber additions in emerging markets (we actually forecast net adds peaking in 07), which is partially offset by a slight acceleration in replacement rates. In a slowing market, our investment cases for both handset and supply chain companies are more concentrated on exposure to share gains/margin expansion or valuation.
- Similar to recent years, we expect the global mix of handsets to continue to shift towards lower-priced segments. Although emerging markets growth is evolving to being more driven by replacement (and higher ASP) sales, downward ASP pressure is likely to come from overly optimistic market share ambitions in the “premium low-end” (\$60-\$80) from vendors such as Samsung and SonyEricsson, a higher share of lower-cost 3G phones and increasing competition in the high-end segments.
- Handset vendor market share has concentrated sharply among the top five in the last four years. We expect this to continue as economies of scale in R&D/IPR and SG&A become more important as the handset market slows, differentiation becomes increasingly important and product cycles shorten.
- Amongst the top 5 vendors, pure handset exposure is limited to Nokia and Motorola given the proportionately high non-handset operations of Samsung, Ericsson and LGE. Nokia is our preferred name for global portfolios over Motorola. Outside the leading share vendors, we are positive on RIM as its smartphone focus and carrier partnership strategy should allow the company to enjoy continued strong growth along with significantly higher than industry average profitability.
- In the very short-term, our proprietary checks with global handset distributors as well as our analysis of BRIC economy subscriber add data and component supplier trading updates all suggest that handset demand demands robust and in line with 4Q expectations, with Nokia consistently seen as a market share gainer.



Wireless Handset Sector Indicators

Figure 1. CIR Handset Playbook Indicators for 2008

Demand Factors

First Time Buyers (Emerging Market Subscriber Adds)	Yellow	
Replacement (Non Voice Features, Data Services, WCDMA, New Networks)	Yellow	

Supply Factors

Vendor Strategies (Pricing, Share Gain, Product Cycles)	Yellow	
Vendor Market Share Concentration	Green	

Channel Checks

Component Suppliers	Yellow	
Distributors	Green	

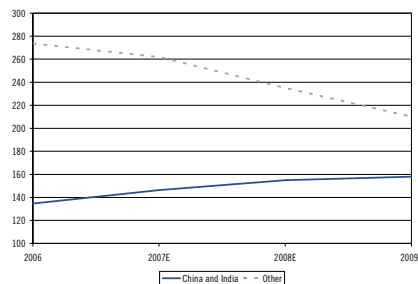
Source: Citi Investment Research

Emerging Market Subs Adds...Yellow

We Expect China/India Subscriber Growth Deceleration in 2008

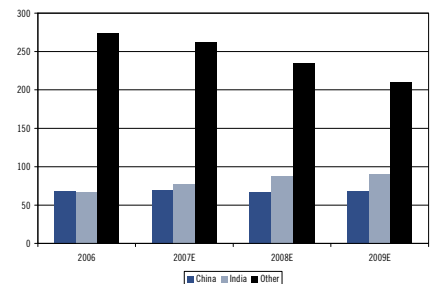
In the charts below we highlight our subscriber growth expectations for China and India, which we estimate will comprise almost 40% of global net additions in 2008. Although subscriber growth in these two countries is expected to slow, we still expect net adds to increase each year until 2009 as rural penetration increases. This is in contrast to the rest of the world, where the majority of handset sales will be driven by replacement units due to high penetration rates.

Figure 2. Total Subscriber Net Adds (millions)



Source: Citi Investment Research

Figure 3. Split of India, China and Other (millions)



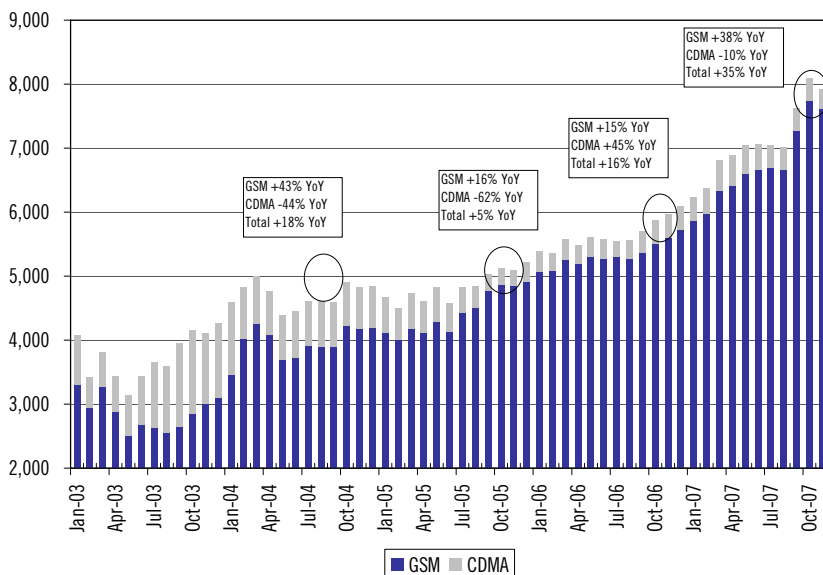
Source: Citi Investment Research

We expect China's net adds to flatten next year and expect a subscriber growth rate of 13% in 08E (down from 15% in 07E and 17% in 06), with almost 600m total subscribers by the end of 08E. With lower penetration, India's subs growth rate is faster but also slowing — we estimate 40% in 08E (down from 86% in 06) — which translates to a subscriber base of over 300m by the end of 08. Due to our expectations of decelerating growth in 08, we have assigned a “yellow” rating.

Strong 4Q07 Subscriber Growth for Key Emerging Markets

In **China**, the first two months of 4Q07 saw overall subscriber growth of 35%, a significant acceleration on the 16% y/y growth in the same period in 2006. After flattening at around 7m net adds/month for most of the year, there has been a sudden increase up to the 8m level this quarter. Assuming the current rate of net adds for the month of December implies 24m for the quarter (compared to 19.4m/21.0m/21.7m for quarters 1-3 this year). The bulk of this growth has been from GSM subscribers (96% of net adds), with CDMA's small portion now starting to fall y/y.

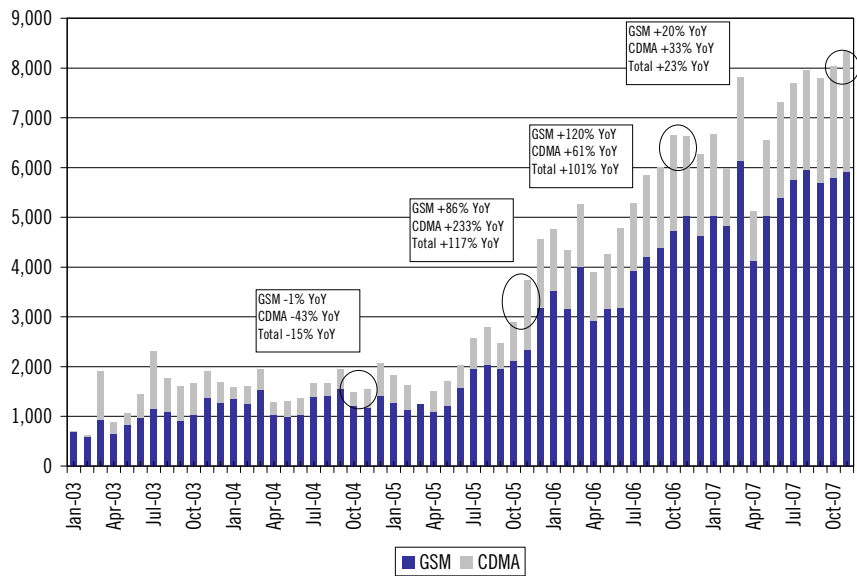
Figure 4. China Mobile Subscriber Growth, Jan-03-Nov07 (Thousands)



Source: Company Reports and Citi Investment Research

In **India**, the first two months of the quarter saw overall subscriber growth of 23% which is much lower than historical rates (to be expected as the market matures). We point out that a record 8m net additions were added in the October and November, which would imply close to 25m additions in 4Q possible if the growth rate is maintained in December. In terms of technology mix, CDMA subscribers grew faster than GSM in November, but represent only 30% of net adds.

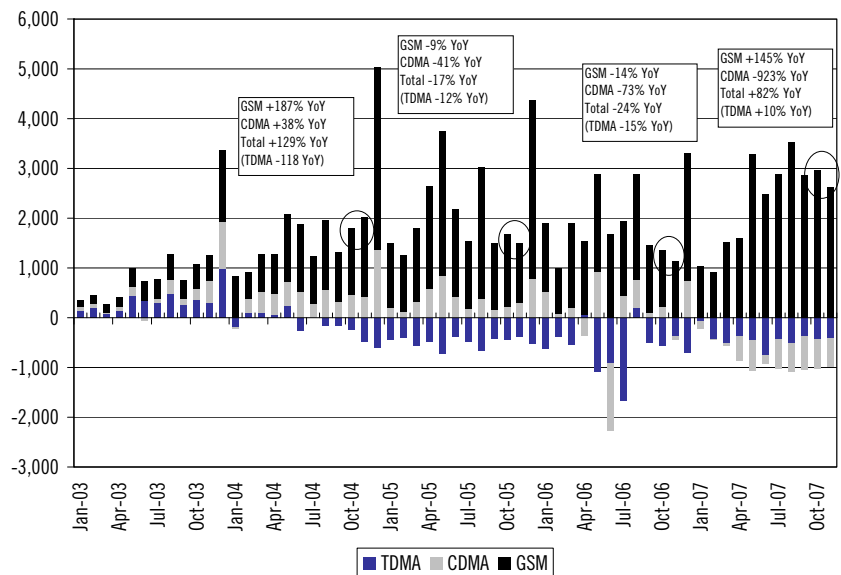
Figure 5. India Mobile Subscriber Growth, Jan-03-Nov-07 (Thousands)



Source: Company Reports and Citi Investment Research

In **Brazil**, GSM subscriber growth has been very strong at +145% y/y for October and November with over 25m net adds YTD already significantly more than the 19m seen in 2006. CDMA additions continue to be negative as they are turned off and operators migrate to GSM (e.g. Vivo). On a net basis (GSM adds less CDMA cancellations), 82% growth is the highest in 3 years.

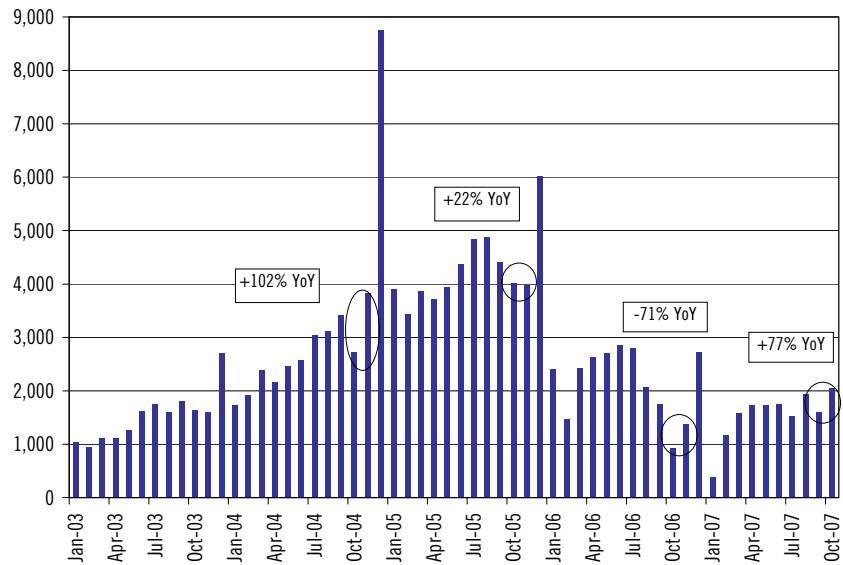
Figure 6. Brazil Mobile Subscriber Growth, Jan-03-Nov-07 (Thousands)



Source: Company Reports and Citi Investment Research

Following a significant y/y deceleration in subscriber growth in **Russia**, net add growth has been extremely robust in the first two months of 4Q 07, with 77% y/y growth. This is the first time in two years that net adds have been positive.

Figure 7. Russia Mobile Subscriber Growth (Thousands)



Source: Company Reports and Citi Investment Research

Replacement Rate...Yellow

With competition between operators unlikely to abate, the pace of introduction of new non-voice features and functionality (e.g. touchscreen, GPS, Xenon Flash) set to remain and the continuation of the 3G replacement cycle (supported by the availability of sub \$100 3G phones), we forecast a slight increase in the global handset replacement rates from 28% in 2007 to 29% in 2008. Hence we assign a “yellow” rating to the replacement indicator.

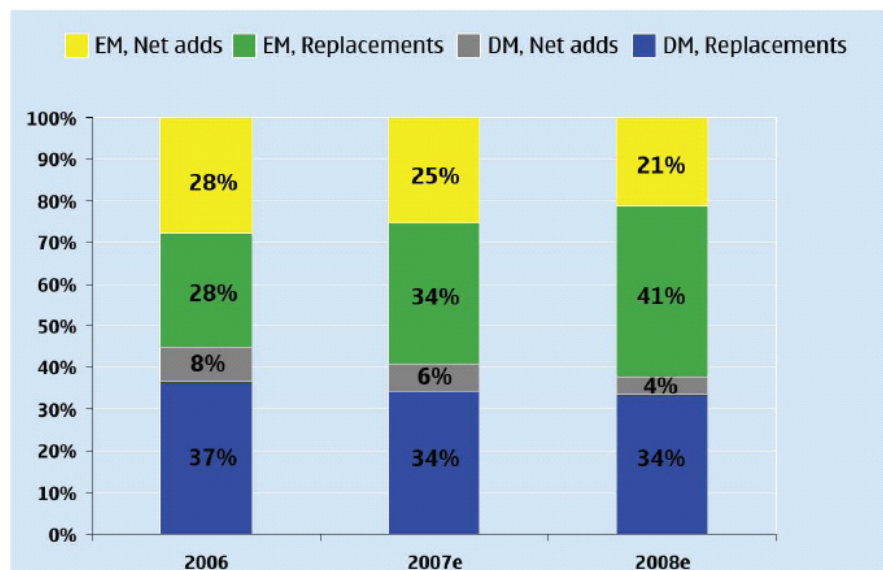
Figure 8. Global and Regional Handset Replacement Rates, 2003-2008E

Replacement Rate	2003	2004	2005	2006	2007E	2008E
Europe				34%	34%	35%
Middle East & Africa				20%	20%	20%
China				16%	19%	22%
India				8%	20%	21%
Asia Pacific				20%	22%	23%
North America				59%	59%	59%
Latin America				23%	24%	26%
Total	21%	24%	24%	28%	28%	29%

Source: Company Reports and Citi Investment Research

In emerging markets, we have already witnessed significant increases in replacement rates as early adopters begin to replace their first-time purchases. According to Nokia, emerging market replacement phones will comprise over 40% of global units shipments in 2008 (up from 34% in 2007 and 28% in 2006).

Figure 9. Nokia’s Estimate of Net Add and Replacement Mix, 2006-2008E



Source: Nokia 2007 Capital Markets Day Slide 7 (Session 2)

In the US market, we forecast replacement rates to remain constant at approximately 60% as competition amongst carriers remains intense (e.g. T-Mobile's 3G launch, broader availability of 3G services at AT&T) and new and increasingly affordable smartphone devices become available.

However, with ongoing macro concerns we recognise that there is some risk to US replacement rates in 2008 given their existing high levels (a 60% replacement cycle implies an average useful life of 20 months per device, roughly in line with most post-paid consumers' 2-year contract life). Based on our estimates, there were 271m US subscribers at the end of 2007; a 200bps change in replacement cycle translates to a 5m impact on devices sold. Hence, if US replacement rate were to slow to 50% in 2008 (from an estimated 59% in 2007), this would result in a 23m reduction to our 2008 global handset forecast (c. 2% impact).

Figure 10. North America Handset Forecasts & Sensitivity Analysis

North America Wireless Subscribers and Population			
2007			
	Subs	Population	Penetration
United States	253.4	302.8	84%
Canada	19.7	33.6	59%
Total	273.0	336.3	81%
2008			
Base Case			
United States	271.2	305.4	89%
Canada	20.9	33.8	62%
Total	292.0	339.3	86%

Sensitivity Analysis - Forecasted Unit Sales		% Difference from Base Case									
United States		United States									
	Penetration Rate		Penetration Rate								
Replacement Rate	85%	87%	89%	91%	93%	-4%	-2%	0%	2%	4%	
	50%	132	138	144	150	156	-21%	-17%	-14%	-10%	-6%
	57%	149	155	161	168	174	-10%	-7%	-3%	1%	4%
	59%	154	160	167	173	179	-7%	-4%	0%	4%	7%
	61%	159	165	172	178	184	-4%	-1%	3%	7%	10%
63%	164	171	177	183	189	-1%	2%	6%	10%	13%	
Canada		Canada									
	Penetration Rate		Penetration Rate								
Replacement Rate	58%	60%	62%	64%	66%	-4%	-2%	0%	2%	4%	
	55%	11	11	12	13	13	-17%	-11%	-6%	-1%	4%
	57%	11	12	12	13	14	-14%	-8%	-3%	2%	8%
	59%	11	12	13	13	14	-11%	-5%	0%	5%	11%
	61%	12	13	13	14	15	-8%	-2%	3%	8%	14%
63%	12	13	14	14	15	-4%	1%	6%	11%	17%	
North America		North America									
	Penetration Rate		Penetration Rate								
Replacement Rate	-4%	-2%	Base Case	+2%	+4%	-4%	-2%	Base Case	+2%	+4%	
	50%	142	149	156	163	169	-21%	-17%	-13%	-9%	-6%
	57%	160	167	174	181	187	-11%	-7%	-3%	1%	5%
	59%	166	173	179	186	193	-8%	-4%	0%	4%	8%
	61%	171	178	185	192	198	-5%	-1%	3%	7%	11%
63%	177	183	190	197	204	-1%	2%	6%	10%	14%	

Source: eSearch Wireless, Citi Investment Research

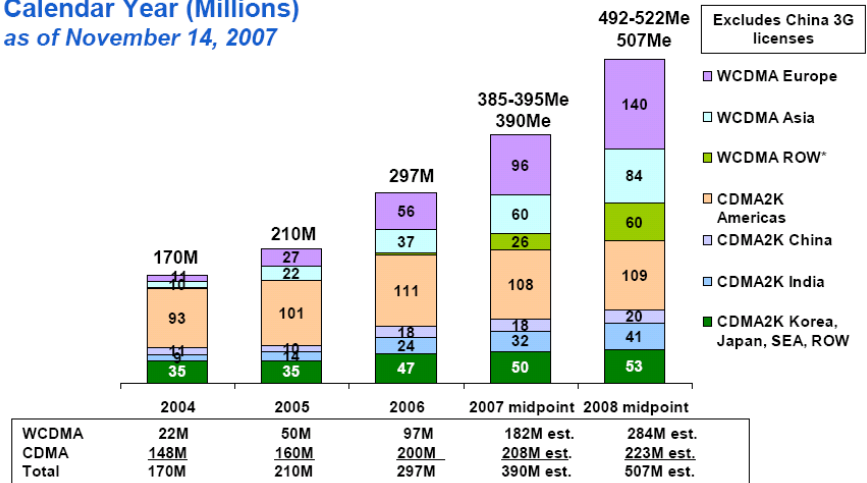
WCDMA Phones Expected to Reach c. 25% of Global Shipments in 08

One of the key drivers of device sales in developed markets is the continuation of the WCDMA replacement cycle as operators aim to utilise the operational efficiencies of 3G as well as driving incremental ARPU growth from data services. For example, we estimate that WCDMA phones represented over 35% of European handset units in 2007 as operators increasingly promoted 3G devices (e.g. Vodafone). We expect this trend to continue as 3G devices reach more mass-market pre-paid segments.

On a global basis, Qualcomm recently provided its WCDMA units forecasts and expects WCDMA shipments to reach 182m units in 2007 (+88% y/y) and 284m (+56% y/y) in 2008 assuming the mid-point of current guidance. This translates to over 23% of our total global handset forecast in 2008.

Figure 11. Qualcomm Estimate of CDMA2000 and WCDMA Handset Shipments, 2004-2008E (m)

CDMA2000 and WCDMA (UMTS) Handset Shipment Estimates
Calendar Year (Millions)
as of November 14, 2007



Source: Qualcomm November 2007 Analyst Day Slide 14 (Bill Keitel presentation)

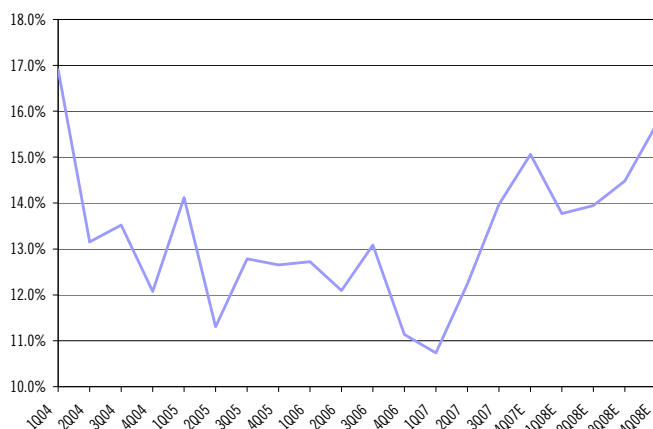
Vendor Strategies...Yellow

NOK Share Gains To Continue, High End Competition Intensifies

In a slowing market, the key risk, in our opinion, is that vendors become overly focused on market share gains to drive growth. Given Motorola's problems over the last 12 months, we believe that this should act as a stark reminder to vendors such as Samsung and SonyEricsson that have been more vocal on their intentions to gain share in more lower end segments (\$60-80) where they have not been traditionally been present.

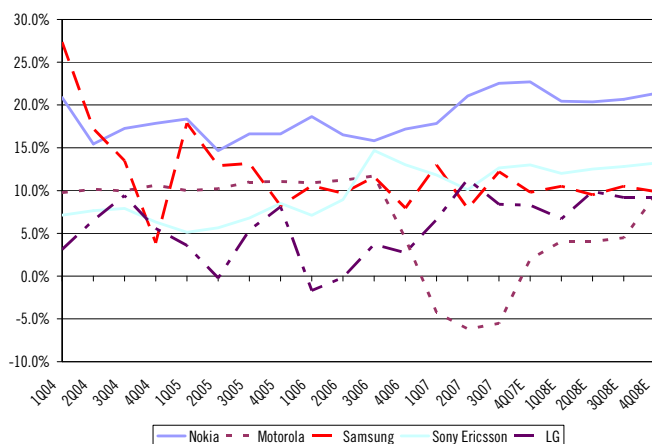
While we expect both Sony Ericsson and Samsung to increase their presence in this price tier (as already reflected by new model announcements), we do not believe that they are likely to enter a fierce price battle with Nokia or that they will be rewarded by the market for the potential margin pressure that would likely follow. In the ultra-low segments, we believe Nokia will continue to dominate this category given its significant scale, brand and distribution advantages with a very low probability of new competition making inroads.

Figure 12. Top 5 Weighted Average Operating Margin, 1Q04-4Q08E



Source: Company Reports and Citi Investment Research

Figure 13. Top 5 Operating Margins, 1Q04-4Q08E



Source: Company Reports and Citi Investment Research

Instead, we expect competition to continue to be focused in the mid and high-end segments (where design, features and functionality are greater drivers of success than cost) and smaller niche players have a greater chance of success (e.g. RIM, Apple, HTC). It is in this segment that we see the greatest risk of price erosion and/or increased marketing spend to drive sales, e.g. Samsung (Ultra Edition), SonyEricsson (Walkman/Cybershot), and LG (Viewty).

In the case of Motorola, it has publicly embraced a strategy of profitable growth rather than simple share gains. This has largely taken the form of a retreat from faster growing emerging markets; we believe the simple maths of being "overweight" slower growth geographies (North America) and "underweight" faster growth geographies destines further share loss for Motorola. Geographically, the US market could see even greater competition in 2008 as competition in the key smartphone segments is set to intensify with initiatives such as Google's Android platform and additional iPhone model launches, as well as new Motorola products in H2 and Nokia's plans to regain share.

Vendor Market Share Concentration...Green

The market share for the top five vendors has fallen over the past year, from 86% in 3Q06 to 84% in 3Q07 — this is due to Motorola's problems, which saw it lose 900bps of market share (from 22% to 13%). Although this represents a fall over this timeframe, it still represents an increase from the 80% level in 4Q05.

Looking into 2008, we expect the top 5 to gain almost 500bps of unit share (largely driven by Nokia and Samsung) despite recent successes of RIM, Apple and HTC in high-end segments. As overall handset market growth slows, economies of scale in manufacturing, R&D/IPR and SG&A are likely to become increasingly important with tier 2/3 vendors likely to continue to struggle (as reflected by MediaTek's recent warning). Nevertheless, it is worth noting that the non-Top 5 portion still represents over 130m units in 2008E.

Figure 14. Top 5 Handset Vendor Market Share, 3Q06-2008E

	3Q06	3Q07	2006	2007E	2008E
Nokia	36.4%	39.1%	35.5%	38.8%	41.3%
Motorola	22.1%	13.0%	22.2%	14.1%	13.8%
Samsung	12.6%	14.9%	12.1%	14.6%	16.0%
Sony Ericsson	8.1%	9.1%	7.6%	9.3%	10.2%
LG	6.8%	7.7%	6.6%	7.1%	7.4%
Total	86.0%	83.8%	84.0%	84.0%	88.8%

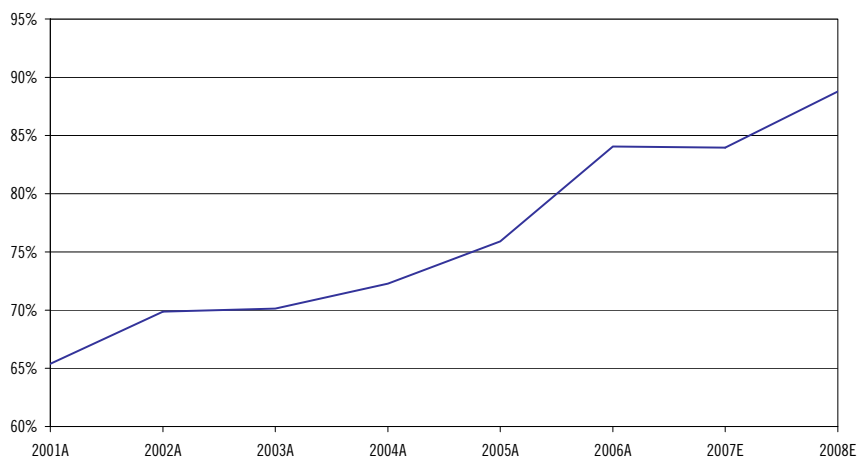
Source: Company Reports and Citi Investment Research

Figure 15. Other Notable Vendors' Market Share, 3Q06 – 2008E

	3Q06	3Q07	2006	2007E	2008E
Apple	0.0%	0.4%	0.0%	0.4%	0.8%
HighTec Computer	0.9%	0.8%	0.8%	0.8%	0.9%
Palm	0.2%	0.3%	0.2%	0.3%	0.3%
RIM	0.6%	1.1%	0.6%	1.0%	1.5%

Source: Company Reports and Citi Investment Research

Figure 16. Top Five Handset Vendor Market Share, 2001-2008E (%)



Source: Company Reports and Citi Investment Research

Component Suppliers...Yellow

Recent commentary and our checks with component suppliers, distributors and handset vendors have generally been positive (notwithstanding MediaTek's recent warning relating to Tier 2 and 3 Chinese players). Despite general weakness in consumer spending, 4Q sell-in volumes appear to be tracking expectations with strong volumes from Nokia, Motorola, LG and RIM. In terms of mix, we have consistently heard of growth again being predominantly driven by emerging markets and to a lesser degree by smartphones.

Our checks with Taiwanese component suppliers are consistent with an "in-line" volume expectation for 4Q but some have also suggested that seasonal strength in 4Q might persist in 1Q08, driven by better overall demand.

Fears of component shortages have been high since specific comments were made last quarter by Nokia and Qualcomm. Indeed, we believe that a number of component suppliers (e.g. for batteries) have placed handset vendors on "allocation" given the strong seasonal demand, with preferred suppliers faring better (e.g. Nokia). However, recent increases in guidance from Texas Instruments and Qualcomm imply that component shortages are not broadly based.

Figure 17. Handset Component Supplier Data Points from October-December 2007 (Positive "+", Negative "-" and Neutral "=")

Company	Date	+/-	Event	Description
Handset Suppliers				
Samsung	14-Nov	+	CIR Research (Choi)	Should see 49+m (15% qoq) which is above guidance at 42m, October's shipments of 17m compare to 3Q average of 14m
Samsung	28-Nov	+	Samsung Tech Forum	Increased 2007 shipment forecasts from 150m to 160m
Nokia	04-Dec	+	Capital Markets Day	Device volumes in 08 to grow c10% from 1.1b in 07 (>15% in Asia Pacific, China and Middle East & Africa and <10% in North & Latin America and Europe, 4b subs to be reached in 09 (previously 10)
LG	04-Dec	+	CIR Research (Choi)	Upside risk to handset numbers with 24m expected (7% ahead of guidance) with 17m delivered in October and November with MOT continuing to struggle
Component Suppliers				
Asia Handsets	16-Oct	+	CIR Research (Gai)	Upward cycle in regional handset sector to persist in 4Q07 and 1Q08
Texas Instruments	11-Dec	+	Mid-quarter update	Raised mid-point of guidance citing strong December handset demand (Nokia and LG cited as strong)
Qualcomm	20-Dec	+	Guidance Raised	Raises December quarter guidance (mid-point) on higher MSM shipments (78m from 74-78m)
Compal Communications	09-Nov	-	CIR Research (Gai)	Downgrade to sell to reflect weaker MOT recovery in low-end phones
Mediatek	26-Dec	-	Guidance Lowered	Worse than expected quarter end inventory push-out sees Q4 sales of -25% qoq (from -15 to -20%) - mainly 2nd and 3rd tier Chinese handset players
Trailing Quarter Results Commentary				
LG	16-Oct	+	3Q07 Results	Growth to continue due to high season, accelerated growth expected in emerging markets and 3G
Brightpoint	08-Nov	+	3Q07 Results	Introduces 08 forecast of 1.25-1.35b devices and 11E forecast of >1.65b with Brightpoint handling 100-115m in 08E
Carphone Warehouse	08-Nov	+	2Q Trading Statement	Subscription connections up 9% to 1.1m and total connections up 19% to 2.8m
Brightpoint	27-Nov	+	CSFB Conference	Comments included expectations of record 4Q and less sequential decline in 1Q08 than usual (-5 to -7% v -10 to -15%)
Samsung	12-Oct	=	3Q07 Results	Global market to be 1.13b units (unchanged) - seasonality, strategic models and high-end competition to have positive market impacts in 4Q
Nokia	18-Oct	=	3Q07 Results	Expects total market to be up sequentially, total market in 2007 to be approximately 1.1b (12% growth)
ST Micro	24-Oct	=	3Q07 Results	Wireless strength drove margin upside (Sony Ericsson)
Texas Instruments	22-Oct	=	3Q07 Results	Wireless revenues to be flat in 4Q due to share loss at Sony Ericsson, 3Q wireless revenues solid
Motorola	25-Oct	=	3Q07 Results	Devices business flat sequentially (beat consensus)

Source: Citi Investment Research analysis

Distributor Channel...Green

Our global quarterly checks with handset distributors in EMEA and the Americas and analysis of subscriber trends in BRIC economies suggest that volumes remain in line with current expectations. For example, Brightpoint recently stated that 4Q demand continues to be robust with many handset models sold out for the quarter and believes that 4Q unit sell-in growth could come in at +14% — 18% sequentially (CIR est +13%). In addition, some distributors also commented that Q4 strength is likely to continue into 1Q with a less-than-normal seasonal decline.

In terms of share gainers, our checks consistently highlight Nokia as the major share gainer in the quarter across the board with SonyEricsson (Europe), LGE (Europe and US) other gainers. For Motorola, distributors continue to wait for new products in H2 08 before a meaningful turnaround can be envisaged.

Europe – Units in Line, Nokia, SonyEricsson and LGE Gain Share

- Demand remains healthy but no expectations of upside surprise. Operator subsidies remain stable with increased competition in prepaid offerings.
- Market share gains for Nokia, SonyEricsson and LGE. Nokia's gains are across all tiers with the 1600 and 6300 continuing to dominate the low- and mid-end segments respectively. The N95 8GB was consistently seen as a top seller in the high-range but lack of availability was mentioned. Sony Ericsson's new Walkman line-up has sold well in the mid-end (particularly the W910) but the K850 failed to match high expectations. The LGE Viewty was another top seller in the high-end.
- Samsung share should be flat to down, while Motorola continues to lose share. While Samsung's G600 was mentioned by a number of distributors, consistent feedback was that there was a general lack of new product. For Motorola, the RAZR2 was generally regarded as a "miss" product, while the much-hyped Z8 was not well received.

Europe vendor-specific quotes were as follows:

- "Nokia has the strongest portfolio, the 6300 continues to be our top seller, despite the newer 6500, people just love it."
- "The Nokia 6300 is our highest selling pre-paid phone at the moment".
- "SonyEricsson have a very strong line-up, the W910 has sold very well"
- "The new N95 is by far the best handset we sell, I am recommending it to all customers ahead of the iPhone".
- "The Viewty (LGE) has been very popular, a big improvement on the Prada phone. The Pink Chocolate has done well in the prepaid market".
- "Samsung is doing OK, but not enough new products to wow consumers. I like the G800 which has a great camera"
- "Just a shame the K850 (SonyEricsson) didn't have a better keypad, just like the W880. Customers love the high quality camera though."
- "The RAZR2 has just not sold well. It is not different enough to the RAZR. As for Z8, we've just stopped selling it as there is no demand."

North America Market – Demand Remains Solid, LGE & RIMM Gain

We recently talked to the top four mobile-phone carriers in the US (AT&T, Verizon, Sprint and T-mobile), as well as retailing stores (Best Buy and Circuit City) on preliminary sales in 4Q07. We did not see any sign of slowdown in demand, but we found a significant shift in market share.

RIM continues to lead the US smartphone market, where we see aggressive promotions for its products including the Blackberry Pearl (US\$99.99), Curve 8310 (US\$249.99) and dual band 8830 (US\$279.99). Most of the sales personnel we talked to recommended Blackberry phones for pricing and performance. In high-end feature phones, LG's touch-panel phone, Voyager (by Verizon at US\$359), was the most recommended model, displacing Motorola's V9. In addition, we heard positive comments on AT&T's Tilt (HTC TyTN II), which is being seen as one of the better Windows Mobile smartphones. Palm prices have fallen sharply (from US\$499-599 to US\$129), but the product was not seen as a must-buy in most stores.

Top Global Picks: Nokia, RIMM, LGE & HTC

Handset Vendor Company Investment Cases

Top European Pick: Nokia – Buy/High Risk (1H), €32 Target, covered by Sherief Bakr

- Following a stellar 2007 in terms of share gains, margin progression and stock performance, we believe Nokia is set for another strong year in 2008 given: a) its much-improved product portfolio (particularly mid-end), b) increasing scale, brand, IPR and distribution advantages (particularly in low-end segments), c) new service offerings (via OVI) as a driver of differentiation and stickiness to Nokia devices, d) more systematic focus on retention of existing users and e) potential market share recovery in the US.
- While we expect mid- and high-end competition to intensify in 2008 (e.g. Motorola's following dramatic pull-back in 2007, 3G version of Apple's iPhone, Google Android community), we believe Nokia is poised to further raise the bar with the introduction of a new range of products (e.g. touchscreen) and services (e.g. "comes with music service", greater integration of location-based services, re-vamp of N-Gage gaming).
- At the low-end, we view Nokia's dominance as sustainable given its significant scale, distribution and brand advantages as well as a lack of broad competition in the sub €30 category.

Top US Pick: Research in Motion – Buy/Medium Risk (1H), \$140 Target, covered by Jim Suva

- Research in Motion continues to be our top North America Handset pick and is on the Citi Investment Research Global Technology Conviction List. We believe investors are best served by focusing on the smartphone market within North America. That said, we do not think that all of our stocks will benefit from smartphone growth as we do not view smartphones as the tide that lifts all boats. Despite strong unit growth, we view this category as a hotly competitive market striated by feature set, target market, and demographics. We believe there will be losers as well as winners as the market becomes increasingly competitive through 2008. In this context, we believe RIM is extremely well positioned heading into 2008.
- North America enterprise position seems to be gaining further strength. Based on proprietary conversations and checks with corporate IT departments, we believe RIM is actually seeing increased penetration in its existing North American enterprise account base. Business units and individuals that previously were not authorised for Blackberry devices are now being approved. While we do not think this represents a significant growth engine in and of itself, it does stand in stark contrast to recent fears of a US enterprise slowdown.
- Entrenched North America enterprise position provides the base for international expansion with US multinationals. As US multinationals have standardised on RIM, it is a natural choice for their IT departments to deploy the Blackberry solution for their overseas offices. This is typical of RIM's first stage of expansion into a new geography.

- Consumer penetration should be made somewhat easier by RIM's carrier heritage and aspirational quality. Carriers are aggressively promoting RIM devices to gain high margin data ARPU and the reduced churn that typically accompanies higher end plans/devices. We believe that carriers are pushing RIM due to the company's partnership strategy, which seeks to assist carriers in being a high-margin platform rather than a low-margin bitpipe. This is contrasted by the efforts of other device makers, such as Nokia and potentially Google with its Android platform, that are seemingly seeking to disintermediate carriers and capture high margin applications and services revenues for themselves.
- International growth should be robust. RIM has seen increasingly international diversification, with non-North America revenues declining to 65% from 90% during the period of FY03 (Feb) through FY07 (Feb). We believe that RIM continues to enjoy solid growth in Europe and that the Asia Pacific is a nascent, but potentially large, geographical opportunity.
- RIM's subscriber base is just gaining critical mass in our view. We expect RIM's subscriber base passed the 12 million mark when the company reported its fiscal 2007 (November fiscal year end) results on December 20th. Our model forecasts the subscriber base reaching 15 million in the May quarter and 20 million in February 2009.
- RIM has significant room to grow. We note that our estimates call for unit shipments of 11.2, 18.7, and 26.8 million units for the calendar years of 2007 through 2009, however RIM's estimated market share of the total handset industry would only increase from 1% to 2% during this period. We don't think RIM has to worry about the law of large numbers just yet.
- Software and services are under-appreciated, high margin annuitised revenue stream. RIM receives a monthly service fee of approximately \$6.44 per user. We expect the company to generate almost \$1.3 billion in service revenues for CY08 and that RIM generates operating margins in the 50 – 60% range on this business. RIM should also generate approximately CY08 software revenues of approximately \$300m. We estimate that RIM generates operating margins in the 40% range on the software business. These two revenues streams combined equal \$1.6 billion and should generate operating income of approximately \$825 million. This is comparable to our forecasted operating income for Motorola's entire cell phone business of for CY08 (that we view as potentially at risk).
- Highest quality management in North America coverage universe. RIM's management team has the longest tenure of any company within the North America handset space. We continue to be impressed with management's unwavering focus on the carrier as a distribution channel, the scale that they built into their internal infrastructure, and the company's outstanding cost controls during this period of exceptional growth.

Top Asian Pick (1): LG Electronics – Buy/Low Risk (1L) – KrW 149,000 Target, covered by Jay Choi

- Following a spectacular recovery in earnings from the handset business in 2007, we forecast that earnings growth momentum will decelerate due to its high base effect and the anticipated tougher competition with Motorola's return to the normal track with better product line up than 2007.

- Between Samsung and LGE, we believe LGE's earnings growth momentum will be ahead of Samsung's. In our view, Samsung's design capability is still focused on hardware and is not yet ready to gain ground in the sub-US\$60 segment against Nokia, LGE's mindset to come up with designs that the customers desire with more focus on software should allow LGE to gain the market share in the mid- and high-end segments in the medium term.
- In addition, LGE's handset platform efficiency trend is very encouraging. Out of many factors surrounding handset margin, LGE's improvement in its platform efficiency, together with a growing portion of high-end products out of total shipments, has been the key driving force to structural margin improvement. Given every 250k of unit growth per platform on average is estimated to help LGE increase OP margin by about 0.8% pts, due to larger economies of scale in components, R&D return and marketing costs, we expect LGE's platform efficiency to rise to as high as 1.31m units in 2007 and 1.694mn units in 2008 (vs. 919k units in 2006 and 444k units in 2004).

Figure 18. LG Electronics – Handset Platform Efficiency Analysis, 2004-2008E

	No. of Handset Platform (Units)	% Chg	Total Shipment	% Chg	Total Shipment per platform	% Chg of Shipments per Platform
2004	100		44.4		444	
2005	75	-25.0%	54.9	23.5%	731	64.7%
2006	70	-6.7%	64.4	17.3%	919	25.7%
2007E	60	-14.3%	78.7	22.2%	1,311	42.7%
2008E	54	-10%	91.5	16.3%	1,694	29.2%

Source: Citi Investment Research analysis

- All in all, we view LGE's competence in the handset business as improving to the extent that it should be able to generate a 6~7% OP margin (vs. 0% in 2006), and we expect global handset operating profit to grow 12% YoY to W951bn in 2008 (vs. W848bn in 2007E).

Top Asian Pick (2): HTC – Buy/Medium Risk (1M), NT\$850 Target, covered by Dale Gai

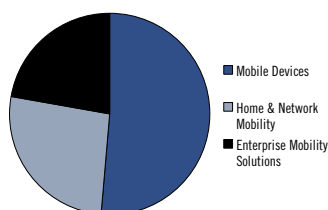
- HTC reported Nov 07 sales at NT\$14.5bn, up 11% MoM and in line with market expectations. With stronger Oct –Nov 07 sales, we expect HTC's sales in 4Q07 to grow by 30-35% YoY and 25-30% QoQ. This implies that HTC significantly exceeds the company's 20% YoY sales guidance for 4Q07.
- HTC's sales upside in 4Q07 is attributable to strong sell-in of HTC's Touch family models, including the legacy Touch (GSM/Wi-Fi), the Touch CDMA version by Sprint, Touch Dual (GSM/WCDMA/HSDPA), and the new Touch Cruise (3.5G with built-in GPS). Its wider range of products and technology has driven HTC's momentum, particularly in Asia. For 4Q07 we forecast shipments of more than 1m HTC Touch phones.
- Another engine of growth for HTC is higher ASPs, driven by the launch of 3G/3.5G models on Qualcomm's platform in 3Q-4Q07. Compared with Apple's iPhone and RIM's Blackberry phones, HTC has had an edge in networking technology in the smartphone space. The highly anticipated price competition in the industry seems remote in 4Q07-1Q08, despite Apple cutting the price of its iPhone.

- We remain conservative on HTC's operating margins given that the company's SG&A and R&D expenses might rise in lockstep with sales momentum. For 4Q07, we maintain our expenses-to-sales ratio at 11.8%, assuming that higher sales might be offset by higher provisions for warranty or channel bad-debts.
- **Sell-through risks in 1Q08?** We expect HTC's sales in 1Q08 to decline 20-25% QoQ, due to seasonality and component tightness, which management believe is caused by overbooking and is now under control. After strong channel sell-in, inventory adjustments in Touchphones from Dec 07 should be expected. The stacks of Touch phones at Costco (traditional warehouse chain for all consumer goods) could be seen as a sign of inventory clean-up ahead of the launch of new platforms in 2Q-3Q08. However, we do not expect a large shortfall in sell-through given that demand for HTC's phones remains solid in Asia and Europe, based on our channel checks.

Other Companies Under Coverage

Motorola – Hold/High Risk (2H), \$18.5 Target, covered by Jim Suva

Figure 19. MOT Operating Segments 4Q07E



Source: Citi Investment Research

In our view, Motorola's better-than-expected 3Q results may not have marked the definitive turning point in fundamentals, as we think RAZR2 momentum is fading. While Motorola may meet consensus EPS estimates due to cost savings, we believe there is potential for disappointment on handset units. We would not be aggressive on Motorola shares until we have more confidence and clarity on the company's progress on its software and silicon strategy.

Motorola continues to be a work in progress in our view. The Home and Networks Mobility segment is a solid 7% - 8% revenue growth business with 5% - 6% sustainable operating profitability. This segment houses the cable infrastructure and set-top box business, the wireline equipment (modems and access systems) and wireless infrastructure units. While wireless network equipment is obviously a difficult market right now, we do have some longer-term optimism for Motorola. .

We believe that the iDen business is being effectively managed as a run-off portfolio and that the CDMA business may have a longer tail than many currently expect. From a strategic point of view, we think Motorola actually made a savvy decision to stop competing for WCDMA business, where it clearly did not have the scale to compete, and instead focus its efforts on 4G technologies such as WiMax and LTE. While there are certainly risks associated with this strategy, we believe Motorola could potentially be well positioned in 2009 – 2010 should these technologies gain wide-scale adoption.

The Enterprise Mobility segment houses Motorola's government and public safety wireless systems and the Symbol business acquired in early 2007. We think this unit should continue to see strong growth and mid-to-high teens operating margins. Upgrades by state, local, and federal governments of antiquated analog based systems should support growth on the traditional government radio business, while Symbol has a solid franchise in what we would term industrial technology.

While there has been much speculation on the potential for a breakup of Motorola into three or more parts, we do not think this is likely. We think the current management team and Board is more interested in fixing the Mobile Devices Business than they are at spinning it out at a depressed valuation. It is also unclear to us if the market would have an appetite for the segments as they are currently organised now and we have doubts that further segmentation would allow the smaller units to be viable as stand-alone businesses. That said, we expect Motorola will continue to prune non-core, underperforming businesses.

We think fixing the Mobile Devices Business is crucial to sustainable Motorola stock performance. Some actions, such as efforts to shorten the company's value chain and reduce its cash conversion cycle, are sound moves in our view and are bearing fruit already as seen in Motorola's improved (although still negative) operating margins in the October quarter. Other actions, such as the re-tooling of Motorola's silicon solutions, are steps in the right direction, but will take at least until 3Q08 to be fairly judged and may not have a material impact on the majority of the product portfolio until 2009.

With the stock trading at clearly depressed valuation levels, recent management changes, and a strategy to improve MDB in place, we lay out below a potential roadmap of what we believe is required for Motorola to see stock price outperformance.

- CFO Tom Meredith recently affirmed 4Q EPS guidance \$0.12 - \$0.14 and stated that MDB would have sequential revenue growth and improved operating margins. **While this is a step in the right direction, we believe that if Motorola fails to deliver unit growth in the low teens, investors will react negatively as it will indicate further market share slippage.**
- The focus on the cash conversion cycle should help margins in our view. We think that the cash conversion cycle is really "shorthand" for a more comprehensive reduction in Motorola's value chain, or the time from component order to a finished phone being in a consumer's hand. **Mr. Meredith was with Dell from November 1992 through March 2000, serving as CFO for the majority of his tenure with the company; we believe this experience should prove to be highly valuable at Motorola.**

While wireless components do not have the same level of depreciation as computer components do, we nonetheless agree with Mr. Meredith's belief that Motorola should be able to improve gross margins and operating margins by shortening the length of time it takes from a component being ordered to a phone being sold. **While there may be 400bps – 600bps of improvement available, we believe that something closer to half of that is actually achievable in the near to intermediate term.**

Ericsson – Buy/High Risk (1H), SKr24 Target, covered by Sherief Bakr

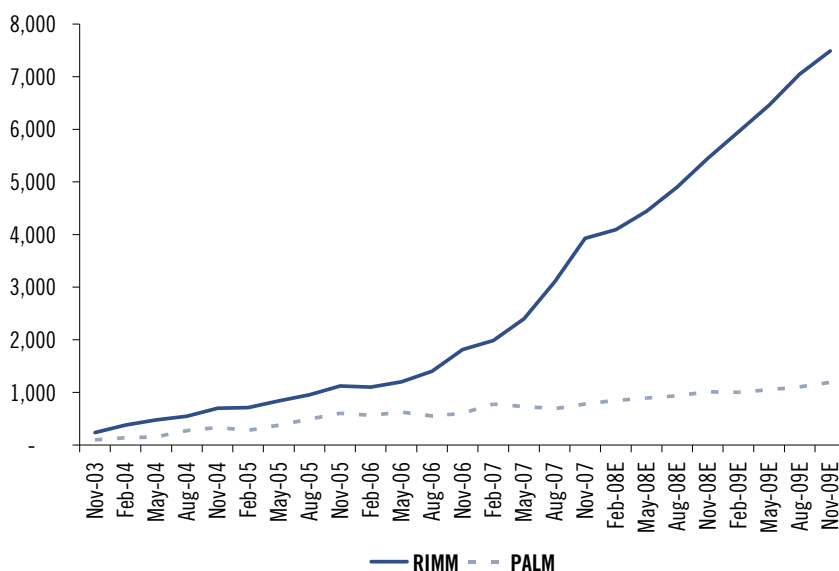
- SonyEricsson accounts for approximately 30% of 2008E group profit and is one of the factors underpinning our positive rating on Ericsson. Following a solid 2007 in terms of share development and margin progression, we expect SonyEricsson to deliver 20% y/y unit growth in 2008 as it continues to leverage on the successes of the Cybershot and Walkman sub-branded phones in mature markets.

- The key risk to our view is that its emerging markets ambitions prove too optimistic given Nokia’s significant advantages. While the integration of the Sagem relationship should enable SonyEricsson to be more cost competitive in the low-end, we do not expect an aggressive push into this segment given management’s consistent comments regarding “profitable market share”. Upside could come from share gains in Japan.

Palm – Sell/Speculative Risk (3S), \$4 Target, covered by Jim Suva

- Following two quarters of disappointing results and guidance, we continue to recommend investors sell Palm as we expect further deterioration in fundamentals. Palm’s stock had been fairly volatile; the stock rallied ahead of the completion of the leveraged recapitalisation, which we suspect many investors thought was in doubt given credit market conditions, as well as optimism over new management changes. Additionally, the stock seemed to get a boost from the Centro launch.
- Our fears of the negative margin impact from Centro were realised with the company’s disappointing pre-announcement in December and subsequent 3QFY08 results, and the guidance for the February quarter. Additionally, we believe that new reasons for concern have emerged recently as the company’s internal controls are called into question and mismanagement of its supply chain. We were surprised that the warranty and repair issues, though seemingly now addressed, were able to reach the point of impacting gross margins by approximately 400bps in the November quarter. The delay in the Red Centro indicated a supply chain management issue, a view that we believe is only reinforced by the recent component availability issues affecting the February outlook for Centro.

Figure 20. RIMM vs. PALM Estimated Unit Shipments (in thousands)



Source: Company reports and Citi Investment Research

- We continue to recommend investors sell Palm shares and maintain our \$4.00 price target. While the addition of Apple alumni Fred Anderson and Jon Rubinstein may eventually have a tangible impact on both Palm's product portfolio and financials, we believe there may be difficult times ahead for Palm until late in 2008.

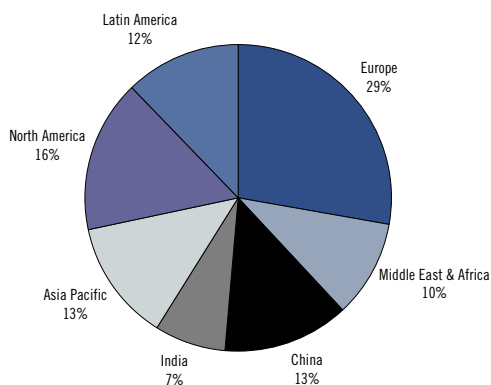
Appendix 1 – Global Handset Model

Figure 21. Global Handset Model, 2002-2011E (m)

Units	2002	2003	2004	2005	2006	2007E	2008E	2009E	2010E	2011E
Europe				237	273	273	286	298	309	322
Middle East & Africa				71	101	120	134	150	163	173
China				100	129	158	183	207	220	231
India				32	73	107	134	156	172	185
Asia Pacific				109	126	159	183	200	213	223
North America				145	159	171	179	189	195	199
Latin America				101	119	126	133	138	142	143
Total	405	471	643	795	980	1,114	1,233	1,338	1,413	1,476
YoY Growth										
Europe					15%	0%	5%	4%	4%	4%
Middle East & Africa					42%	19%	12%	12%	8%	6%
China					29%	22%	16%	13%	6%	5%
India					128%	46%	25%	16%	11%	8%
Asia Pacific					16%	26%	15%	9%	6%	5%
North America					10%	7%	5%	5%	3%	2%
Latin America					18%	6%	5%	4%	3%	1%
Total		16%	37%	24%	23%	14%	11%	9%	6%	4%

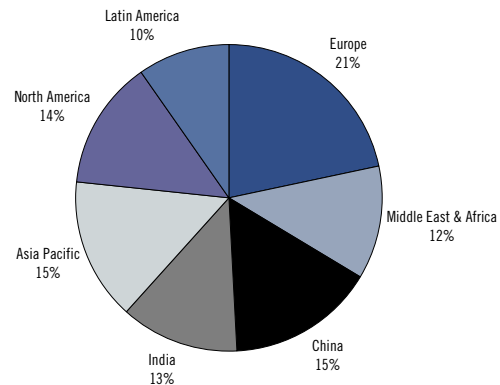
Source: Company Reports and Citi Investment Research

Figure 22. Global Handsets by Region, 2006



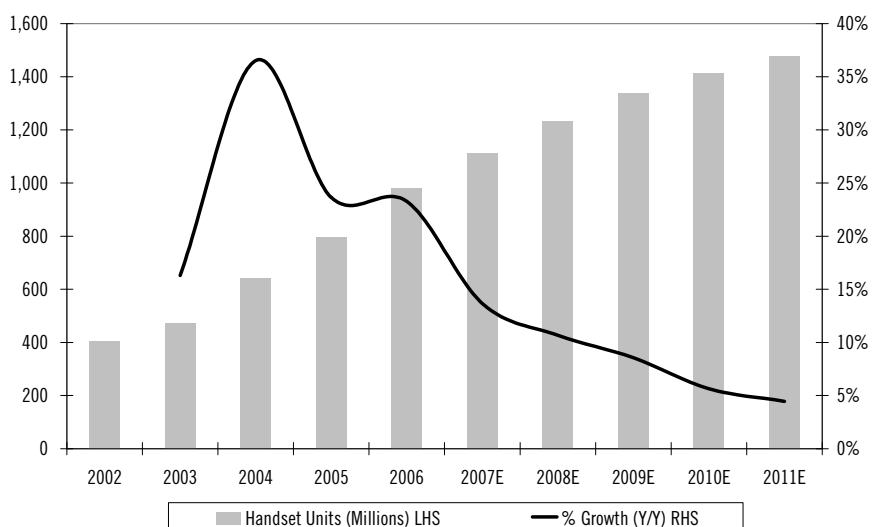
Source: Company Reports

Figure 23. Global Handsets by Region, 2011E



Source: Citi Investment Research

Figure 24. Global Handset Model, 2002-2011E (m)



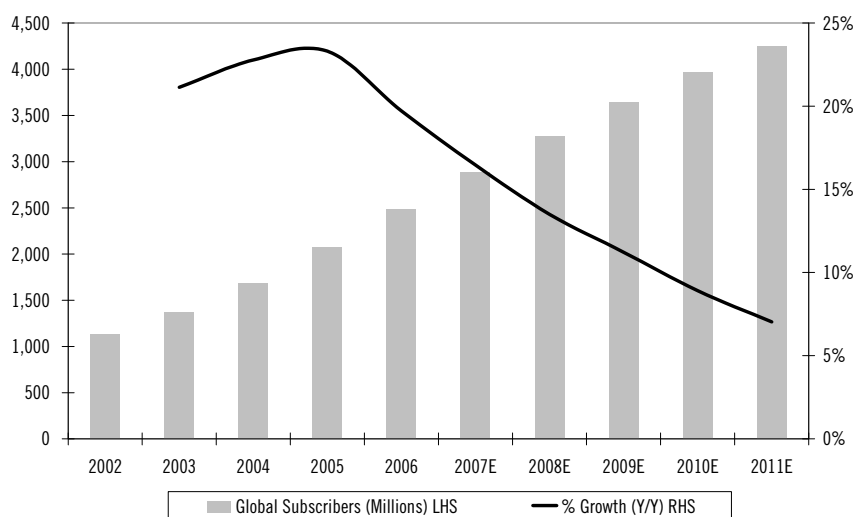
Source: Company Reports and Citi Investment Research

Figure 25. Global Subscribers, 2002-2011E (m)

Subscribers	2002	2003	2004	2005	2006	2007E	2008E	2009E	2010E	2011E
Europe				619	679	720	752	776	802	823
Middle East & Africa				200	260	328	395	462	528	585
China				393	461	530	597	665	725	775
India				78	145	222	310	400	480	550
Asia Pacific				332	391	465	540	610	670	725
North America				224	251	273	292	309	319	327
Latin America				226	293	350	392	424	447	465
Total	1,130	1,368	1,680	2,071	2,480	2,888	3,278	3,646	3,971	4,250
YoY Growth										
Europe					10%	6%	4%	3%	3%	3%
Middle East & Africa					30%	26%	20%	17%	14%	11%
China					17%	15%	13%	11%	9%	7%
India					86%	54%	40%	29%	20%	15%
Asia Pacific					18%	19%	16%	13%	10%	8%
North America					12%	9%	7%	6%	3%	3%
Latin America					30%	19%	12%	8%	5%	4%
Total					21%	23%	23%	20%	16%	14%

Source: Company Reports and Citi Investment Research

Figure 26. Global Subscribers, 2002-2011E (m)



Source: Company Reports and Citi Investment Research

Figure 27. Global Net Subscriber Additions, 2003-2011E

Net Adds	2003	2004	2005	2006	2007E	2008E	2009E	2010E	2011E
Europe				60	41	32	24	26	21
Middle East & Africa				61	68	67	67	66	57
China				68	69	67	68	60	50
India				67	77	88	90	80	70
Asia Pacific				59	74	75	70	60	55
North America				27	22	19	17	10	8
Latin America				67	57	42	32	23	18
Total	239	312	392	408	408	390	368	325	279
YoY Growth									
Europe					-32%	-21%	-25%	8%	-19%
Middle East & Africa					11%	-1%	0%	-1%	-14%
China					2%	-3%	1%	-12%	-17%
India					16%	14%	2%	-11%	-13%
Asia Pacific					26%	1%	-7%	-14%	-8%
North America					-16%	-16%	-11%	-41%	-20%
Latin America					-15%	-26%	-24%	-28%	-22%
Total		31%	26%	4%	0%	-4%	-6%	-12%	-14%

Source: Company Reports and Citi Investment Research

Figure 28. Global Replacement Rates, 2003-2011E

Replacement Rate	2003	2004	2005	2006	2007E	2008E	2009E	2010E	2011E
Europe				34%	34%	35%	36%	37%	38%
Middle East & Africa				20%	20%	20%	21%	21%	22%
China				16%	19%	22%	23%	24%	25%
India				8%	20%	21%	21%	23%	24%
Asia Pacific				20%	22%	23%	24%	25%	25%
North America				59%	59%	59%	59%	60%	60%
Latin America				23%	24%	26%	27%	28%	28%
Total	21%	24%	24%	28%	28%	29%	30%	30%	30%

Source: Company Reports and Citi Investment Research

Figure 29. Global Replacement Units, 2003-2011E

Replacement Units	2003	2004	2005	2006	2007E	2008E	2009E	2010E	2011E
Europe				213	233	254	274	283	301
Middle East & Africa				40	53	67	83	97	116
China				61	89	116	139	160	181
India				6	29	46	66	92	115
Asia Pacific				67	84	108	130	153	168
North America				132	148	160	172	185	191
Latin America				52	69	91	106	119	125
Total	232	331	403	572	706	843	970	1,088	1,197

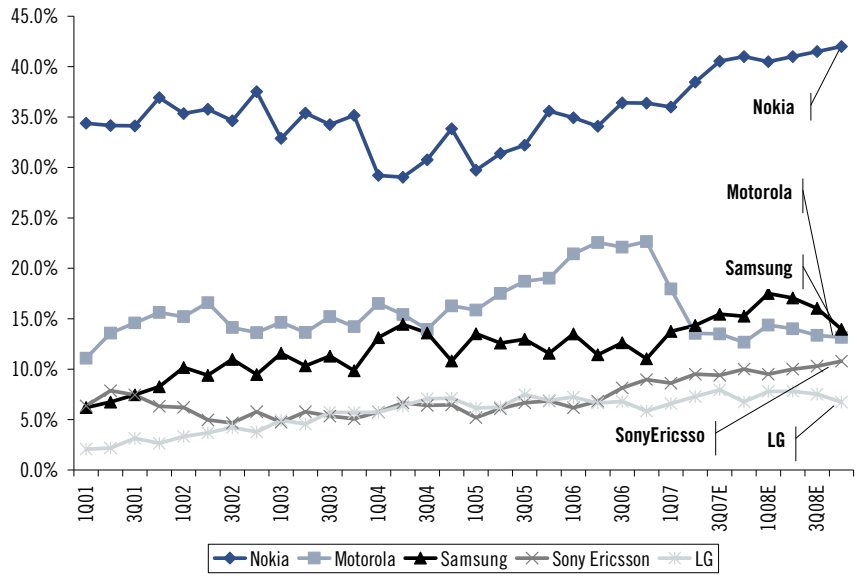
YoY Growth

Europe					9%	9%	8%	3%	6%
Middle East & Africa					31%	28%	24%	16%	20%
China					45%	31%	20%	15%	14%
India					390%	56%	43%	40%	25%
Asia Pacific					26%	28%	21%	17%	10%
North America					12%	8%	7%	8%	3%
Latin America					34%	31%	17%	12%	5%
Total		43%	22%	42%	23%	19%	15%	12%	10%

Source: Company Reports and Citi Investment Research

Appendix 2 – Top Tier OEM Market Share

Figure 30. Top Tier OEM Market Share, 1Q01-4Q08E



Source: Company Reports and Citi Investment Research

Appendix 3 - Investment Theses, Valuation & Risks

Nokia Oyj (NOK1V.HE - €25.78; 1H)

Company description

Nokia designs, manufactures and distributes handsets, enjoying about 39% global market share. Nokia also supplies fixed & mobile network communication products & services to operators and enterprises. It is merging its networks business with that of Siemens. Nokia has 59k staff and over 11k patent families.

Investment strategy

We rate Nokia Buy/ High Risk (1H). Nokia's scale in R&D, SGA, production and procurement should provide a robust defence against handset commoditisation, in our view. As 3G volumes grow as a percentage of overall volumes, Nokia's claims of dominant contribution of intellectual property rights (IPR) to the WCDMA standard could further entail a significant technology barrier to entry. Handset replacement rates should be driven by data growth and associated telco network upgrades, connectivity to multiple networks and fashion. Nokia's products have improved enough since the 2Q04 trough regain share and stabilize margin. Recent management changes and product introductions suggest that design is rightly being prioritised, which bodes well.

Valuation

Our Nokia target price is €32. We apply an 18x multiple (to reflect positive cyclical risk) to our estimate of 2008E 'normalised' net earnings excluding net interest from the "core" businesses (Mobile Phones, Multimedia and Enterprise). This earnings estimate is based on an operating margin (post all restructuring and share-based payments) of 20%, which is above global consumer goods companies corporate-wide margins and a 26% tax rate. We also add the per share value of deferred tax assets, net cash, provisions, net funded pension and NokiaSiemens.

Risks

We rate Nokia High Risk based on consideration of a number of factors that could cause the share price to deviate significantly from our target price. We would highlight the following fundamental risks in particular: lacklustre product design, conflicts of interest between Mobile Phones, Multimedia and Enterprise, data services growth and long-term telco capex. We would also highlight litigation risk if mobile technology, either phones or networks, becomes strongly associated with health problems. If the impact from these risk factors is greater than we currently anticipate, then the share price might not reach our target price.

Ericsson LM (ERICb.ST - SKr14.58; 1H)

Company description

Ericsson supplies fixed and mobile communications products and services to carriers, governments and enterprises. Mobile networks and professional services make up the majority of sales. It has 56k in over 140 countries (21k in Sweden) and over 20k patents. It owns 50% of SonyEricsson handsets and acquired Marconi (fixed line).

Investment strategy

We rate Ericsson Buy/ High Risk (1H). Ericsson share gains (driven by its single platform and scale) and our more optimistic view on mobile data should drive medium-term margin progression from current lows. Despite near-term concerns, margin pressure from weak mix and management communication, we believe fears over structural margin pressure are overdone, as Ericsson has secured its longer-term position and should be able to harvest future high-margin (and cash-generative) capacity upgrades. Strong IPR position in 3G acts as an additional margin buffer.

Valuation

Our Ericsson target price is SKr24. We apply a 14x multiple to our estimate of 2007E 'normalised' net earnings excluding net interest from the "core" businesses (Networks and Professional Services). This earnings estimate is based on an operating margin (post all restructuring and share-based payments but excluding handsets) of 15%, and a 30% (versus 28% statutory) tax rate. We also add the per share value of deferred tax assets, net funded pension, net cash, SonyEricsson and Multimedia.

Risks

We rate Ericsson High Risk based on our assessment of industry and company-specific risk factors. The following risks could cause the share price to deviate significantly from our target price: telecom operator consolidation and capex, economic growth, value destructive premiums for acquisitions, irrational competitive pricing and data services growth. We would also highlight litigation risk if mobile technology, either phones or networks, becomes strongly associated with health problems. Alternative access technologies (e.g. WiMAX) are unlikely to disrupt the upgrade path of WCDMA. If the impact on the company from any of these factors proves to be greater than we anticipate then the share price might not reach our target price.

Motorola Inc (MOT.N - US\$16.05; 2H)

Company description

Motorola is a leading manufacturer of wireless phones and accessories. The company has three operating segments: Mobile Devices (66% of total 2006 sales), which designs and manufactures wireless phones; Home & Networks Mobility (21%), which provides a variety of communications and video equipment to cable and satellite television providers and wireless and wireline carriers; and Enterprise Mobility Solutions (13%), which provides communication systems to enterprise customers and the public sector.

Motorola achieved a global handset market share of 23% in 2006 on the strength of its iconic RAZR phone, ranking it as the world's second largest handset company, but has recently seen its share slip to less than 14% as competitors introduced similarly styled phones, moving the company to the third global ranking in terms of handset units.

Motorola is headquartered in Schaumburg, IL and had approximately 66,000 employees in 73 countries at the end of 2006. The company generated approximately 55% of its 2006 revenues outside the United States.

Investment strategy

We rate Motorola shares Hold/High Risk (2H) with a price target of \$22.50. While we acknowledge that there are signs of positive structural developments and the potential for short-term market share bounce, we believe a durable recovery (and sustainable stock price performance) at Motorola may take longer than management has indicated. Our price target is based on a forward P/E of 22.0x, which is the average forward P/E multiple that Motorola traded at from Jan. 2003 through Dec. 2006, a period during which the company restored profitability and recovered market share. We believe Motorola is entering a similar environment now. In determining our target price, we apply our target P/E to \$1.03 (C4Q08E – C3Q09E), our forward twelve month earnings estimate one year from the current quarter.

With the appointment of Tom Meredith as CFO and Stu Reed as the president of Mobile Devices, the company's mantra has changed from "wickedly cool devices" to the need to be "boringly consistent", as opposed to the company's history of being "consistently inconsistent". We believe that CFO Meredith's focus on the cash conversion cycle and efforts to shorten the company's value chain are indeed the right strategies, but we are nonetheless concerned that the company may not see a durable recovery in its market share until the company addresses what we view as significant challenges in its handset portfolio.

Our analysis has shown a strong and statistically significant positive correlation between handset market share and valuation metrics such as price to book and price to sales. We would not be surprised to see the company gain back a some of the seven percentage points of lost market share over the next one or two quarters due to channel fill, as the company's sell-through (i.e., phones sold to customers) was significantly lower than sell-in (phones sold to carriers, distributors, and retailers). That said, we believe that Motorola must do more than the basic blocking and tackling described by CFO Meredith; we believe the company must improve its product portfolio significantly across multiple vectors.

Valuation

Our twelve month price target for Motorola shares is \$22.50, based on a 22x P/E applied to \$1.03 (C4Q08E – C3Q09E), our forward twelve month earnings estimate one year from the current quarter. We believe that many investors will value the company on a P/E basis, as Motorola does have a long historical record of profitability and the company should return to generating meaningful earnings over the course of the next 12 to 18 months.

With fundamentals, financial performance, and handset market share all bottoming, we now think that the time frame from Jan-03 through Dec-06 is appropriate for evaluating MOT's forward PE. From Jan-03 through Dec-06, MOT's handset share stabilized and subsequently improved; profitability also recovered to normalized levels. During this period MOT traded at an average of 22.0x forward 12 month EPS; we feel MOT is entering a similar environment now. Previously we valued Motorola at a 10% discount to its 10 year median forward P/E of 28.6x, and applied this to our forward twelve month EPS one year from the current quarter. We viewed a 10% discount as appropriate given the issues and uncertainty that Motorola faced as well as the prospect of slowing handset industry unit growth and continued ASP pressure.

Risks

We rate Motorola High Risk primarily due to the highly competitive nature and slowing unit growth of the handset industry, competitive pressures on the Mobile Devices segment, risks related to the company's handset portfolio (market share declined from 23% to 14% of global shipments from 2006 to 3Q 2007) and continued margin & profit pressures. We note that Motorola has a beta of 1.4x versus the S&P 500 and the company has missed its guidance and expectations several times during the past year. Additional items we consider include: Industry Competition; Slowing End Markets; Continued Mix Shift; Product Portfolio; and Market Share and Margins. The degree of impact from these items could cause the stock to trade above or below our target price.

Research In Motion Ltd (RIMM.O - US\$112.82; 1M)

Company description

Research In Motion (RIMM) is one of the leading designers, manufacturers and marketers of innovative wireless solutions with a specialized focus on the Smart Phone segment. Solutions in accessing information include email, phone, text-messaging (SMS and MMS), and Internet/intranet-based applications are provided through integration of hardware, software and services that support wireless networks. RIM technologies are used by thousands of organizations, including the award-winning BlackBerry platform, launched in 1999.

In CY06 RIMM sold 5.5 million handsets (an increase of 52% Y/Y) which represented 0.6% of total global handsets and 6.7% of total global smart phones. The company's subscriber base increased to 7.2m in CY06 or 67% Y/Y. The combination of these and other items resulted in CY06 sales of \$2.7 billion or a 40% Y/Y increase.

Based in Waterloo, Ontario Research In Motion has offices in North America, Europe, and Asia-Pacific and it is traded on NASDAQ (Nasdaq: RIMM) and Toronto Stock Exchanges (TSX:RIM). In FY07 (Feb) 65% of the company's total sales were in the United States, 9% in Canada, and the remaining 27% various other countries.

Investment strategy

We rate Research in Motion shares Buy/Medium Risk (1M) with a price target of \$140 (rounded), based on a target P/E multiple of 33x applied to our EPS estimate of \$4.24 (CY09E). While we believe many investors view RIM as purely a "momentum" stock based on the stock chart and valuation, we would argue that the true momentum is in RIM's fundamentals, as measured by growth in multiple categories including revenue, devices shipped, subscribers, operating income, net income, and cash.

Although RIM's focus on enterprise customers in North America has driven admirable growth rates over the past few years, we believe that the company is poised to enjoy continued growth as it begins to tap into the high-end "prosumer" market domestically, just as it begins to capture enterprise business overseas. We believe that RIM's entrenched position in the enterprise market in North America is cemented by its trusted partner status with both enterprises and carriers, its continuous improvement in the BlackBerry device, and the high cost of switching, particularly in "pain" (as opposed to financial costs).

Valuation

Our price target for RIM shares is \$140 (rounded). We apply a target multiple of 33x to our EPS estimate of \$4.24 (CY09E), our forward twelve month EPS estimate from November 2008. We believe that most investors value RIM utilizing a forward P/E multiple approach given the company's long history of profitability and earnings.

We derive our target utilizing a 33x forward P/E multiple, inline with the company's long-term forward median since its initial public offering in 1999. RIM has had consistent, positive EPS estimates from October of 2003 to the present, during which time the median forward P/E has been 29x. We note that this includes the time period during which RIM was under a cloud of litigation risk, which we believe depressed valuation. We also note that the stock currently trades at 38x consensus forward twelve months EPS.

In our view, our target multiple with an approximate 15% premium relative to the last four years is justified given our view of RIM's fundamental position, expanding TAM, and critical mass of subscribers (which surpassed the 12 million milestone in the current quarter). We utilize the time period of October 2003 as this is the period during which there were meaningful EPS estimates for the company.

Risks

We rate RIM Medium Risk due to the company's growth of 40% in CY06 and reaccelerating to 82% in CY07E, strong profitability with over 50% gross margins and greater than 20% operating margins, no debt, current ratio >3x, positive cash flow generation with no need to tap the equity or debt markets to support growth, strong product and systems integration with corporate users who are more focused on product reliability and single operating environments rather than general consumer cell phone trends, and stock volatility of only 1.2 vs. the S&P 500. We note that RIMM has consistently delivered revenue and EPS growth that has met or exceeded expectations unlike many of our Speculative risk stocks which we believe supports our risk rating. Additional risks to the stock achieving our valuation target include the following: Carrier & Regulatory Reliance; Managing Growth; Economic Slowdown; Mergers and Acquisitions; Foreign Operations; and Patents. If the impact on the company from any of these factors proves to be greater than we anticipate, the stock may likely have difficulty achieving our target price.

Palm Inc (PALM.O - US\$6.17; 3S)

Company description

Palm Inc. is a global leader in the smartphone category of cell phones. The company was originally incorporated in 1992 as Palm Corporation, but through several merger and acquisitions, spin-offs, name changes and an IPO they are now Palm, Inc. They have remained a large innovator in PDA space as well in the QWERTY Smartphone category with the Treo. Currently Palm has three major product lines, including Personal Digital Assistants (PDAs), Mobile Manager, and Smartphones.

Investment strategy

We rate share of Palm as Sell/Speculative Risk (3S) and a price target of \$4.00. We believe Palm is facing numerous challenges including increased competition due to new entrants into the smart phone, which we believe could impact unit sales and ASPs.

We believe PALM will lose market share in CY07 and beyond as Palm's Treo smartphone is facing increasing competition from Motorola, Samsung, and now Apple with the introduction of the iPhone. We note that Motorola has sold over 1.5 million Q phones since its inception in 2Q06, Samsung has sold over 1.2 million BlackJack phones, and the iPhone has sold over 1 million units since its introduction in June. We also see increased competition from High Tec Computer, or HTC, which is seeing strong success in Europe. Additionally, Hewlett Packard just launched two smartphones that seem to target Palm's core prosumer market; we would also expect Dell to move into smartphones at some point in the future. (Dell hired Motorola's former head of Mobile Devices, Ron Garriques, earlier this year.)

Valuation

Our price target for Palm shares is \$4.00. Our target price is based upon an approximate 1.5x price to book multiple applied to our estimate C4Q08 estimated book of approximately \$2.61. We apply a 5%–10% discount to Palm's historical price to book ratio of 1.6x from the period of mid 2006 to the current time due to the challenges facing the company.

Risks

We rate Palm shares Speculative risk due to the competitive dynamics of the handset industry; the company's reliance on carriers for its sales; an uncertain outlook for its new Foleo product (laptop like device) which it recently cancelled, but still seems committed to as a "Foleo II" product in the future; and its continued use of the Palm OS and market share losses to other competitors (RIMM). Additional risks we consider include: Competition; Carrier Dependency; Risks Related to Foleo; and Agreement With Palm OS.

Meanwhile, should Palm's new Treo product offerings help it regain share, the company will likely exceed our revenue, margin, and earnings estimate and the shares will likely exceed our target price.

While we are unclear on Elevation Partners' strategy regarding Palm, it is possible that company is part of a strategic plan that we are not aware of. Additionally, with inclusion of former Apple executives on the management team and Board, Palm may launch an unexpected breakthrough product in a category adjacent to its core handset business that could also help the company exceed our forecasts and lead to stock performance that exceeds our target.

If the factors shown above result in a more favorable impact to the company, the stock may trade higher than our target price.

Samsung Electronics (005930.KS - W539,000; 1L)

Company description

SEC is a global leader in semiconductor, telecommunications, and digital convergence technology. The company employs about 70,000 people in 87 offices in 47 countries. SEC is the world's leading producer of advanced semiconductors, TFT-LCDs, CDMA mobile phones, monitors and VCRs. SEC has four main business units: 1) Device Solution Network; 2) Digital Media Network; 3) Telecommunication Network; and 4) Digital Appliance Network.

Investment strategy

We rate Samsung Electronics shares Buy / Low Risk (1L) based on our positive view of the memory cycle and our forecast that SEC's earnings bottom will come in 1Q08 instead of 2Q08. We expect 1Q08 to be the cyclical bottom for DRAM and NAND with the end of sequential sales declines given limited downside risk for DRAM prices from the current level at below cash cost and NAND's anticipated bottom in mid- to late-1Q08. Given the annualized quarterly earnings direction is the key swing factor determining share prices, we recommend accumulation ahead of the quarterly earnings inflection.

Also, given anticipated tightness in DRAM supply in 2H08 as a result of competitors' sharp capex cuts and 8-inch wafer retirements, the quarterly earnings growth rate in 2H08 should rise sharply. SEC's improving competitiveness in technology and scalability with little capex give-up on its strong cash power, even in the downturn, also bodes well for higher excess margin generation than competitors in 2008E and 2009E.

Valuation

We employ a sum-of-the-parts approach to reach our W790,000 target price. For each EV/EBITDA calculation, we use an annualized EBITDA figure based on our 4Q08E estimate. In valuing Samsung's semiconductor division, we apply an EV/EBITDA of 7x, a 10% discount to the fair-value multiple that we use to value other major semiconductor companies because of earnings fluctuation in SEC's memory division. For the handsets division, we use 7x EV/EBITDA, a discount to a trading multiple of 8x for industry leader Nokia, as SEC has a smaller market share and lower earnings. For the TFT-LCD division, we use a 10% premium to the average of three mid-cycle EBITDA multiples for the sector. For consumer electronics, we ascribe an EV/EBITDA target of 4x that is based on a 20% discount to LGE's appliance division, given SEC's slower growth and lower profitability.

Risks

We rate SEC shares as Low Risk in accordance with our quantitative risk-rating system, which tracks 260-day historical share-price volatility. Downside risks which could prevent the shares from reaching our target price include: 1) PC sales weaken more than our forecast and NAND oversupply proves worse than our forecast in 1H08; 2) Aggressive investment by competitors in the highly cyclical DRAM/TFT-LCD industries could have a negative impact on prices; 3) any major appreciation of the won would negatively affect SEC's earnings, 4) Motorola is rolling out ultra-low priced models to low-end emerging markets, which is threat to SEC's handset sales in those markets.

LGE (066570.KS - W104,000; 1L)

Company description

LGE has four main business divisions: home appliances, display, media, and handsets. The home-appliance division, accounting for 30% of sales, is the company's cash cow. LGE boasts leading domestic market shares for many white goods such as air conditioners (54%), washing machines (50%) and refrigerators (49%). The display & media division, accounting for 35% of sales, produces digital storage, TV and PDP modules and should benefit from the accelerating trend towards digital TV. The handset division, accounting for 25% of sales, is the fastest growing unit.

Investment strategy

We rate LGE as Buy/Low Risk. The basis for our positive view is: 1) LGE's enhanced handset product line-up; 2) the growing likelihood of LGE restructuring its display/PDP module business by either divesting it and taking a one-off loss or by setting up a joint-venture after an asset write-down; 3) growing visibility into LGE becoming more competitive in the flat-TV set business from late 2H07E, and 4) more favorable currency movements. LGE is no longer a second-tier handset player given its structural improvement in product-cycle/mix management capabilities. Also, in appliance, which has been misperceived as the low-growth industry, LGE is becoming a global consumer brand name. Following a 43% yoy growth in global OP to W1.2trn in 2007, we expect another 43% yoy growth to W1.74trn in 2008E.

Valuation

Our target price of W149,000 reflects our bullish stance on LGE's FY08E fundamentals.

As our main valuation methodology, we use the 08E fair equity values derived from: 1) a consolidated PE, and 2) an adjusted consolidated EBITDA multiple.

Our target is based the 08E fair equity values derived from: 1) a consolidated PE of 12.5x, a 10% discount to our target PE of 14x for the Korean equity market in order to factor in LGE's relatively high earnings volatility; 2) an EBITDA multiple of 6x, which is the average for global peers in appliances/handsets/ display, given that LGE is either as or more competitive than these peers. Our EV/EBITDA valuation is adjusted to reflect the EBITDA generation and net debt exposure of LGE's affiliates, and its different ownership interests in them.

Risks

We rate LGE as Low Risk in accordance with our quantitative risk-rating system, which tracks 260-day volatility of the shares. We believe LGE faces several risks that could prevent the shares from reaching our target price: a weaker-than-expected US dollar would be negative for earnings; more aggressive handset ASP strategies would increase pressure on LGE's handset ASP; further unexpected weakness in the CRT business would result in additional restructuring charges; and deterioration in the supply-demand balance for TFT-LCDs would also present a risk.

High Tech Computer (2498.TW - NT\$532.00; 1M)

Company description

Founded in 1997 in Taiwan, HTC has become the world's leading ODM of converged mobile device and PDAs. It was ranked No.3 by *Businessweek* in its 2006 list of global IT companies. Today, 80% of mobile devices running Microsoft Windows OS are made by HTC. Clients include global OEMs such as HP, Dell, palmOne, O2, and mobile operators such as Orange, T-Mobile, Sprint, Cingular, Verizon, Telefonica and NTT DoCoMo. HTC America was launched in July 2005 in Bellevue, Washington, to offer world-class products directly to North and South American consumers.

Investment strategy

We rate HTC Buy/Medium Risk with a target price of NT\$850, based on 14x 2008E EPS. Our initial takeaway on HTC's 3G platform models is positive, as the leading position in advanced 3G converged device should boost sales momentum in the next 12 months. In the long term, and taking into account HTC's high ROE and financial strength, we think our target valuation is undemanding, with potential upside in ROE and the possibility of increased capital management/cash dividend payments. Despite the clear risks that HTC faces, the market appears to be unduly negative on the stock, pricing in a worst-case scenario in which all the ODM business is lost, momentum slows in unit shipments, OPEX costs rise and EBIT margins fall.

Valuation

Our target price for HTC of NT\$850 is based on 14x 2008E EPS (Taiwan GAAP), slightly higher than the local handset supply chain's average of 12-13x in recognition of its new products in 2008E. Considering HTC's high ROE and financial strength, we think our target valuation is reasonable. At our target price, the stock would trade at a P/B of 6.4x for 2008E, and 18-20x 2008E employee bonus adjusted EPS based on HTC's bonus policy guidance.

Risks

We have a Medium Risk rating on HTC's shares, based on our quantitative risk-rating system, which tracks 260-day historical share price volatility. Uncertainties surrounding HTC's business include: 1) A strategic shift into branded products from ODM/OEM manufacturing services, which will likely cause ODM orders to fall in the near term (1-2 years); 2) Increased marketing spend to support the HTC and Dopod brands suggests current opex spend of 7% will rise to 10-20%+, in-line with those of other global smartphone players; 3) Increased competition from ODM and brands, which likely means that ODM assembly margins will fall in the future, and which also explains HTC's strategic move to branded products from mass manufacturing; and 4) Margin risks as the shift to branding leads to higher gross margins but higher OPEX costs and, thus, uncertain EBIT margins. Any of these risk factors could impede the shares from reaching our target price.

Appendix A-1

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