Sector Update

Tech, Internet, Media (OVERWEIGHT)

Smart paradigm, uncommon insight

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AT A GLANCE

Samsung Electronics (005930 KS, KRW1,528,000)

SELL HOLD BUY **KRW1,900,000**(+24.3%)
Target price

LG Electronics (066570 KS, KRW85,100)

SELL HOLD BUY **KRW130,000**(52.8%)
Target price

Soulbrain (036830 KS, KRW44,550)

★ ★ ★
SELL HOLD BUY **KRW60,000**(+34.7%)
Target price

MDS Technology (086960 KS, KRW14,650)

SELL HOLD BUY **KRW17,000**(+16.0%)
Target price

NHN (035420 KS, KRW300,000)

SELL HOLD BUY **KRW400,000**(+33.3%)
Target price

SBS (034120 KS, KRW49,650)

SELL HOLD BUY **KRW62,000**(+24.9%)
Target price

WHAT'S THE STORY?

Event: Mass-market smartphones are spearheading an approach to an era of integration in information and communication technology (ICT).

Impact: Korean IT hardware firms should dominate even more in smartphones thanks to hardware innovation and emerging market volume growth. Telcos face obstacles to building a new business model, despite network technology advances. The Internet/software sector should benefit as smartphones go mass market, with global expansion key to its future.

Action: SEC, LGE, Soulbrain, and MDS Technology (IT hardware), NHN (software), and SBS (content) are our top picks.

THE QUICK VIEW

ICT integration to accelerate: The smartphone revolution of 2007-2012 was unquestionably disruptive: Smartphones supplanted offline devices (TVs, PCs) and analog media (newspapers, advertising), and their value chain realigned around parts, social network services (SNS) and games, and advertising. Over the next two to three years, we expect integration within the information and communication technology (ICT) environment to accelerate as smartphones/tablet PCs go mass market and hardware innovation continues. Korean players have responded well to changes in the market and should continue gaining presence and growing earnings.

Korean firms to lead: Innovating in operating systems is becoming more difficult, but smartphone value-chain leaders Samsung Electronics (SEC) and LG Electronics (LGE) should do so in hardware, differentiating themselves with flexible displays and lighter, more durable smartphones, and leveraging global distribution networks and cost competitiveness to overwhelm rivals with volume growth in emerging markets.

A parts revolution: Korean parts makers have had to innovate to keep up with quantitative growth at SEC and LGE, and we expect them to enjoy qualitative growth by moving to greater precision processes, displays that are flexible and unbreakable, and lighter PCB substrates and cases. SK Hynix and Soulbrain should benefit most.

Dilemma facing telcos: The introduction of LTE-advanced technology should enable wireless networks to offer a user experience comparable to that of 100Mbps fixed line (FTTH), blurring wireless-fixed line experiences. Such developments need time to spark reratings at telcos, however, given: 1) the likelihood of such firms engaging in pricing wars; and 2) the lack so far of increased data usage. Moreover, content usage patterns have hardly differed between 3G and LTE users, which we attribute to a lack of LTE-suitable killer content.

NHN to become mobile king: Mobile messenger programs are usually the first application installed on new smartphones. Such programs have evolved into much more than a simple means of communication, now serving as powerful content platforms enabling business models involving games, e-commerce, and advertising. NHN's LINE has over 150m subscribers worldwide, and appears destined to emerge as a global player based on its rapid subscriber growth and content offerings.

Media content demand to grow: We expect copyright sales at Korean media firms to continue rising, as: 1) content demand grows in an increasingly vibrant mobile environment; 2) N-screen platforms and other businesses create new sources of revenue; and 3) Korean pop culture spreads.

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WHY SHOULD YOU READ THIS REPORT?

Some think IT, software and Internet shares have been overrepresented in the stock market, doubting that rapid growth in the global smartphone market and a mobile revolution can be sustained over the next two to three years. We are not among them. We believe smartphones, and by extension smart devices of various forms, will change all aspects of our lives, and the pace of change will accelerate. This report aims to shed light on how this will alter the landscape of the IT hardware, component, Internet, telecom service, and media industries in the future.

SAMSUNG VS MARKET

- **IT:** While some believe growth in the smartphone sales is peaking, we believe the market for smart devices will undergo a structural, long-term expansion, driven by integration of IT devices, replacement of feature phones with lower-end smartphones, and evolution in form factor and sensors.
- **Telecom:** Some believe advances in wireless networks (*eg*, LTE and LTE-advanced) make telcos attractive, but we see no signs of structural change that would spark a rerating.
- **Internet/game:** While there are those that say NHN will have difficulty succeeding overseas with LINE and its valuation is demanding, we believe its premium to other Internet portals justified, given LINE's rapid subscriber growth thus far and successful conversion to mobile-content platform.
- **Media/entertainment:** Bearish views on the media sector are rooted in short-term negatives such as deteriorating ad profitability, but we remain bullish, expecting media firms' copyright sales to steadily rise as content demand builds in a changing mobile environment and the content industry enjoys structural growth.

INVESTMENT STRATEGIES BY INDUSTRY

- **IT:** Samsung Electronics and LG Electronics are our top picks among set makers given continued smartphone market growth in the medium to long term and their increasing market dominance. Advancement in the display sector should benefit Soulbrain and firms in the AMOLED supply chain. Among parts makers, we like FPCB and camera module parts makers as they should directly benefit from smartphone market volume growth.
- **Telecom**: Network operators are not direct beneficiaries of the changing ICT ecosystem. Admittedly, some telcos would be positively affected as advances in networks drives up data usage—but on the condition that: 1) telcos do not engage in price competition over data; and 2) contents become richer to encourage more data consumption.
- **Internet/game:** Internet/game companies that fail to actively respond to changing mobile environment should suffer de-ratings, because total time spent on PCs has continued declining on a rising penetration of smart devices and the changing lifestyles caused by improving income levels. We recommend investors pay attention to NHN and mobile-game companies that should benefit from such business environment in the long run.
- **Media/entertainment:** Content providers SBS and CJ E&M should benefit, as favorable changes in domestic mobile environment should boost content demand and they should also secure a new profit source from the expansion of N-screen platform. We also like entertainment firms, as collaboration between content and IT service firms should enable faster and more efficient content transmission.

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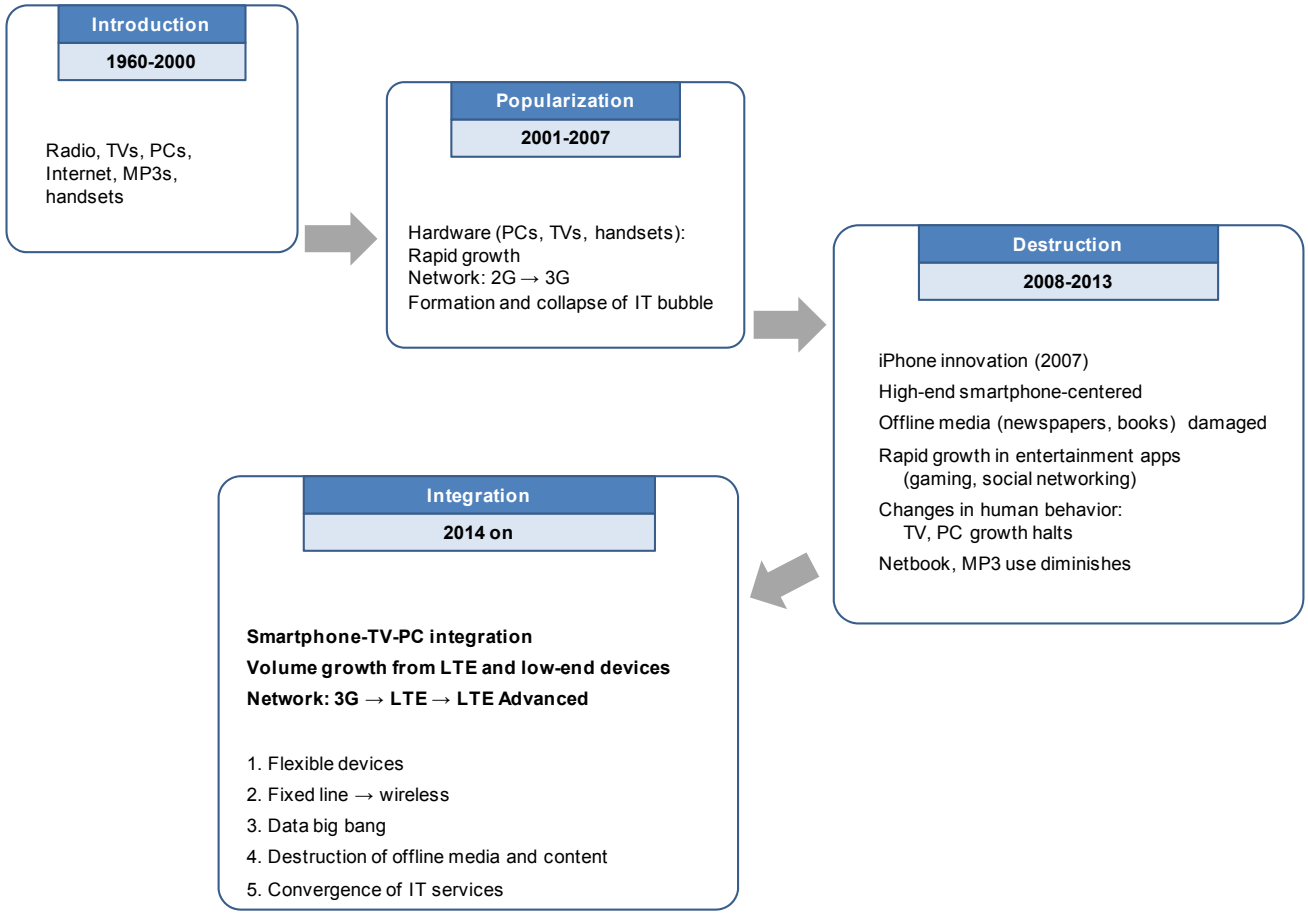
Integration of applications key to next IT revolution

1. Integrated life ahead

An era of integration in information and communication technology (ICT) is approaching. Since the launch of the iPhone in 2007, smartphones have shifted human behavior from analog to digital, placing themselves at the center of an increasingly digital lifestyle. PC- and TV-based hardware and software firms have lost ground. We envision an ICT environment in which smartphones serve as the hub for integrating home, office, and personal functions. Google Glass and an Apple iWatch are just the beginning. We believe a smart ICT era will unfold over the next two to three years, one in which people video conference while on the move, watch TV on mobile devices with flexible displays, and dictate documents directly to their smart device or computer. We expect smartphone volume to continue increasing, triggering robust growth in smartphone-based software businesses (Internet, game, media, and advertising). In this report, we offer investment ideas by predicting changes in the hardware, components, telecom, software, and content sectors for an era of ICT integration.

Chart 1. ICT paradigm development



Source: Samsung Securities

Hardware innovation to continue

Smartphones to become hub of work and life over next 2-3 years

Smartphones have penetrated the mass market more rapidly than expected since the 2007 launch of the iPhone. ICT innovations in recent years have sparked changes in human behavior that have eclipsed four to five decades of ICT advancements. Network evolution—from 2G (1980~) to 3G (2003~) to LTE (2011~) and LTE advanced (2014~)—has supported such ICT innovation, and with smartphones now firmly cemented as the hub of a digital lifestyle, we expect technology to evolve even faster.

How will ICT evolve over the next two to three years? We believe smartphones will integrate office, work, and personal functions. Display (size) and interface (input) limitations have prevented them from fully absorbing TV and PC functions so far, but—given the pace of development in the display and sensor segments—we believe these will soon be overcome with the introduction of LTE-advanced in 2014.

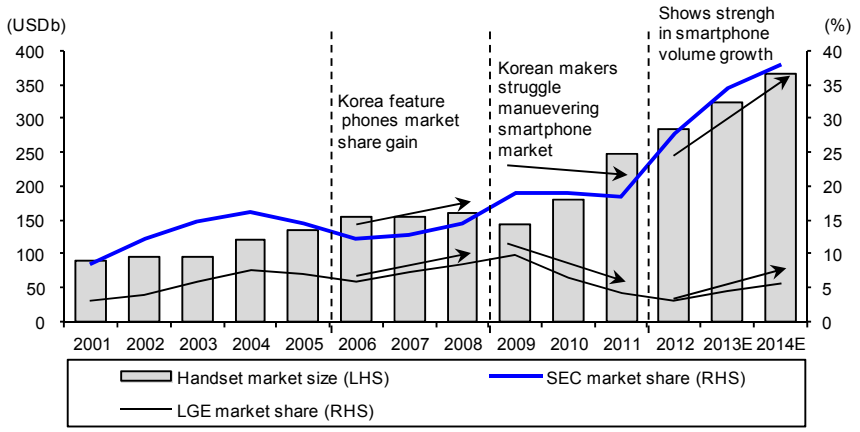
We foresee technological advancements in user interface (displays and sensors), semiconductors (data processing), charging (wireless), and security (cameras). Smartphones will need more computing power than PCs to facilitate big data, potentially triggering a bubble in the semiconductor industry. Cloud-based data capacity and processors should attract the most market attention.

The smartphone-hub era should see further changes in human behavior. This change has been occurring since 2007, but we believe most have not been conscious of it. PC-based games are losing ground, and analog media (newspapers, magazines, and paper books) are giving way to digital media (e-books, social networking, and web applications). In the years to come, it should become easier to work from home, and telecommuting should reduce time spent in offices. Just as growth in the travel and leisure industry has benefited from a five-day workweek, we expect the smartphone-hub era to spark dramatic growth in the digital entertainment and media industries.

Korea to continue to dominate IT hardware market

We believe Korean players will continue to dominate the IT hardware markets, and Samsung Electronics (SEC) and LG Electronics (LGE) will keep gaining presence as quantitative growth in LTE and mass-market smartphones plays to their sources of competitiveness. We also believe Korean players will grow stronger in parts segments (particularly flexible, unbreakable displays and OLED) on the R&D capabilities of top-tier firms like SEC, SK Hynix, LG Display, LG Chem, and Samsung SDI.

Chart 2. Global handset market and Korea companies' presence



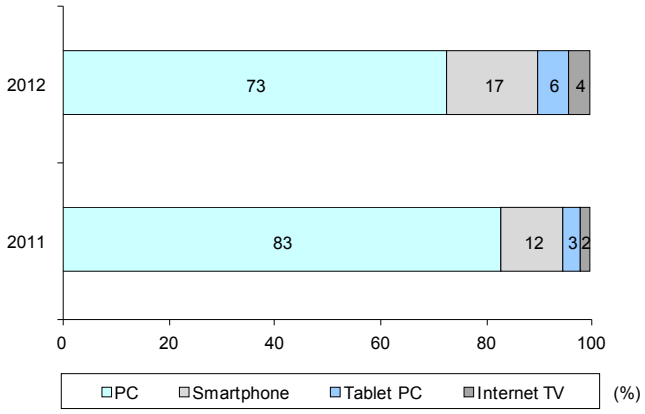
Source: Samsung Securities estimates

Software demand to grow amid mobile revolution

Mobile revolution to fuel growth in software/content market

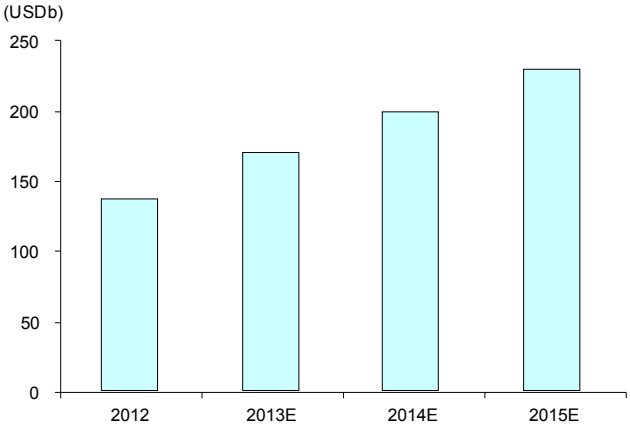
We believe a mobile revolution—increasing smartphone and Internet use—will fuel growth in the market for software and content. The Internet portal, e-commerce, and gaming industries have a track record of creating significant value-added since the launch of broadband Internet in the late 1990s, and we expect the spread of mobile devices and advances in mobile telecommunications technology to boost demand for high-definition and data-heavy content. This should lead to more demand for cloud computing, and "big data" analytics (such as storage and management) on which various business models can be built.

Chart 3. Time on the Internet: Portions by device



Source: Marketingchart.com

Chart 4. Global mobile content market trend



Source: Korea Creative Contents Agency

Convergence of content and IT services to accelerate

Mobile-based services—such as YouTube, social media, and messenger services—are already distributing content more quickly and efficiently than in the past thanks to diverse distribution channels, and we believe content and IT service business models can converge to create a new, synergistic model. The promotion of Psy's new album through the mobile messenger platform LINE is an example of this, representing not just a simple mobile ad but a convergence of content and IT services.

Popularity of low-end smartphones to contribute to rising content demand

Declines in smart device prices should allow the mobile revolution to spread from developed to emerging markets like China and India, sparking a surge in device and content demand in these markets. Demand for Korean content should also grow thanks to the popularity of Korean pop culture.

Messenger-based platforms to gain presence in mobile environment

Preemptively securing a platform will be important in the mobile environment, as it was with online. As demand for mobile applications grows, online portals are losing ground to mobile platforms based on messenger services, the most widely used mobile app. Mobile messenger programs have evolved into much more than a simple means of communication, now serving as powerful content platforms enabling business models involving games, e-commerce, and advertising. Flourishing mainly in Asia now, they should grow popular in Europe and North America over the medium to long term as content offerings are reinforced to include things like webtoons and horoscopes.

Domestic software companies to rerate as they penetrate overseas markets

For a time last year, Apple was the world's biggest company in terms of market cap. Going forward, however, we believe content providers (such as Google and Amazon) will outshine it. In Korea, we believe NHN will overtake leading telco SK Telecom in market cap, though this will necessitate a successful penetration by NHN and other content companies of overseas markets and revenue growth that sparks re-ratings.

Table 1. Top pick valuation

	SEC	LGE	Soulbrain*	MDS Technology*	NHN	SBS*
Ticker	005930 KS	066570 KS	036830 KS	086960 KS	035420 KS	034120 KS
Market cap. (KRWb)	237,970	14,950	728	128	13,813	913
Recommendation	BUY	BUY	BUY★★★	BUY	BUY	BUY
Target price (KRW)	1,900,000	130,000	60,000	17,000	400,000	62,000
Current price (KRW)	1,528,000	85,100	44,550	14,650	300,000	49,650
Upside (%)	24.3	52.8	34.7	16.0	33.3	24.9
EPS (KRW)						
2012	137,480	366	4,536	1,097	12,543	1,583
2013E	196,030	8,688	5,715	1,138	15,553	3,276
2014E	217,900	14,407	6,423	1,320	18,767	3,915
P/E, based on current price (x)						
2012	9.2	246.1	9.9	13.4	23.9	31.6
2013E	7.6	9.8	7.9	12.9	19.3	15.3
2014E	6.9	5.9	7.0	11.1	16.0	12.8
P/E, based on target price (x)						
2012	13.8	355.5	13.2	15.5	31.9	39.2
2013E	9.7	15.0	10.5	14.9	25.7	18.9
2014E	8.7	9.0	9.3	12.9	21.3	15.8
P/S (x)						
2012	1.3	0.3	1.3	2.1	5.8	1.2
2013E	1.1	0.3	1.1	1.8	4.6	1.2
2014E	1.0	0.2	0.9	1.5	4.0	1.0
P/B (x)						
2012	2.0	1.4	2.2	2.1	5.5	1.7
2013E	1.5	1.2	1.8	1.9	4.2	1.5
2014E	1.2	1.0	1.4	1.6	3.2	1.4
EV/EBITDA (x)						
2012	5.0	9.6	7.1	6.5	14.1	12.1
2013E	3.3	4.7	4.7	6.8	11.7	8.0
2014E	2.7	3.2	4.3	5.3	9.7	6.5
Operating margin (%)						
2012	14.5	2.2	17.2	12.8	29.4	5.4
2013E	17.7	3.1	17.3	12.6	27.4	9.6
2014E	17.9	4.5	17.0	13.0	29.0	10.0
ROE (%)						
2012	21.4	0.7	21.8	14.9	27.8	5.6
2013E	24.9	11.6	24.9	13.6	26.7	10.4
2014E	22.1	16.8	22.4	14.2	25.0	11.4
EPS growth (%, y-y)						
2012	78.3	Turn profit	95.5	13.6	14.9	(50.1)
2013E	42.6	2,275.8	26.0	3.8	24.0	107.0
2014E	11.2	65.8	12.4	16.0	20.7	19.5

Note: K-IFRS consolidated basis, * K-IFRS parent basis; Based on May 2, 2013
Source: Samsung Securities estimates

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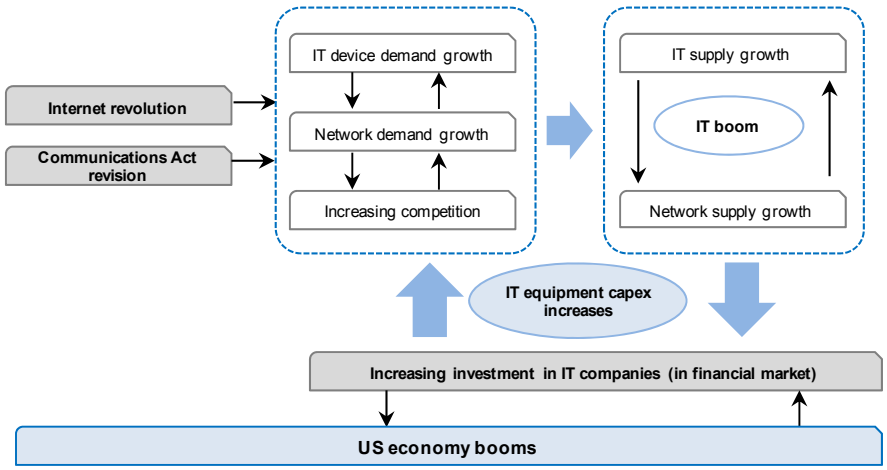
Internet and software revolution led IT device boom

2. The smartphone revolution: Round two

1. Internet revolution, PC evolution

IBM launched the world's first PC 32 years ago, and sales of the products took off in the mid-1990s as the Internet boom sparked an explosion in demand for computers, servers, and software—and the emergence of a new form of entrepreneur, the dotcom start-up. In the process, upwards of USD100b in venture capital was channeled into dotcoms, and contributing to an expansion of the IT device market. With the debut of Windows 95 in 1995, PC demand started to expand in earnest. A continued evolution in the PC operating environment (including Office 97) induced more IT-related investment. Newer software and operating systems required speedier devices and greater memory, bringing on a rapid generational change in the PC market and driving a boom in the IT device industry.

Chart 5. The US economy in the 1990s: IT boom followed by Internet revolution



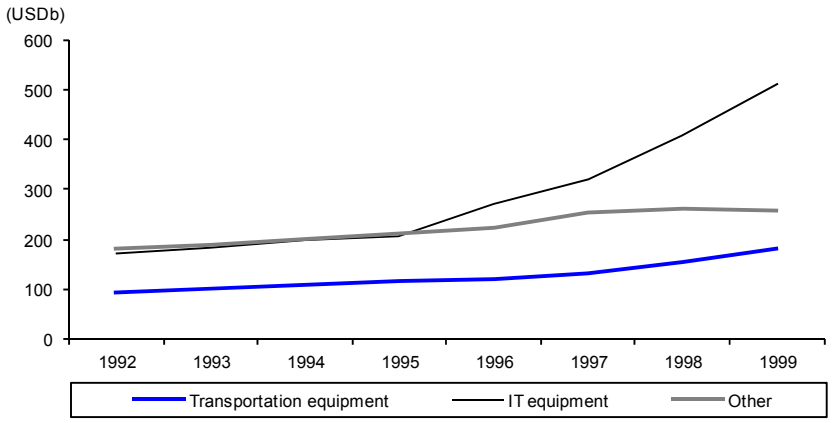
Source: Samsung Economic Research Institute

PC demand and IT investment growth

Increasing PC demand sparked greater IT investments by US companies

With the proliferation of the Internet, PC penetration surged (in the US it increased from 33% in 1995 to 52% in 1999), driven by low-end PCs that emerged at end-1998 and Microsoft software upgrades (Windows 95 to Windows 98, Office 97, and Office 2000). IT investments began to grow in 1992 and by 1998 exceeded investments in all other sectors, with most funds going into computers and software. Investment in computers grew more than 100-fold from USD2b in 1992 to USD222b in 1999.

Chart 6. US sector investment trends



Source: BEA, Digital Economy 2000, US DOC

IT device industry growth

IT industry exploded alongside surge in demand for devices

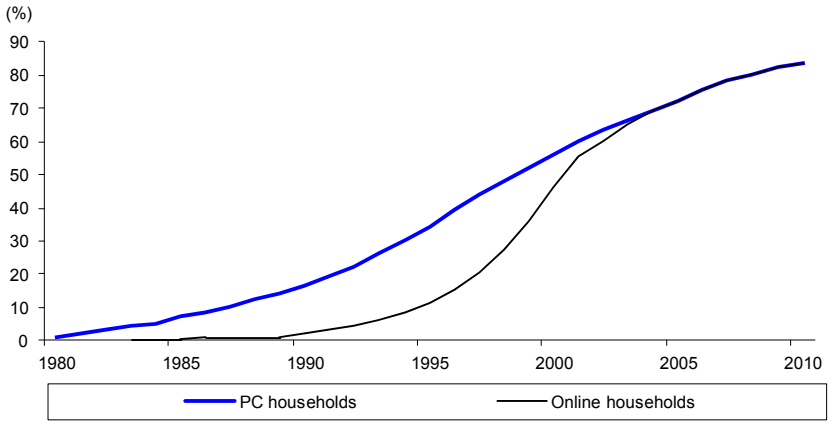
The IT industry exploded alongside a surge in demand for devices. According to the US Commerce Department, annual growth in the IT industry jumped from 12% in the early 1990s to around 40% in latter half of the decade. Component sales also rose sharply, with growing sales of IT devices boosting demand for DRAM and triggering an upturn in the semiconductor industry over 1999-2000 and a boom in peripheral equipment (including LCDs, CD/DVD ROM, HDDs, and monitors) and software.

Internet spawns rise of software firms

Rise in PC and Internet penetration leads to emergence of various business models

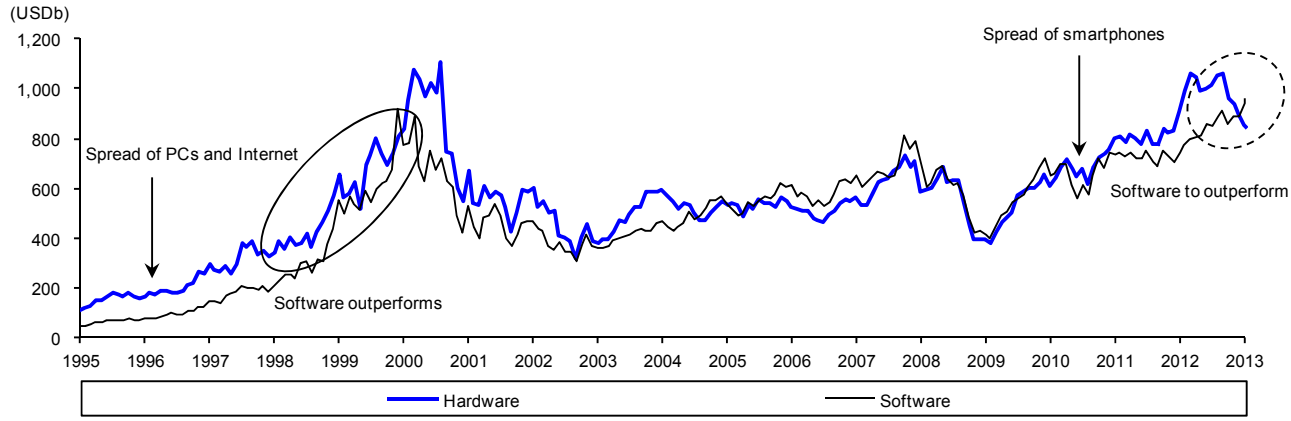
The Internet began as a US military-use network in the 1970s, and public use exploded after the Mosaic browser was launched in 1993. The Internet allowed users to chat, play games, shop, read news, surf the web, and connect to other users—creating a wealth of value from PCs. This further boosted PC penetration, sparking a surge in sales and share prices at hardware firms such as Intel, IBM, and Apple, as well as software companies like Microsoft. The Internet begot a variety of new business models exemplified by companies like Yahoo, Amazon, and eBay in the late 1990s.

Chart 7. US PC and Internet penetration



Source: Technology Futures

Chart 8. Hardware vs software: US sector market caps



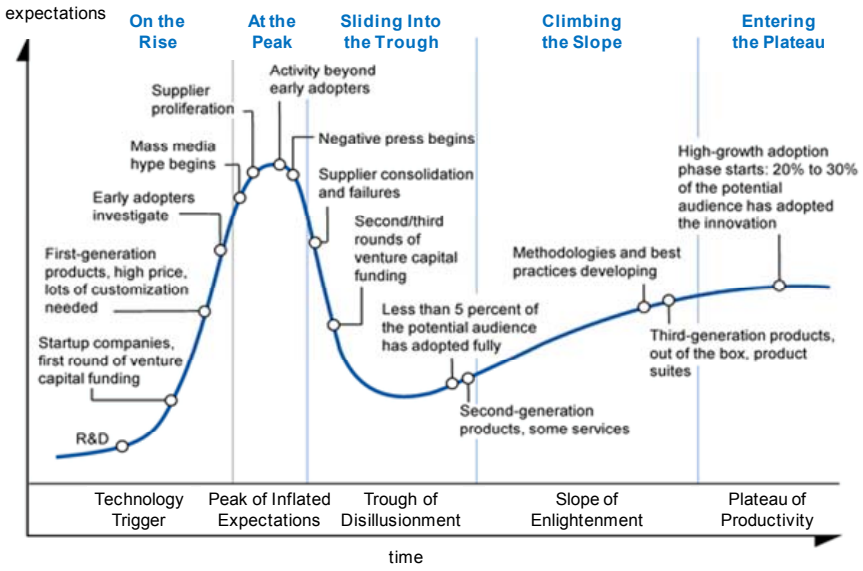
Note: Hardware: IBM, Intel, HP, Texas Instruments, Apple, and Dell / Software: Microsoft, Oracle, Yahoo, Google, Amazon, eBay, Activision Blizzard, and Facebook
Source: Bloomberg

Dotcom bubble

IT bubble burst because of lack of practical business models

Surging Internet penetration led to more PC/component demand, new firms, and increasing market liquidity—and ultimately an IT bubble. Overconfidence in technology led to inflated valuations. Start-ups like Webvan, Pets.com, and Kozmo.com burst on the market, were taken public, and traded at exorbitant prices—only to go bankrupt after failing to develop practical business models, bursting the dotcom bubble in 2000.

Chart 9. Technology and the cycle of hype



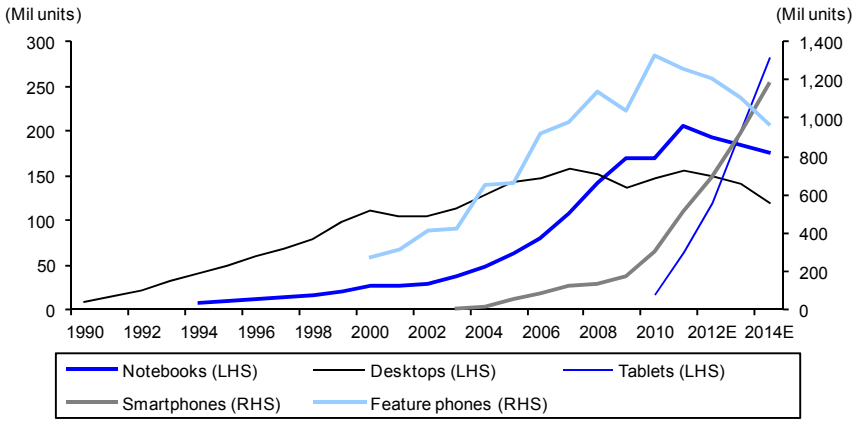
Source: Gartner

Table 2. IT companies: Share performances over the years

Rank	1990-1995	Return (%)	1995-2000	Return (%)	2000-2005	Return (%)	2005-2010	Return (%)	2010-2012	Return (%)
1	EMC	3,182	Yahoo!	6,732	Symantec	260	HTC	1,492	ARM	167
2	Dell	1,090	Dell	6,676	Konica Minolta	241	Apple	886	Apple	155
3	Micron	1,004	Cisco	2,692	Ebay	201	ARM	270	Salesforce	83
4	Microsoft	499	Nokia	2,150	Research in Motion	117	Western Digital	253	Citrix	80
5	Amat	484	EMC	1,863	Nvidia	106	ZTE	249	Seagate	72
6	Oracle	306	Lenovo	1,564	Adobe Systems	85	Google	223	IBM	60
7	CA	281	Microsoft	1,395	Hoya	57	Mediatek	172	Motorola	54
8	Motorola	272	Hon Hai	1,188	Hon Hai	42	Lenovo	159	Samsung Electronics	52
9	Intel	261	Oracle	1,135	Canon	39	Acer	123	Sap	50
10	Sap	231	Amat	1,055	Apple	39	HP	110	EMC	42

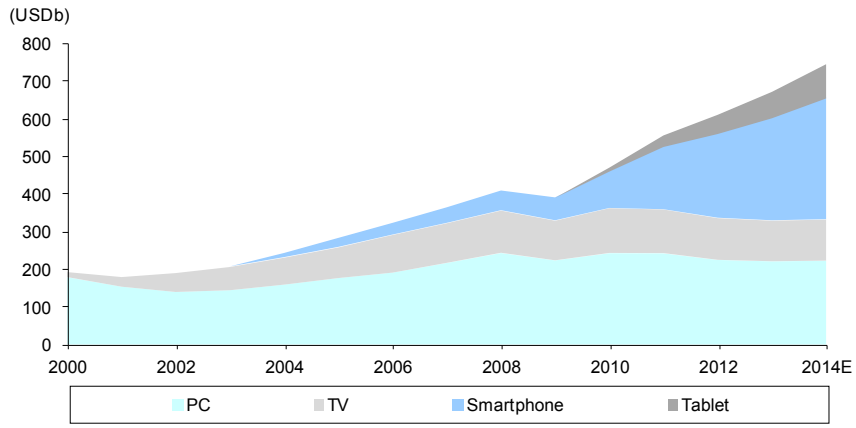
Source: Bloomberg

Chart 10. Global IT shipments, by device



Source: Gartner, IDC, Samsung Securities estimates

Chart 11. Global IT market trends



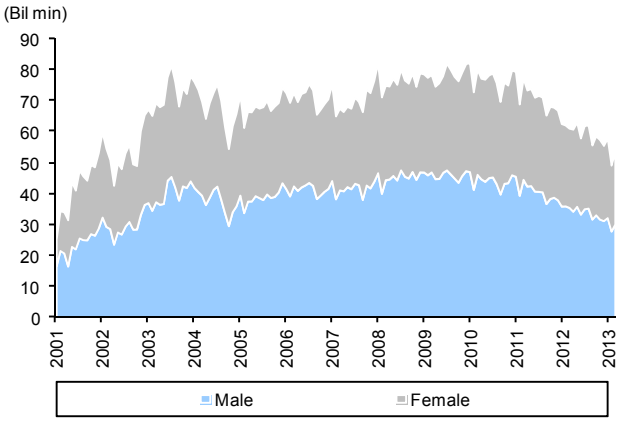
Source: Gartner, IDC, Samsung Securities estimates

PCs give way to smartphones

PC market growth slowed in early 2000s

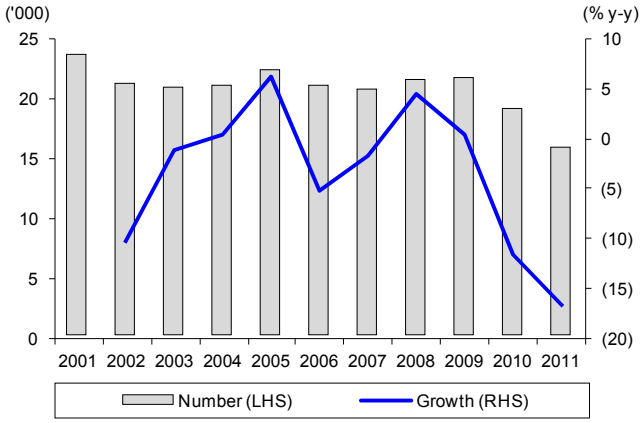
PC market growth slowed in the early 2000s as growth became more reliant on replacement demand than new demand with PC penetration approaching 70%, advances in hardware extended the replacement cycle, and prices fell due to overcapacity. This forced major PC firms to shift their focus from desktops to notebooks, and since the mid-2000s to more portable netbooks. These new products weighed more than 1kg and offered limited mobility, and most users did not need the advanced hardware specs (*eg*, quad-core CPU and separate graphic cards) as surfing the Internet, watching movies, and word processing accounted for more than 80% of the time spent on PCs.

Chart 12. Global PC use declining



Source: Nielson Koreanclick

Chart 13. Number of Korean PC cafés declining



Source: 2012 Korea Game White Paper

A smartphone revolution

Smartphones changed PC based environment

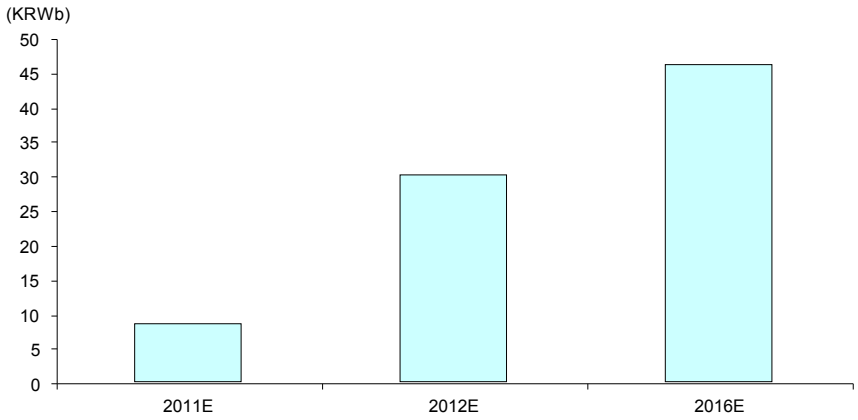
The iPhone broke the mold. With a mobile OS and mobility that PCs could not match, it offered scalability lacking in traditional feature phones. Consumers initially failed to appreciate the need it met, seeing smartphones (like PDAs) as the purview of special user groups, and citing the phone's lack of a Windows OS and other technical limitations. Since then, however, smartphones have emerged as more user-friendly devices than PCs thanks to 3G networks, touch panels, display advances, power-efficient processors, and better operating systems. This has led to more smartphone users and mobile-oriented changes in the web environment (from Active X to HTML), graphics, and programs (particularly games). The smartphone market has grown more than 70% *pa* since 2007 and should hit USD270b or 920m shipments in 2013, surpassing the PC market on both fronts. We expect tablet PCs to top notebooks in sales in 2014, their popularity growing on touch panels, light weights, OS efficiency, and long lasting batteries.

The smartphone ecosystem and proliferation of mobile apps

Apple and Google created mobile ecosystems in which app developers could prosper

Mobile app developers now can easily participate in enormous mobile ecosystems established by Apple (AppStore) and Google (Google Play), selling apps on the open market and sharing in the revenues. This allowed the global market for mobile apps to grow from USD8.5b in 2011 to USD30b in 2012, and we believe growth will remain robust for some time as global smartphone penetration increases.

Chart 14. Mobile applications: Global revenue trend



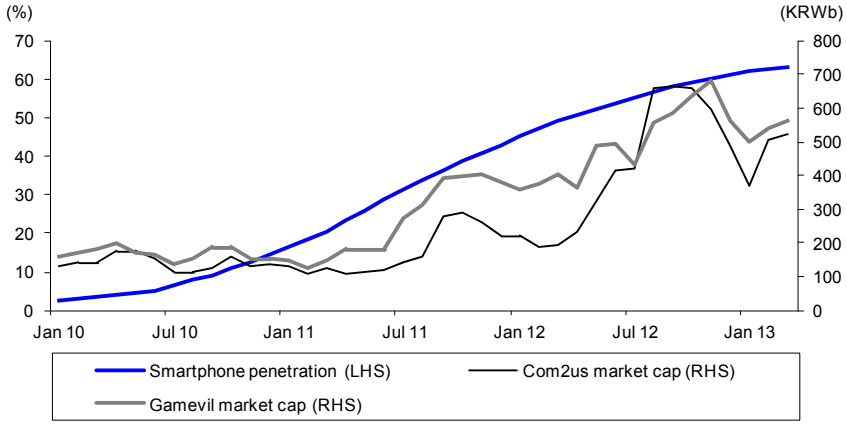
Source: ABI Research

Mobile game rally not the same as dotcom bubble

Top-line growth justifies rally by domestic mobile game firms

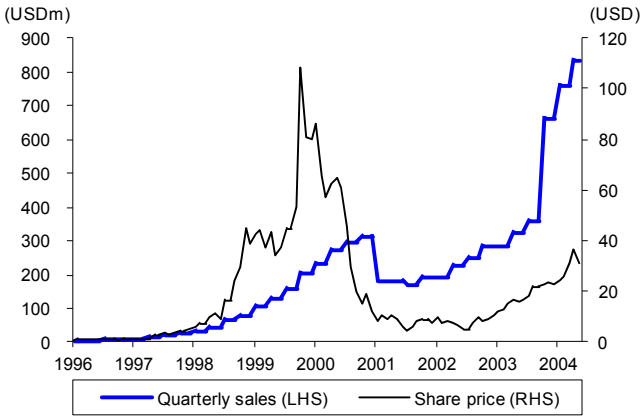
Smartphone penetration now tops 60% in Korea (33m units). Rapid penetration has changed lifestyles and sparked explosive growth and share price rallies at mobile game firms like Com2us and Gamevil. Some see this as reminiscent of the dotcom bubble and crash. We disagree, believing top-line growth justifies the rally.

Chart 15. Korea: Smartphone penetration and mobile game company market caps



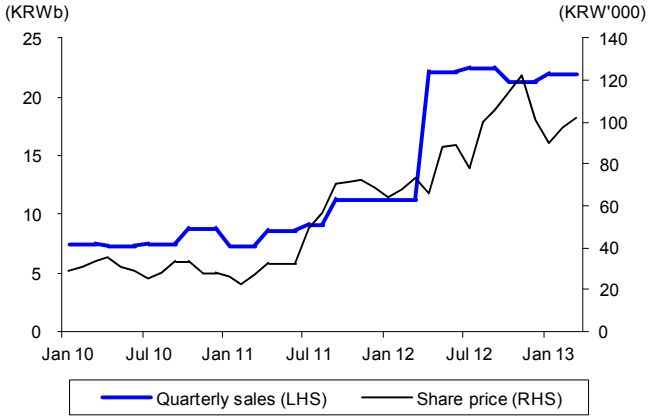
Source: SK Telecom, KT, LG Uplus, Bloomberg, Samsung Securities

Chart 16. Yahoo: Quarterly sales and share performance



Source: Bloomberg

Chart 17. Gamevil: Quarterly sales and share performance



Source: Bloomberg Samsung Securities estimates

After the revolution

Smartphones to spark long-term changes in mobile environment, platforms and content

While smartphone ASPs will likely fall as the market moves lower-end, we believe shipments will grow more than 30% in 2013 and smartphones will continue to alter the IT industry landscape and human behavior.

Advancements in logic semiconductors, flexible displays, sensors and other input devices, and batteries should lead hardware changes, while the mobile environment, platforms, and content are likely to evolve on the software side. More mobile devices and the development of wireless network technology should boost demand for high-capacity, high-quality content, and the need for cloud systems. This should give birth to big data industries—engaged in data storage, management, and analysis—and new business models to serve them.

Declines in smart device prices should allow the mobile revolution to spread from developed to emerging markets like China and India, sparking a surge in device and content demand in these markets. Demand for Korean content should also grow thanks to the popularity of Korean pop culture.

■ CONTENTS

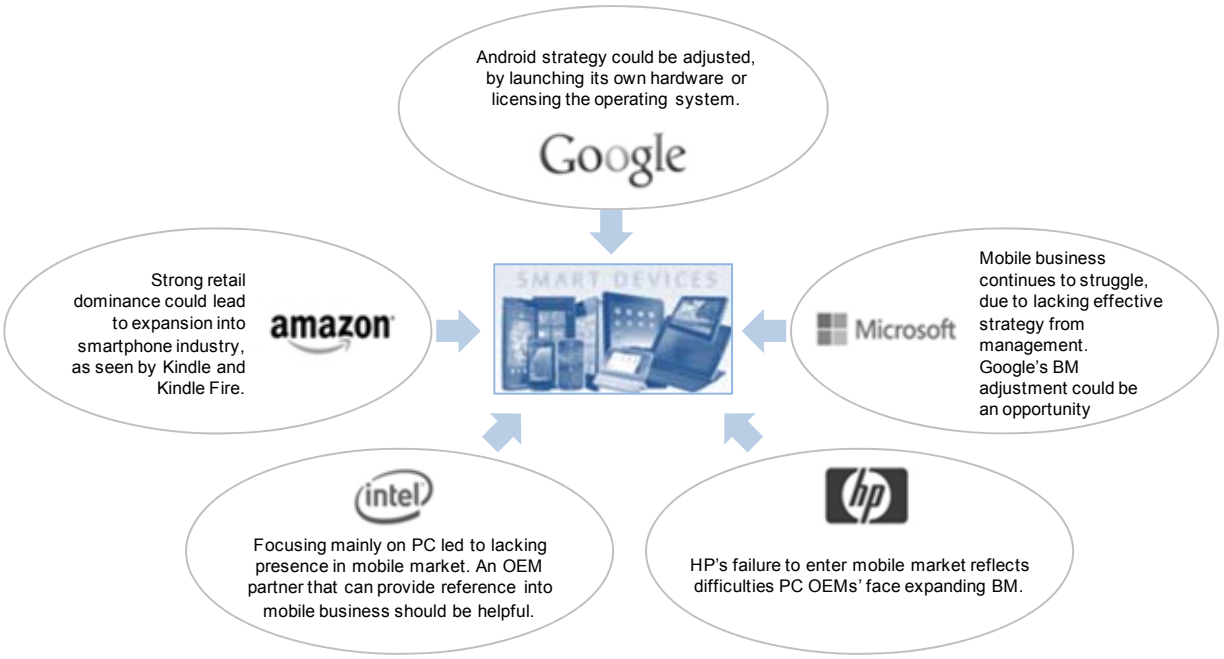
IT industry restructuring to focus on leaders in smartphone ecosystem

3. Smartphones and the IT hardware revolution

Smartphone quantum leap to drive second round of hardware growth

We foresee a quantum leap in smartphone technology propelling growth in the IT hardware sector to new heights over the next two to five years. Global smartphone sales have increased at a CAGR of 35% since the 2007 launch of the iPhone, with Samsung Electronics, Apple, Google, and Qualcomm destroying the old IT device paradigm and gaining influence throughout the IT industry. PC winners Microsoft, HP, and Intel have been dethroned, failing to adapt to a new mobile environment and unlikely to return to their former glory. The ascent of smartphones has been felt throughout the IT arena, but many long-term investors now argue that a peak is approaching due to saturation and commoditization, and are looking for the next big thing to lead hardware development.

Chart 18. Global IT companies: Attempts to integrate the smart paradigm

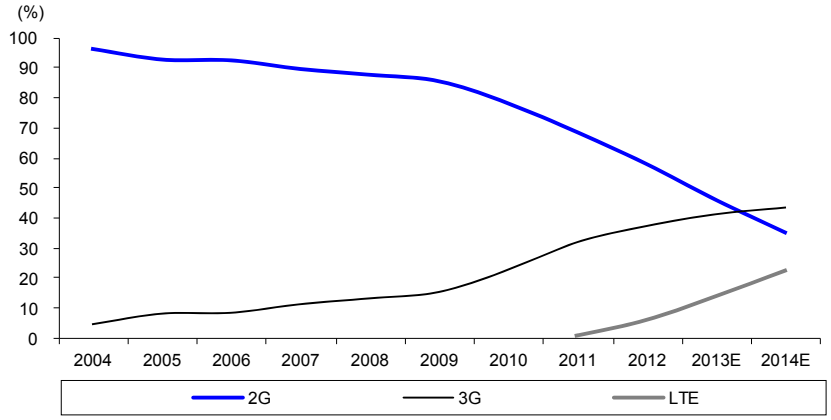


Source: Samsung Securities

Smartphone market to continue growing on IT convergence, device replacement, and hardware evolution

We think otherwise. We foresee a second round of robust growth in smart devices powered by IT convergence, device replacement, and network/hardware evolution. Smart devices should penetrate people's everyday lives in increasing forms (such as flexible and transparent hardware) and hardware (including PC, TV, MP3, e-book, console game, and camera technology) should be rapidly integrated. We believe handset demand will total 1.78m units this year, and ultimately all of these will translate into smartphone demand. New smart devices should also appear to supplant existing products—we are already seeing this is the news of smart glasses and watches. Network advancement (from 2G to 3G, 4G, and 5G) should allow the transmission of more data at unprecedented speed and simultaneous downloads of multiple content, begetting further evolution in displays, processors, sensors and other hardware (and software), and more demand for high-end smartphones.

Chart 19. Network migration: Handset market share, by technology



Source: Samsung Securities estimates

Chart 20. New IT device: Smart glasses

Source: Industry source

Chart 21. New IT device: Smart watches

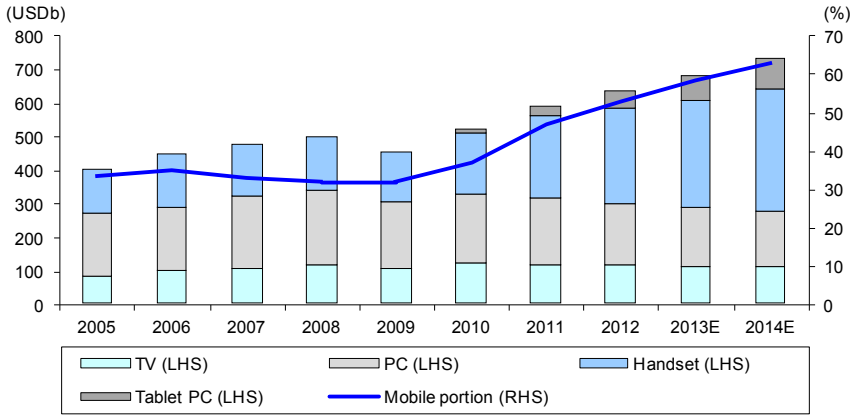
Source: Industry source

Convergence: Synergies between hardware devices

Growing smartphone use and hardware enhancement to lead to convergence of IT applications

Human interaction with IT devices has converged on smartphones in the past five years. People have been using PCs and TVs at home less and smartphones more. Smartphones with 4-6 inch screens and tablets with 7-10 inch screens have already absorbed a large portion of traditional PC and TV functions, and should continue to grow in popularity for the flexibility in function, space, and mobility they offer.

Chart 22. Global IT device market size

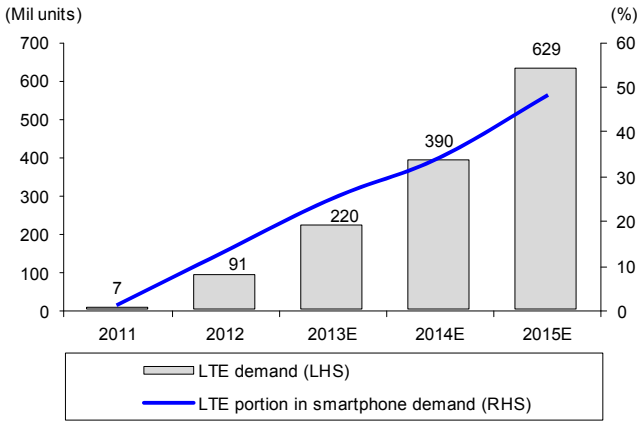


Source: Samsung Securities estimates

Consumption patterns for high-end smartphones (priced at USD500-700) differ from that of TVs and PCs, given the greater speed at which hardware and software for the former evolve and higher brand values. We expect hardware integration into smartphones to pick up speed and become more structured, backed by 64-bit processors, 5-6 inch screens, and the emergence of 100MB/sec networks in two to three years).

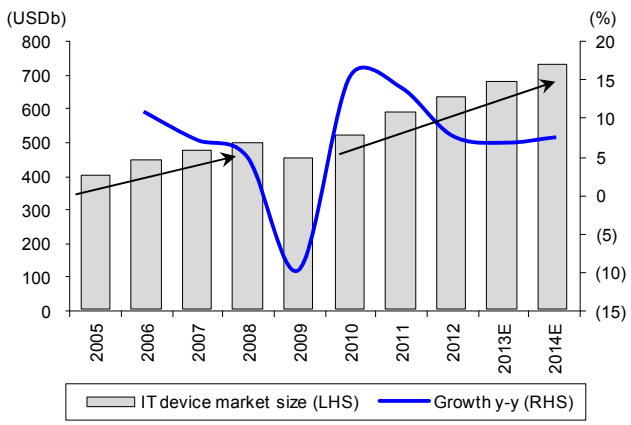
IT hardware participants (including set and parts makers) have benefited more than expected from device integration. The combined sales of TVs, PCs, and handsets grew from USD401b in 2005 to USD450b in 2009—or 2.9% *pa*—but then surged 23% over 2010-2012 (from USD519b to USD639b). We expect sales to hit USD727b in 2014, up 14% from 2012, suggesting that concerns over a slowdown in hardware growth are overblown.

Chart 23. LTE smartphones demand trends



Source: Samsung Securities estimates

Chart 24. IT device market growth



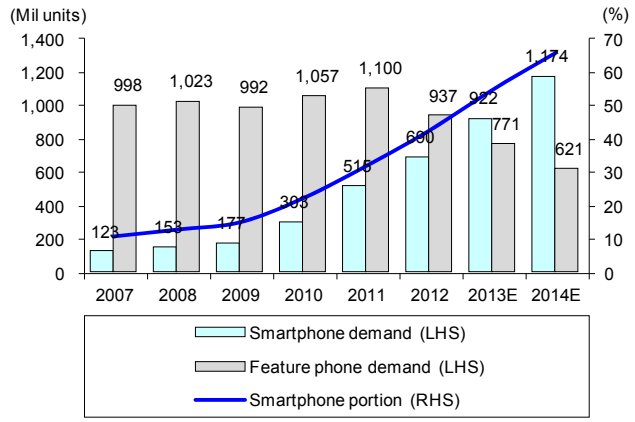
Source: Samsung Securities estimates

Replacement: A smartphone big bang

Feature phone users to turn to smartphones as low-end models proliferate

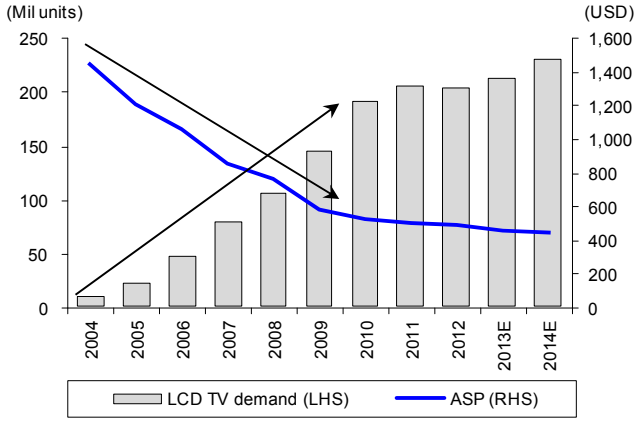
Price destruction should enable smartphones to go mass market earlier than expected, as is we are already seeing in emerging markets. We estimate that of 1.78b handsets sold in 2013 920m will be smartphones and 770m feature phones. Over the next two to three years, mass-market smartphones should rapidly replace feature phones, with Nokia, Huwei, ZTE, and LGE offerings priced at USD50-100 eating into the USD30-50 feature phone market—just as PDP and LCD TVs priced at KRW5m-10m in the early 2000s penetrated the mass market over 2005-2007 at the expense of CRT TVs.

Chart 25. Handset demand: Feature phones vs smartphones



Source: Samsung Securities estimates

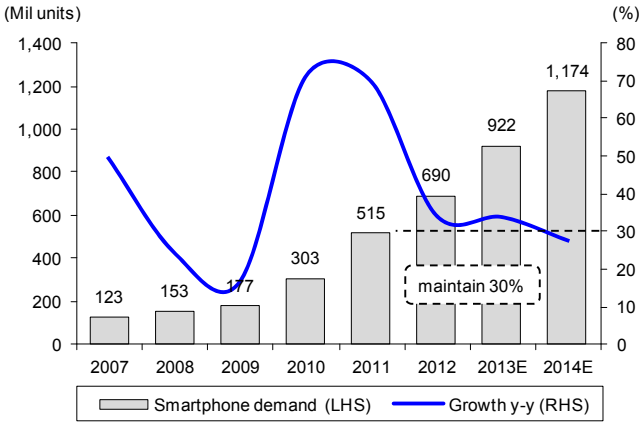
Chart 26. LCD TV demand and ASP



Source: DisplaySearch

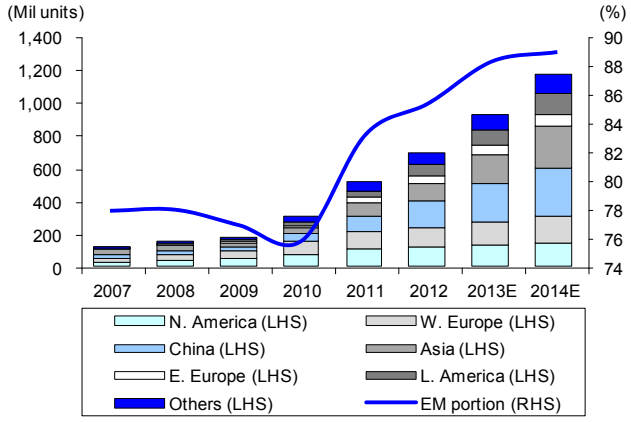
Investors do not see eye to eye on the quantitative aspect of demand growth in the smartphone market. Some believe growth will continue to slow sharply from 2013 in keeping with recent trends (demand grew 34% in 2012, compared to 60-70% in 2010 and 2011). In our view, however, this view, ignores the potential of 800m feature phones being replaced. While high-end demand in the US, Europe, Japan, and Korea has driven rapid growth in the market since 2007, we believe mass-market smartphones will replace feature phones from this year in China and other emerging markets. Even if consumers in these markets display less interest in social networking, mobile Internet, and games, we believe they will still opt for smartphones priced at USD50-150. We thus expect smartphone demand to continue growing around 30% *pa* over 2013-2015.

Chart 27. Smartphone demand trends



Source: Samsung Securities estimates

Chart 28. Smartphone demand, by region



Source: Samsung Securities estimates

Evolution: Hardware innovation to continue

Form factor and sensors to lead hardware innovation

We believe the market has prematurely concluded that the iPhone 5 and the Galaxy S4 demonstrate that hardware evolution is reaching its limits and commoditization is nearing—we expect innovation to continue on numerous fronts. We expect advancements in speed (processor) and picture quality (display) to continue over the next couple years, and evolution in displays (flexible or unbreakable) and sensor to lead to further hardware upgrades and lighter phones. We do not expect eye-popping new technology, but foresee evolution focusing on form factor (bezel-less displays) and diversification of input and output devices (high-quality speakers, cameras, and quality camcorders).

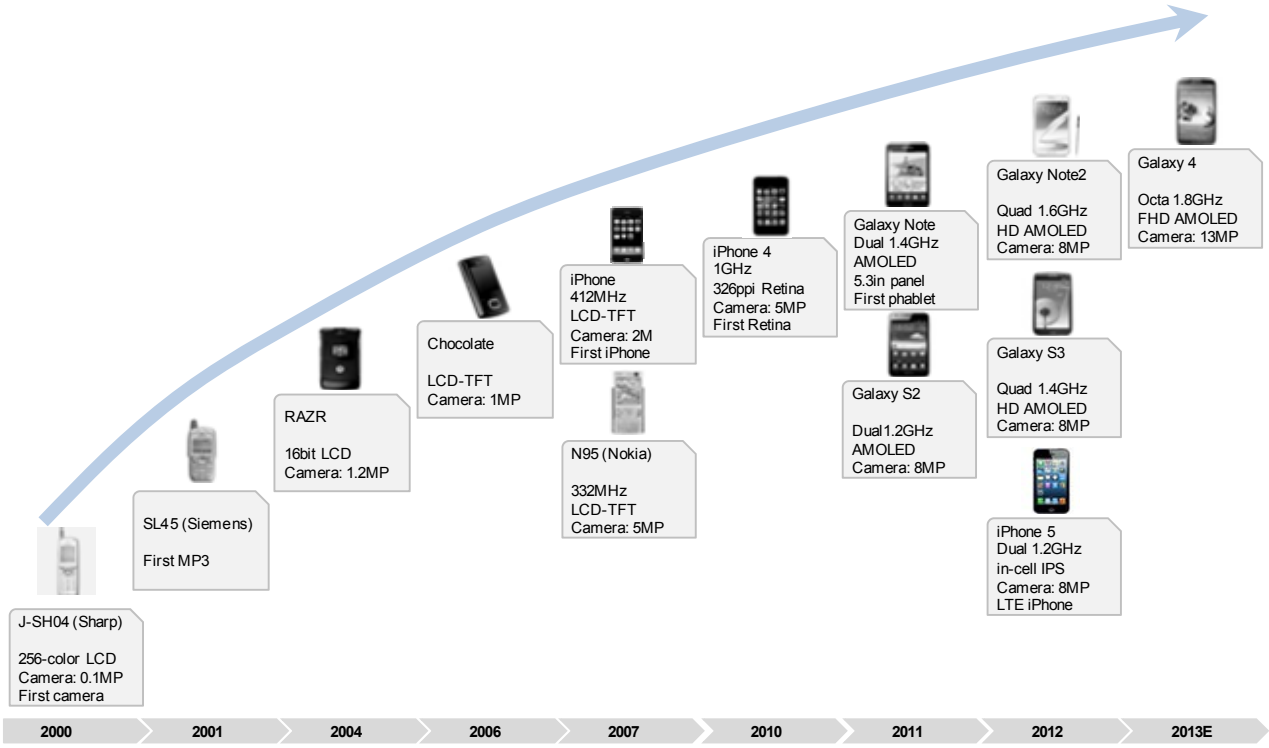
Chart 29. Form-factor evolution: Flexible and transparent

Source: Industry source

Chart 30. Smartphone-embedded sensors

Source: Industry source

Chart 31. Hardware evolution



Source: Samsung Securities

Top picks: Samsung Electronics and LG Electronics

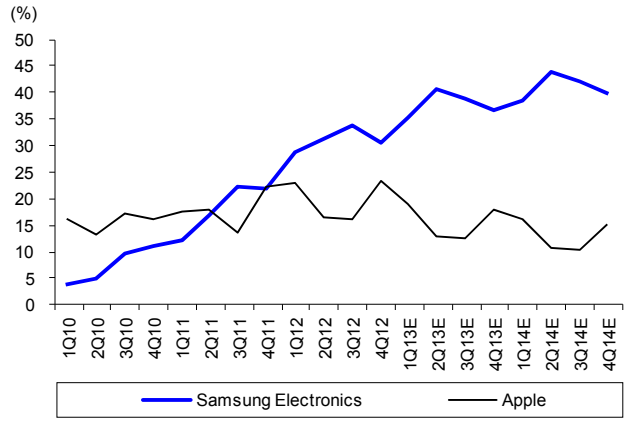
Cost competitiveness and global distribution networks keys to success in LTE and mass-market smartphone markets

In choosing top picks in the smartphone circle we focus on cost-competitiveness and global distribution networks—which we see as the two keys to success in the LTE and mass-market smartphone markets. With set makers displaying little differentiation in hardware, operating leverage achieved through quantitative growth should prove key to survival.

SEC dominates in hardware, and the control over core parts—memory and display—its vertically integrated supply chain gives it should allow it to overwhelm competitors on pricing in the mass-market segment.

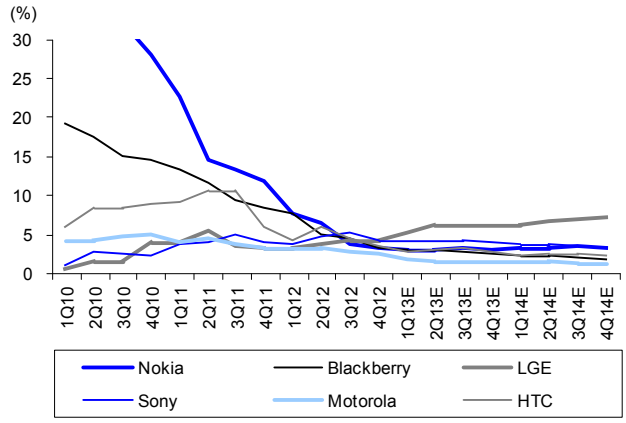
After five years of struggles in smartphone hardware and R&D, LGE is now demonstrating a competitiveness that has allow it to beat its foreign rivals on hardware since 2H12, and its global sales network has revealed an ability to grow quantitatively since 1Q13. We expect it to remain competitively superior to other second-tier smartphone players going forward.

Chart 32. Smartphone market share: SEC vs Apple



Source: Samsung Securities estimates

Chart 33. Smartphone market share: 2nd tiers



Source: Samsung Securities estimates

2. Semiconductor technology in a mobile era

A new paradigm

Semiconductor firms that possess multi-function technology and can afford to make large-scale investments will lead

The semiconductor industry grew rapidly in the 1990s and 2000s as smaller, faster chips helped spark robust growth and reduced costs in the PC and handset industries. Since Apple's launch of the iPhone in 2007, the IT paradigm has been shifting to mobile, and the industry has innovated again to create slimmer, more power-efficient, multi-functional products. Going forward, we believe firms with multi-function technology that can afford large-scale investments will lead the sector.

CPU advances led high-power PC generation

Semiconductors and set-product growth: Intel-led CPU advances played a key role in creating high-powered PCs, while NAND flash, launched in the early 2000s, has been at the forefront of the trend toward small, lightweight storage devices. In 2002, Samsung Electronics (SEC) President C.G. Hwang correctly predicted semiconductor density would double every 12 months—faster than Intel co-founder Gordon Moore had.

IT paradigm has shifted mobile

With the IT paradigm shifting from analog to digital to convergence, smartphones have replaced PCs as the growth driver in the IT sphere, altering the key dynamic in the semiconductor industry. Where technology migration aimed at providing smaller chips at lower costs once was paramount, companies are now concentrating on creating slimmer, less power consuming, multi-functional semiconductors to power small mobile devices.

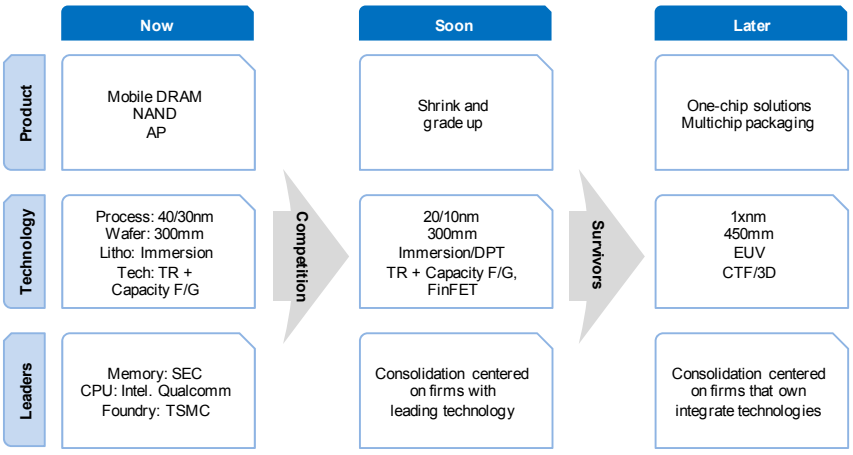
Semiconductor firms to be more proactive than expected about technology convergence

Trend toward convergence: The Ministry of Knowledge Economy defines technology convergence as "combining technologies from different sectors to create new technologies, products, and services that open up new business." The government is encouraging firms to develop technologies and break down industry barriers so as to integrate technologies and make more sophisticated products and services. Semiconductor firms have a record of integration (*eg*, combining processors and memory on one chip), and we expect them to move faster on convergence than the market demands.

High capability, low power-consuming chips needed

High-capability semiconductors tend to consume a lot of power, and with the latest PC models featuring quad-core processors, many doubt that eight-core processors can be embedded in smartphones. We believe, however, that smartphones will eventually house up to 16- and 20-core processors, thanks to a convergence of functions and innovation in auxiliary services. Chips will have to be smaller, and power consumption—the lowest ever recorded is 1.2v—will have to fall, but many firms are already working toward this.

Chart 34. Semiconductor industry: Present and future



Source: Samsung Securities

Implications for Korea's semiconductor industry

Dramatic change in IT environment to lead to growth in semiconductor market

Dramatic changes in the IT environment have played a direct role in the battle for survival among semiconductor firms. Qualcomm designs the core chips for mobile devices and in market cap terms has outgrown Intel, the dominant player in computer processors, while doubts over the viability of logic semiconductor TSMC have been growing. Industry restructuring, however, should allow survivors to deliver stable growth, and in coming years we expect firms to invest substantial sums and work to develop technology to cut costs in 20nm-and-below processes. SEC should gain presence in logic semiconductors, given its low-power and multi-function technologies and cost competiveness.

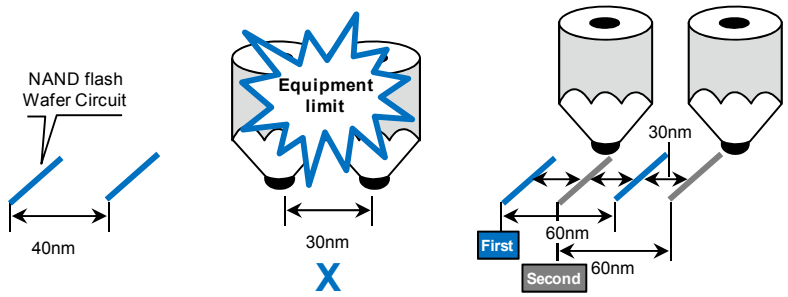
Strides made in reducing power consumption

Memory semiconductors: Semiconductor makers have made great strides in reducing memory product power consumption, cutting applied voltage from 5V to 1.5V in the past two years. As a result, mobile devices now need just 1.2V of applied voltage, despite increasing speed and performance requirements.

Process development harder

It has been harder to improve the processes to ensure higher speed and performance. Memory product capacity has quadrupled with every 10nm process improvement thus far, but going forward it will likely be difficult to shrink processes by this amount and capacity will likely only double with each generational advance, suggesting that firms will need to develop new materials and overcome numerous additional challenges.

Chart 35. Double patterning technology



Source: Industry data

Industry restructuring to allow firms to focus more on R&D

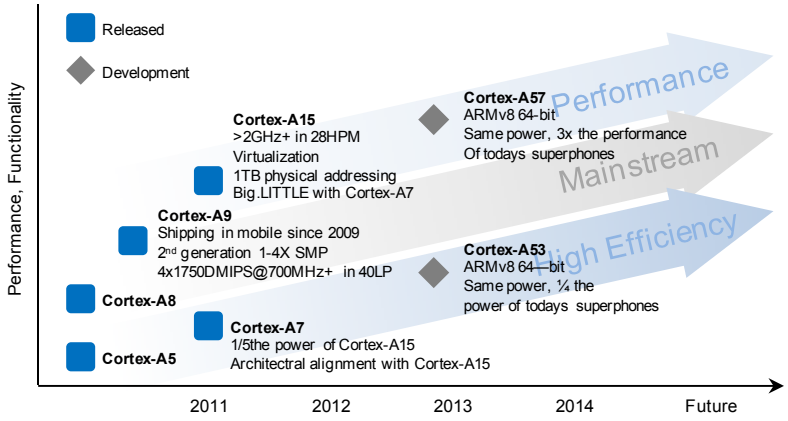
We believe the industry is nearing the end of protracted war on costs, and expect SEC, SK Hynix, and Micron to emerge as winners in DRAM and, along with Toshiba, in NAND. Industry restructuring should reduce the need to invest solely for the purpose of competitiveness, and allow firms to focus on the R&D needed to innovate and improve the performance of memory used in mobile devices in a post-LTE era.

Profitability in logic semiconductors depends on ability to add value through specific product and technological advances

Logic semiconductors: While the memory semiconductor market breaks down into two segments—DRAM and NAND—each USD20b-30b in size, the logic semiconductor market is more diverse, with numerous segments each sized at KRW3b-4b (with the exception of the larger CPU segment). Profitability depends on the ability to add value through specific product and technological advances. Operating margins average 20%, with different firms leading in different segments (*eg*, Intel in CPUs, Qualcomm and SEC in high-end APs, Sony in sensors, and TSMC in foundry).

CPU, AP, and sensor products are the primary drivers of the logic semiconductor market, and their performances have steadily improved during the analog-to-digital transition. Intel's Haswell CPU is based on the 22nm process, while Qualcomm and SEC produce power-efficient APs based on ARM technology. Growing demand for better images has led to 20-megapizel cameras, and higher resolutions should follow.

Chart 36. ARM: AP roadmap

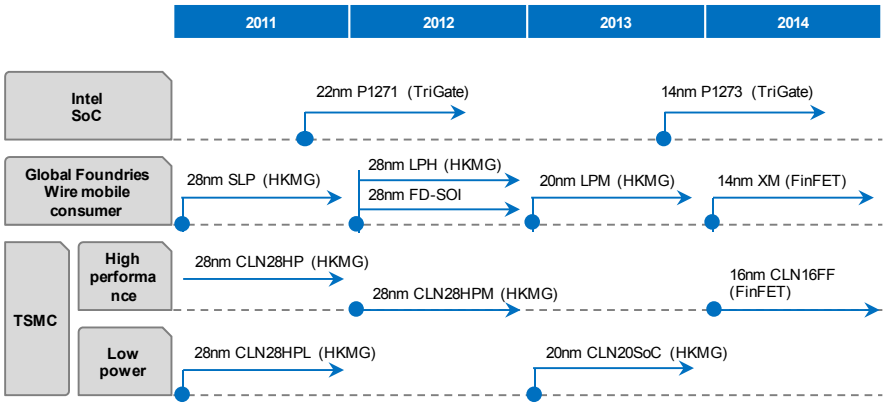


Source: ARM

Since migration to 32nm, competition over low-power products has intensified

Competition has intensified since foundry firms migrated to 32nm—with the IBM camp (including SEC), TSMC, and Intel battling to offer more cost- competitive, one-chip solutions (*ie*, AP, mobile DRAM, modem, GPU, and connectivity) that offer high speeds, high performance, and low power consumption. We believe memory and AP leader SEC will maximize its mass-production process technology by complementing modem, connectivity, and sensor technologies. Hynix's product lineup is limited to DRAM and NAND (and its NAND technology is inferior), but it should improve its product mix by developing image sensors to make up for a capacity shortage at SEC.

Chart 37. Logic companies' process roadmap



Source: Samsung Securities

Growth concerns overblown

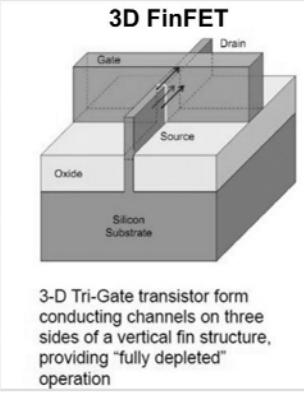
Long-term growth: We believe concerns of a slowdown in the semiconductor market are overblown. Even if growth does ease, in terms of absolute size expansion should be steady. The logic semiconductor market should grow about 10% in 2013. Whereas high performance has been the key driver in the PC-use DRAM segment, reducing power consumption is now the point of focus in the general industry and efforts on this front should continue.

The direction of technology development

It is impossible to forecast exactly how smart devices will evolve, but one thing is certain: several obstacles—including a slowing pace of product development and plunge in profitability—will have to be overcome. Semiconductor makers have been striving to address these and other issues through consortia such as iMEC, Sematech, and EIDEC, as well as joint development projects.

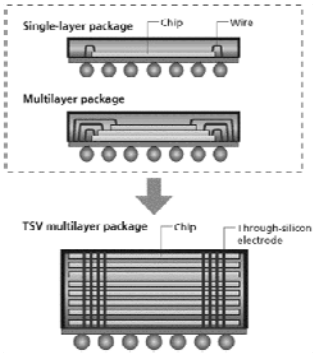
3D: Aware of the limitations to technology migration and cost cutting, semiconductor companies are looking to develop their own 3D technology, focusing on a variety of technologies including FinFET, TSV, V-NAND, and BiCS. Success would constitute a watershed moment for semiconductor development.

Chart 38. FinFET



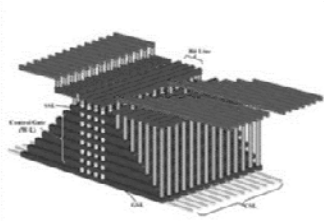
Source: Industry data

Chart 39. TSV



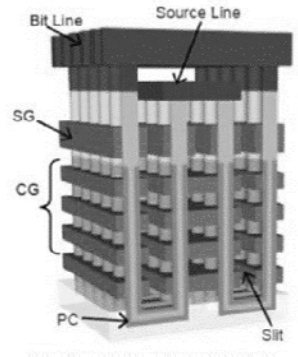
Source: Industry data

Chart 40. V-NAND



Source: Industry data

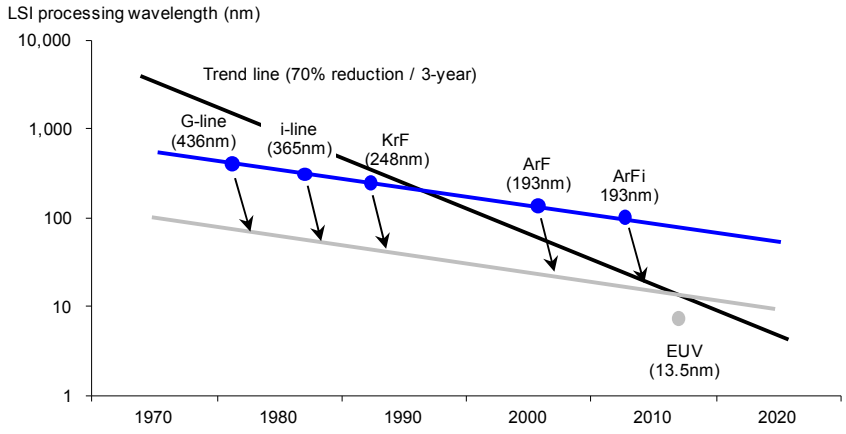
Chart 41. BiCS



Source: Industry data

EUV: Semiconductor mass production currently makes use of KrF, ArF, and immersion equipment, and companies often resort to double patterning to overcome limitations in sharpness or acutance. Once mid-10nm processes are achieved, however, next-generation lithography technology using extreme ultraviolet wavelength (EUV) will be essential.

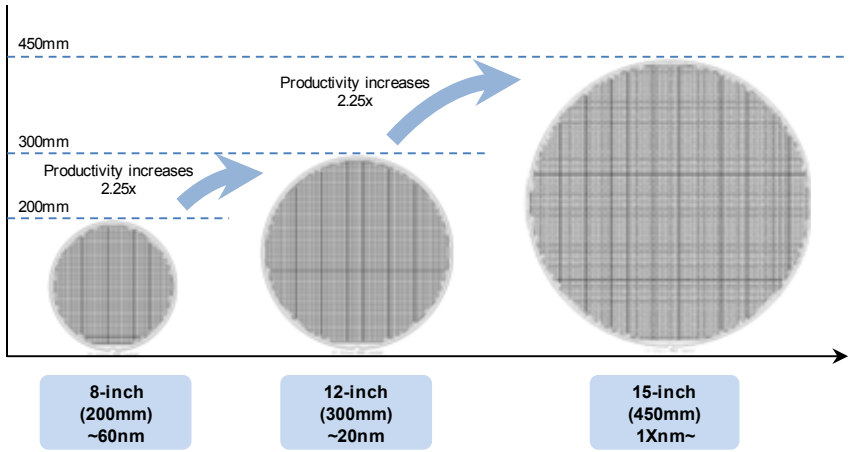
Chart 42. Lithography long-term roadmap



Source: Industry data, Samsung Securities

Larger wafers: Semiconductor makers began using 200mm (8-inch) wafers in mass production in 1992 and 300mm (12-inch) wafers in 2001. The increase in wafer size has improved productivity by 2.3x, contributing significantly to industry growth and profits, but there are growing doubts as to the ability to save further on costs. We believe the sector will move to 450mm wafers after 2016, and the impact on companies will vary.

Chart 43. Wafer size comparison



Source: Samsung Securities

Convergence: Semiconductor companies have worked to develop new memory—such as STT-MRAM, ReRAM, and FeRAM—as a means of boosting PC speeds and performance. These considerations will also be important in the mobile device era, and power consumption will be critical. Consequently, we believe one-chip solutions combining memory and LSI technology will become available in the not-too-distant future.

Stocks to watch: SEC and SK Hynix

Apple, Google, and SEC now lead the IT industry, having taken the baton from IBM, Dell, and Microsoft. SEC and SK Hynix are unrivalled in many areas, particularly the memory semiconductors and processors that serve as the core components of mobile devices. SEC leads the world in making LCD (and smart) TVs, feature phones and smartphones, semiconductors (NAND, DRAM, and AP) and small OLED displays (and is second in large displays). SK Hynix is second in memory semiconductors. We do not expect their rivals to narrow the gaps for the time being.

Table 3. Major set products: Market share breakdown (4Q12)

Rank	LCD TVs		Smartphones		DRAM		NAND		AP (dual core)	
	Company	M/S (%)	Company	M/S (%)	Company	M/S (%)	Company	M/S (%)	Company	M/S (%)
1	SEC	27.8	SEC	48.5	SEC	42.0	SEC	38.2	SEC	48.5
2	LGE	15.8	Apple	23.0	SK Hynix	25.1	Toshiba	27.9	Qualcomm	28.9
3	Sony	6.6	Huawei	5.3	Elpida	14.1	Micron	13.9		
4	Panasonic	5.4	LGE	4.1	Micron	10.5	SK Hynix	11.9		
5	TCL	4.7	Lenovo	4.1	Nanya	3.5	Intel	8.1		

Source: Samsung Securities, IDC, DisplaySearch, DRAMexchange

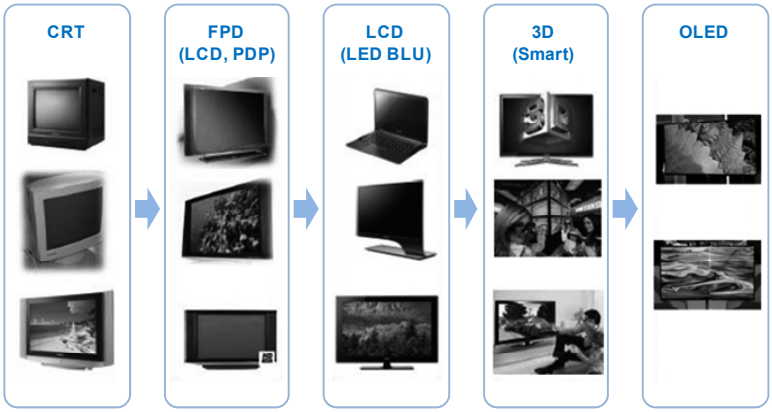
A display revolution

Past and present: Panels evolving for more than 80 years

Revolutions: CRT → LCD, PDP → LED → 3D → OLED

Since the world's first cathode-ray tube TV appeared in the 1920s, display panels have evolved from black-and-white CRTs to color CRTs and LCD and PDP flat panels. 3D TVs hit the market in 2009, OLED TVs in 2012. TV panels of today compete on thickness and resolution, but are all essentially flat panels. The question is: what will replace them?

Chart 44. Display evolution



Source: Display Search, Samsung Securities

The future: Transparent and flexible—straight out of Minority Report

Today's science fiction, tomorrow's displays

Transparent and flexible displays are likely to lead the way. The 2002 movie Minority Report provides a taste of the future of displays. In it, Tom Cruise accesses and sifts through images and data on a large, transparent computer screens by waving his hands. Street ads on curved displays identify passers-by and provide tailored promotions. Subway riders read newspapers published on flexible displays. Once the stuff of science fiction, these screens are rapidly being brought to reality by global IT firms.

Chart 45. Transparent advertisements

Source: Movie "Minority Report"

Chart 46. Flexible display newspaper

Source: Movie "Minority Report"

The next generation: Transparent and flexible displays

In 2011, 3M showed where display research is going in a series of ads showing a washing machine operated with embedded transparent touch panels, a board game played on a transparent display, and a flexible display worn like a watch to check information and communicate. In 2011, Samsung Mobile Display (now Samsung Display) aired an even more imaginative series of ads showing how AMOLED panels can bend, spread out, support 3D, and enable interactive communication.

Chart 47. Washing machine using 3M's transparent display

Source: 3M

Chart 48. Samsung Display's future display commercial

Source: Samsung Display

Transparent displays

Transparent displays create vast opportunities for information usage

The creative ability of human imagination can work wonders if profit making is left on the back burner. Much innovation occurs in the military, aerospace, and medical industries. This has certainly been the case with displays. Touch devices were first used as a means of data input by the US military in the 1960s and 1970s, and military and aerospace applications have also played a key role in advancing transparent display technology. The head-up display (HUD) in a cockpit delivers critical information without blocking a pilot's view, and BMW and Kia Motors have used the technology in premium smart vehicles featuring speedometer and navigation information on a windshield.

Chart 49. Cockpit HUD

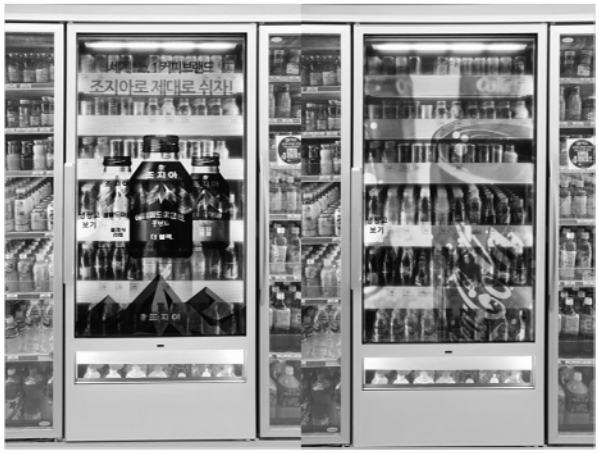
Source: Airliners

Char 50. Windshield HUD

Source: BMW

Convenience store refrigerators now feature transparent displays showing ads and information, and the idea could be applied to refrigerators in the home to inform residents of product expiration dates and other information, for example.

Chart 51. Transparent display at a convenient store



Source: LG CNS

Chart 52. Transparent display at a convenient store

Source: LG CNS

Transparent displays that allow the light to pass through but can be made opaque when necessary have been utilized on the outer walls of exhibitions and forums (though not commercialized). Such displays could also be used for most inner walls.

Chart 53. Transparent display application

Source: Industry source

Chart 54. Transparent display application

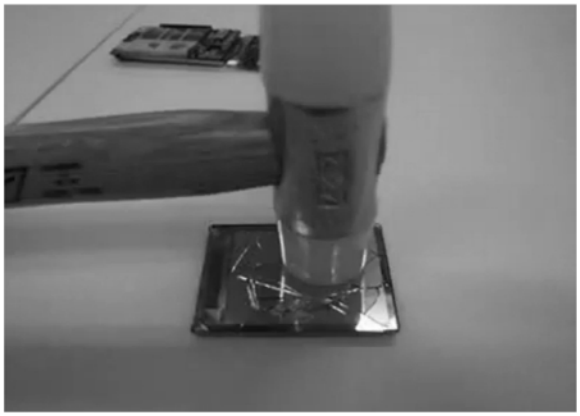
Source: Industry source

Flexible displays to take portability to next step

Flexible displays

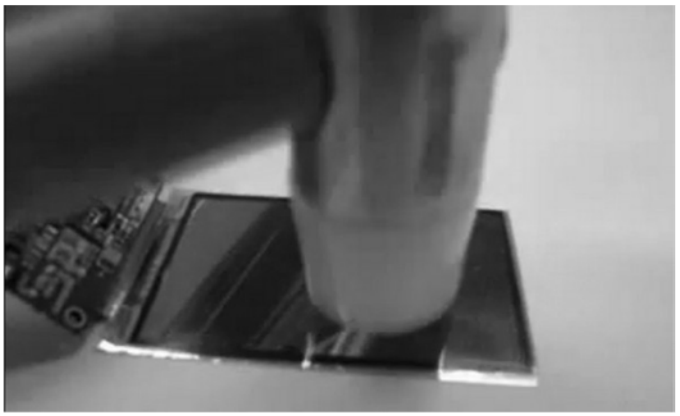
Flexible displays can be twisted, folded, and rolled up. Essentially unbreakable and highly portable, they offer a solution to an issue facing high-end smartphones: displays that are easily broken and require expensive film and cases for protection.

Chart 55. Glass displays break easily



Source: Engadget

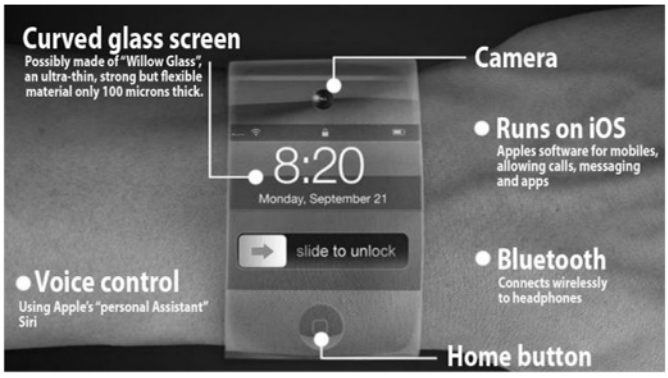
Chart 56. Flexible displays can withstand a blow



Source: Engadget

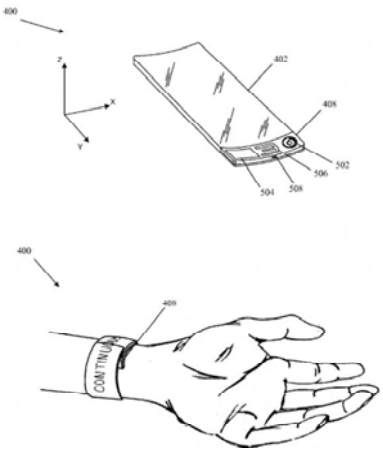
We can imagine a wealth of applications for flexible displays, but mobile devices are the first. The original 9.7-inch iPad rules the tablet PC market, but it is too big for a pocket and requires a case. The iPad Mini is lighter and more portable, and has created new demand. The next step could be the iWatch, with a flexible screen that offers more information-displaying space than a flat panel.

Chart 57. iWatch mock image



Source: Venestudio.com

Chart 58. Images from Apple flexible display patent



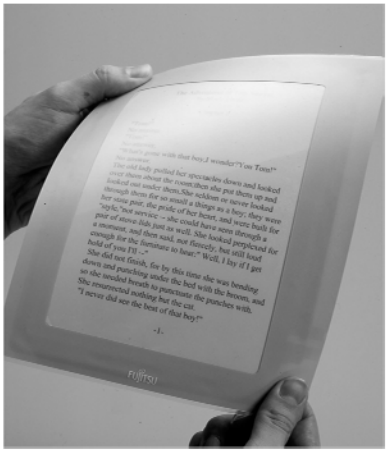
Source: USPTO

Relatively free from space limitations, flexible displays could be applied on domes and pillars, or used as electronic publication that replace paper-based books and newspapers.

Chart 59. LG Display's e-paper

Source: LG Display

Chart 60. Fujitsu's e-paper



Source: Fujitsu

The real-life debut of such innovative products may not be in the distant future. Samsung Electronics demonstrated Youm-brand flexible OLED display technology at CES 2013, and seems to be the closest to commercializing products with its AMOLED display. Bendable TFT-LCD panels are being developed, but face greater limitations than OLED panels to being used as flexible displays.

Chart 61. SEC's Youm display concept

Source: Samsung Electronics

Chart 62. SEC's flexible display prototype

Source: Samsung Electronics

OLED technology

OLED key to future displays

The commercialization of flexible and transparent displays will necessitate stable OLED technology. LTPS and oxide TFT processes seem the most realistic—the former is being used for small panels, and both are being considered for larger ones. Fine metal mask (FMM) technology is generally used for OLED evaporation, but ink-jet and laser-induced thermal imaging (LITI) can be used in large OLED production. LG Display is now making AMOLED panels by applying the white OLED method to its LCD process, but while this works with large panels it likely will not with flexible ones. Organic material life spans are also an important issue for displays made with OLED—which can become chemically unstable as oxidation and de-oxidation repeatedly occurs in the process of emitting light, and thus has a shorter lifespan than LCD.

Efficient batteries will also be critical to portability. Rechargeable batteries should remain the mainstream for mobile devices, and the application of flexible displays in IT devices could create more space for them, but there are many technical hurdles to overcome in developing batteries suitable for such devices. The development of basic materials used in rechargeable batteries (such as cathode and anode materials, electrolytes, and separators) must focus on higher performance and less power consumption.

Table 4. AMOLED equipment value chain**

Process	Sub-process	Equipment	Korean equipment makers	Foreign equipment makers
TFT	Cleaning	Cleaner	DMS, KC Tech, STI, Meere Company, Semes*	Shibaura Mechatronics, Hitachi High-Technologies, DNS Electronics*, Kaijo*
	Deposition	PECVD	Jusung Engineering, SFA	AKT, Ulvac, Tokyo Electron, OC Oerlikon
		Sputtering	Avaco, SFA	AKT, Ulvac, Tokyo Electron, OC Oerlikon, Canon Anelva*
	Crystallization	ELA	AP Systems	Japan Steel Works
		SGS	Tera Semicon	
		Thin beam LTPS		TCZ*
	Lithography	PR coater	DMS, KC Tech, Semes*	Tokyo Electron, Tokyo Ohka Kogyo, Toray Engineering*, DNS Electronics*
		Scanner		Canon, Nikon
		Developer	DMS, KC Tech, STI, Semes*	Tokyo Electron, Shibaura Mechatronics, Hitachi High-Tech, DNS Electronics*
	Etching	Dry etcher / asher	ICD, Wonik IPS, LIG ADP	Ulvac, Tokyo Electron, YAC*, DNS Electronics*
		Wet etcher / cleaner	DMS, KC Tech, STI, SFA, Semes*	Shibaura Mechatronics, Hitachi High-Tech, Kaijo*, DNS Electronics*
	Stripping	PR stripper	DMS, KC Tech, STI, Semes*	Shibaura Mechatronics, Tokyo Electron, YAC*, DNS Electronics*
RGB patterning		Evaporator	SFA, SNU, Jusung Engineering, LIG ADP, Avaco, Wonik IPS, Sunic System* (Dong A Eltek), YAS*	Ulvac, Hitachi High-Technologies, Tokki* (Canon)
		LITI	AP Systems	
Encapsulation		Encapsulator	SNU, Avaco, AP Systems, LTS, Wonik IPS, SFA, Jusung Engineering, LIG ADP, Tes, Sunic System*	Ulvac, Hitachi High-Technologies, Tokki*
Other		LLO	AP Systems	
		Laser cutting	Toptec, Rorze Systems	
		Inspection	SNU, Top Engineering, LIG ADP, Meere Company	AKT, Takano, Orbotech
		Logistics	SFA, Toptec, Avaco	Daifuku, Shibaura Mechatronics

Note: * Unlisted
** Companies capable of both development and mass production
Source: Samsung Securities

Table 5. OLED material value chain**

OLED materials	Korean players	Foreign players
HIL	Duksan Hi-Metal, Cheil Industries, CS Elsolar, LG Chem	Hodogaya, Idemitsu Kosan, Merck, DuPont, NSC*
HTL	Duksan Hi-Metal, CS Elsolar, Cheil Industries, LMS, LG Chem	Hodogaya, Idemitsu Kosan, Merck, Toyo Ink, NSC*
EIL	LG Chem ,Cheil Industries	Dow Chemical, Idemitsu Kosan, Merck, Toray, NSC*
ETL	LG Chem ,Cheil Industries	Dow Chemical, Idemitsu Kosan, Merck, Toray, Toyo Ink, NSC*
Red Dopant		UDC
Red Host		Dow Chemical (Gracel), Idemitsu Kosan, Mitsubishi Chemical, Toyo Ink, Toray
Green Dopant		UDC
Green Host	CS Elsolar, Duksan Hi-Metal	UDC, Idemitsu Kosan, Toyo Ink, NSC*
Blue Dopant	SFC*, Daejoo EM	Hodogaya, Idemitsu Kosan, Toray, Merck
Blue Host	SFC*, Daejoo EM	Hodogaya, Idemitsu Kosan, Toray, Merck

Note: * Unlisted; ** Companies capable of both mass production and development
Source: Samsung Securities

Stocks to watch

The development of AMOLED technology should benefit manufacturers of AMOLED organic materials used in common and emission layers. AP Systems should receive attention when flexible displays are commercialized. Samsung SDI is the world's leading player in rechargeable batteries. Soulbrain should benefit from its involvement in display- and semiconductor-use etchant and rechargeable battery-use electrolytes.

4. Mobile parts: Quantitative growth ahead

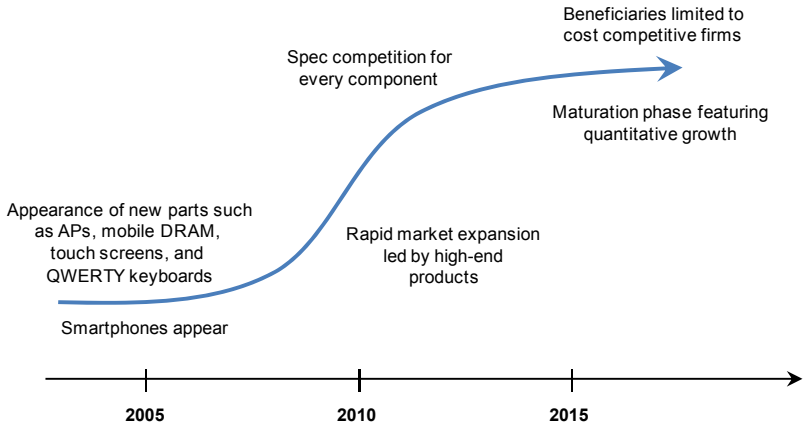
Quantitative growth to continue in long term

A look at quantitative growth in mobile parts, rather than momentum at captive set makers

It is no exaggeration that a parts firm's future depends on the set firms it supplies. Indeed, since Apple launched its innovative iPhone and iPad in 2007 and 2010, respectively, players in Apple and Foxconn's supply chain have enjoyed solid growth. Since 2012, players in Samsung Electronics' (SEC) supply chain have also drawn attention thanks to the popularity of SEC's Galaxy Note and Galaxy S3. Parts suppliers in Apple's supply chain are now seeing profitability deteriorate.

In predicting earnings and share-price movement for an individual parts firm, one must consider the ecosystem to which the firm belongs. In this report, however, we focus on long-term trends in the mobile device industry and their impact on parts players. That is to say, we concern ourselves not with which set firms make attractive products, but with which parts makers deserve valuation premiums and which areas of development are most promising for set makers looking to benefit from quantitative growth of the mobile device market. In sum, we focus on the implications of mobile-centered supply chains, and offer 1-3-year investment ideas, not ones based on quarterly earnings.

Chart 63. Smartphone components as market matures



Source: Samsung Securities

Table 6. Identifying which parts firms will benefit from smartphone market development

Period	Market development	Change in parts industry	Conditions needed for parts firm to benefit
Introduction	Smartphone penetration	New parts required	Ability to produce required parts
Expansion	Rapid market expansion led by high-end products	Specs upgraded, competition accelerates	High-spec parts production, migration competitiveness
Maturity	Quantitative growth	ASPs cut, survival of the fittest	Cost competitiveness

Source: Samsung Securities

Seven key trends in parts technology development

We expect IT parts technology to take large steps in seven key areas over the next two-three years. In the way the original iPad was a game changer, we cannot exclude the possibility of a completely new mobile device—indeed, talk in the industry is now focused on Google Glass and Apple's iWatch. In the medium term, however, we expect advances in mobile devices to center on smartphones.

Table 7. Components at the heart of key trends in technology development

Trend	Description	Components that stand to benefit
Thinner and lighter	As devices become thinner and lighter, so too must components	FPCBs, passive parts, glass, etchants, battery cells
Modularization	Parts supplied half assembled	Casing, ancillary parts, speakers/microphones/sensors
Bigger displays, higher definition	Panels and related parts to become bigger and better	Displays, display parts
Input device diversification	Touch screen development and input diversification	Speakers, microphones, peripherals
Battery life extension/wireless charging	Charging methods to be standardized	Wireless chargers, charging modules
Camera upgrades	High-resolution video and microelectromechanical systems (MEMS) technology to spread	AFAs, MEMS camera modules
Added sensors	Functions to rely on greater array of sensory input	Sensors

Source: Samsung Securities

Trend towards lighter and thinner components to benefit makers of FPCBs, passive parts, glass, etchants, and battery cells

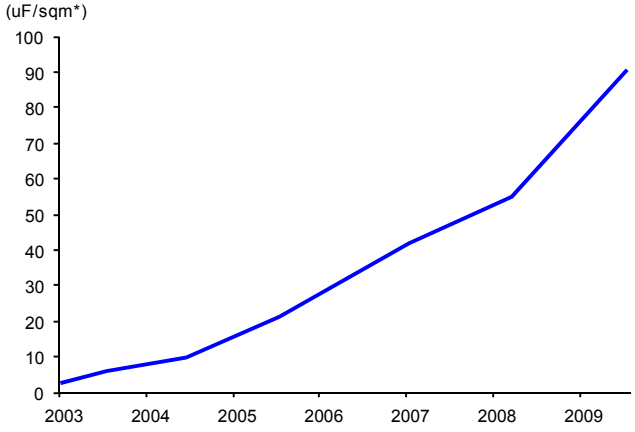
Thinner and lighter: While it seems natural to pursue thinner and lighter parts for mobile devices, the trend seems to have lost some steam amid the growing popularity of devices with large screens. Nevertheless, set makers are still looking for thinner and lighter at the parts level. Of particular note are industry efforts to use less glass in displays (or make thinner glass displays), replace PCBs with FPCBs, and adopt smaller parts (*eg*, MLCCs) and connectors. Small parts are preferred, as they reduce mobile device weight and thickness, allowing manufacturers to employ larger-capacity batteries or boost efficiency. Firms that stand to gain from this trend are those that make FPCBs, passive parts, glass, etchants, and battery cells.

Table 8. Display area and battery capacity per weight of major flagship smartphones

	Samsung		Apple		LGE	
	Galaxy Note 2	Galaxy S III	iPhone 5	iPhone 4S	Optimus G Pro	Optimus G
Display size (inches)	5.5	4.8	4	3.5	5.5	4.7
Battery capacity (mAh)	3,100	2,100	1,440	1,432	3,000	2,100
Weight (g)	180	133	112	140	160	145
Display size/weight ratio	0.031	0.036	0.036	0.025	0.034	0.032
Battery capacity/weight ratio	17.2	15.8	12.9	10.2	18.8	14.5

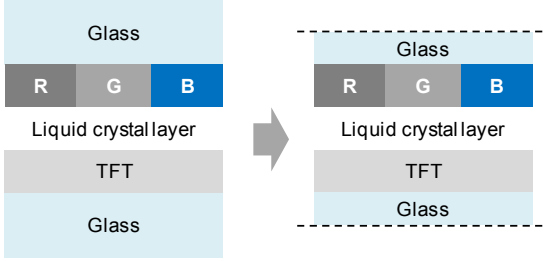
Source: Samsung Securities

Chart 64. Semco: MLCC development



Note: * capacity per MLCC volume
Source: Samsung Securities

Chart 65. Using thinner glass to create thinner displays



Source: Avatec, Samsung Securities

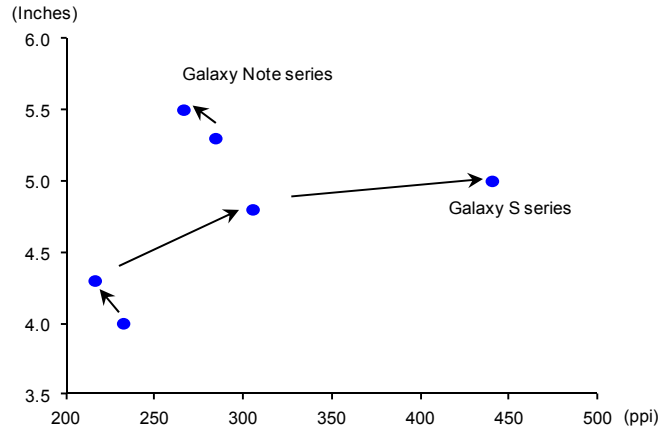
Modularization to benefit makers of speakers, microphones, and sensors

Modularization: One key trend of mobile device evolution is parts modularization. Nokia initiated handset parts modularization in 2004, and in so doing was able to secure a stable supply chain and aggressively cut its parts budget. Since then, modularization has become the mainstream in handset parts supply. Now, with mobile devices offering PC functionality, this trend should become stronger still. Modularization benefits parts firms, as some of the added value moves from set making to assembly, and the parts firms profit from the assembly process. The biggest gainers should be makers of casing and other easy-to-assemble parts, and makers of speakers, microphones, and sensors, where modularization is accelerating.

Makers of touch panels and display parts (driver ICs and BLUs) to benefit from trend towards larger, higher-definition displays

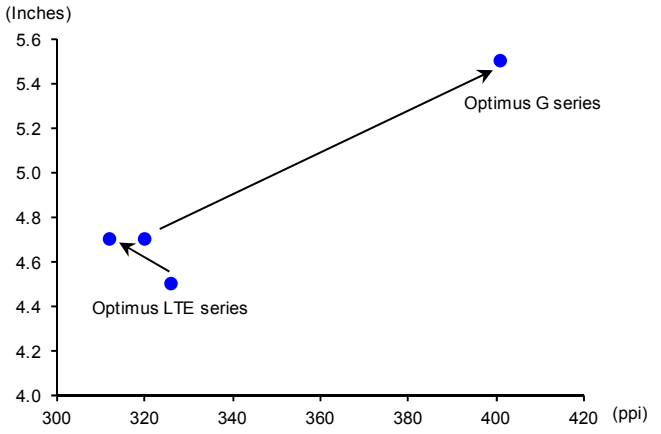
Bigger displays, higher definition: Increased penetration means users are increasingly accessing data through smartphones rather than TVs and PCs—thus, the pursuit of bigger, higher-definition displays is only natural. It remains unclear how things will develop—*ie*, whether a completely new device will emerge, public-use displays will increase in number, or smartphone screens will continue to get bigger. Given demand for larger displays, however, we believe average smartphone screens will gradually expand from their current five inches over the long term. Moreover, firms should continue to pursue flexible displays and holograms over the next couple of years—though innovative advances are unlikely to appear overnight. Given that high-definition is key to mobile devices, we see a bright medium-term outlook for display makers, and expect set makers to continue adopting touch panels in their devices. The biggest gainers should be those firms that make displays (LCD panels), display parts (driver ICs and BLUs) and touch-panel makers.

Chart 66. SEC flagship smartphones: Relationship between resolution and display size



Source: Samsung Securities

Chart 67. LGE flagship smartphones: Relationship between resolution and display size



Source: Samsung Securities

Input components such as touch screen, speaker, or microphone to play more important role in an advanced mobile device

Input device diversification: In terms of development speed and convenience input devices lag far behind output devices (*eg*, displays). That said, there remains significant scope for improvement in input devices. We focus on technology development at touch panel firms. Second, although input and output device development has been centered on displays and touch panels, room for creating new types of input and output devices is unlimited. A two-track path is possible: developing hardware (*eg*, increasing the number of speakers/microphones); and adopting peripheral devices.

Two trends have developed concurrently in the mobile industry. First, the iPhone5 and HTC One feature additional speakers, while the former also has a back-end microphone to eliminate noise. Second, peripheral devices, such as portable printers, health-related accessories, Bluetooth keyboards and headphones, have emerged and are beginning to spread. The market for peripheral smartphone devices is yet young. We expect speaker and microphone parts firms and peripheral smartphone device manufacturers to benefit most from developments in smart device input and output options.

Table 9. Touch technologies

Technology	GFF	G1F	On-cell (OCTA)	GF	GG	GF2	In-cell	G2,G1,OGS
Surface patterned	Cover glass	ITO-coated cover glass	ITO-coated cover glass	Cover film	Cover glass	Cover glass	ITO sensors	Cover glass coated
Patterning material	Two pieces of ITO film	One piece of ITO film	ITO-coated AMOLED	One piece of ITO film	2 pieces of ITO glass	Two pieces of ITO film	Directly onto inside of LCD display	ITO pattern directly to cover glass twice
Optical quality	Ok	Good	Excellent	Good	Excellent	Good	Excellent	Excellent
Price	Cheapest	Cheap	Cheap	Expensive	Average	Average	Expensive	Cheap
Applicability to large displays	Applicable	Hardly applicable	Applicable	Hardly applicable	Applicable	Hardly applicable	Not applicable	Highly applicable
Production difficulty	Very easy	Easy	Very easy	Difficult	Very easy	Difficult	Very difficult	Difficult
Smart devices employing this technology	Non-Apple smartphones Samsung Tablets Optimus G Pro	Galaxy Duos and 2-3 other lower-end Galaxy models	Galaxy S and Note series AMOLED mobiles	None	iPhone series up to iPhone 4S; 9.7" iPads	iPad Mini	iPhone 5	Nexus10 Optimus G

Source: Samsung Securities

Chart 68. iPhone 5 and Xperia Z: Back-end microphone

Source: Techblock, Clove, Samsung Securities

Chart 69. iPhone 5 and HTC One: Multiple or larger speakers

Source: Techlitic, Trusted Reviews, Samsung Securities

Chart 70. Galaxy S4: Health care accessories

Source: SEC, Samsung Securities

Chart 71. LG Electronics: Portable mini printer

Source: LGE, Samsung Securities

Wireless charging technology to become widespread after problems with resonant magnetic induction method are solved

Battery life extension/wireless charging: Short battery life has been an issue since the start of the smartphone era. While battery consumption has increased amid a trend towards higher-spec devices and longer usage time, growth in battery capacity has been disappointing due to difficulties associated with reducing the size and weight of chemical products. We believe short battery life will remain an issue for at least the next two-three years.

In sum, we believe any solution to the problem will involve charging methods. Given its convenience, the electromagnetic inductive coupling method of charging—which has already been commercialized—should increase to a certain degree, despite charging distance-related limitations. Meanwhile, a resonant magnetic induction method should also be commercialized soon, once standardization is established and technology improves.

Table 10. Wireless charging technologies

	Electromagnetic induction	Resonant magnetic induction
Principle	Using an electromagnetic field to transfer energy between two objects	Transferring electronic energy using magnetic field in resonance
Method	Contact with charger	Coming in range of charger
Charging distance	1-2cm	2m
Efficiency	Around 90%	Above 40%
Strength	Efficient, standardized	Charge at distance; charge multiple devices
Weakness	Short distance	Lack of standardization; safety concerns

Source: Samsung Securities

Chart 72. Wireless charger of SEC, LGE, iriver

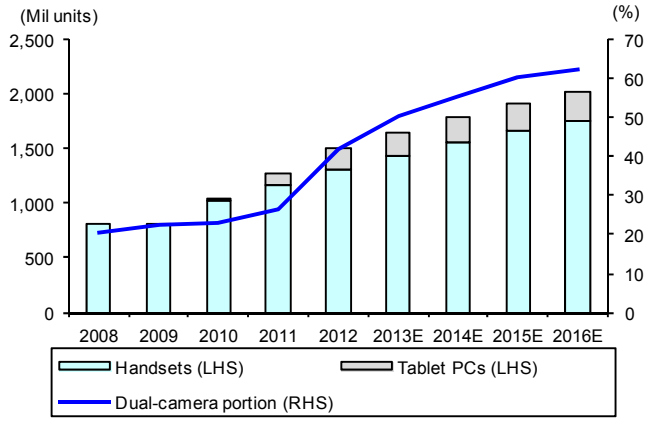
Source: SEC, LGE, iriver, Samsung Securities

Mobile cameras improving; auto-focusing actuator suppliers top beneficiaries in camera supply chain

Camera upgrades: Since mobile phone manufacturers first kitted out their handsets with cameras in the early 2000s, camera modules have advanced rapidly with the goal of being able to read external information. Thanks to technological improvements (*eg*, higher picture quality, smaller/lighter designs, and steady-shot tech), smartphone cameras now perform well enough to replace standalone digital cameras and may become viable alternatives to camcorders in the next couple of years. In this process, auto focus actuator (AFA) makers should benefit.

Several camera component makers (*eg*, AFA maker Digital Optics) are striving to develop microelectromechanical system (MEMS) camera components that can be produced at lower costs but that work much more quickly and consume less power. While such modules are unlikely to become the mainstream in the near future, they do give us a glimpse of future camera-module technology.

Chart 73. Mobile camera market trends and forecasts



Source: TSR

Chart 74. Auto-focusing actuator using MEMS technology

Source: DigitalOptics (DOC)

Smartphones rapidly adopting motion sensors

Adding sensors: Smartphones and tablet PCs already employ a host of different MEMS motion sensors. The chart below shows the nine sensors used in SEC's Galaxy S4.

Table 11. Sensors adopted in Galaxy S4

Sensors	Function	Application
Proximity	Uses infrared to detect if body is close to device	Direct call; Turns off screen during call
RGB	Measures strength of red, green, blue, white light sources	Reduces eye discomfort when using book app
Gesture	Detects infrared reflected by hand	Input through hand gestures—*ie*, without physically touching device
Gyroscope	Detects device orientation	Facial recognition; Samsung smart control
Hole	Detects whether flip cover is open	S View cover—Read information without opening flip cover
Temperature/ Humidity	Measures temperature and humidity of surrounding environment	S Health—Recommend adjusting temperature and humidity to better suit individual
Terrestrial magnetism	Detects magnetic strength in three dimensions	Pinpoint location on map
Accelerometer	Detects device location through in three dimensions	Walking distance tool
Atmospheric pressure	Measures atmospheric pressure	Account for pressure in measuring calories expended when moving

Source: Samsung Electronics, Samsung Securities

The pressure sensor SEC first used in its flagship models (Galaxy S3 and Galaxy Note 2) last year should facilitate indoor/outdoor navigation and become useful for inter-device communication and retail businesses. We believe handset makers will pioneer innovative motion sensors and seek to minimize the power the consume—as was the case when Nokia and HTC adopted steady-shot motion sensors and when SEC broke new ground by incorporating pressure sensors into its devices.

In his keynote speech at CES 2013, Qualcomm's Paul Jacobs stated his belief that smartphones will become the digital sixth sense of the future. Smart sensors are emerging as a next-generation technology. We believe smartphones will one day come with biometric sensors that function like human sensory organs. Although this will not happen in the near future, such sensors will provide the basis for better communication between humans and smart devices.

Table 12. IBM predictions regarding computers' sensory evolution

Sense	Function
Touch	User will be able to feel texture of object through smart device screen while online shopping
Sight	Computer will be able to derive meaning from image or video: Scan medical images to provide personal diagnosis
Hearing	Computer will discern mood by detecting emotion in vocal patterns; Computers will predict floods or landslides by sensing detailed sounds from mountains and waterways
Taste	Computer will offer personalized recommendations based on user's medical needs and taste preferences
Smell	Check user's health through respiration

Source: IBM's *The 5 in 5* (2012), SERI

Table 13. Normal devices vs devices with digital sixth sense

Device	User demand	Conversation	Result
Normal device	User initializes acknowledgement of own demand	One-to-one conversations—*ie*, device reacts to user input	User receives exactly and only what was demanded
Device with digital sixth sense	Device recognizes when uses makes demand	Several-to-one conversations—*ie*, several devices react to user input in parallel	User receives more than what was demanded

Source: SERI

Beneficiaries of quantitative growth

While the smartphone industry has been led by high-end products since the iPhone debuted in 2007, we now expect the pendulum to swing to the low-priced segment for two to three years. Investors should bear this in mind when picking component maker stocks.

Commodity component makers to outperform on few competitors, economies of scale, localization

Commodity-component makers have something special: In the high-end smartphone market, manufacturers of premium components (*eg*, APs, cameras, and high-resolution displays) have performed well. Flexible printed circuit boards (FPCBs) and PCBs have offered high margins, and makers of casings for premium handsets have also seen profitability improve of late. However, if the market for lower-end smartphones expands, firms making commodity components (*eg*, passive components, chips, telecom modules, connectors, speakers, and microphones) should see strong growth momentum for three reasons.

First, set makers are basically unwilling to raise source commodity parts from additional vendors even when supply is tight, because: 1) common components are usually standardized and there are few things to differentiate them—thus set makers have little reason to add vendors when supply is healthy; 2) working with new market entrants without solid track records is risky; and 3) component makers are usually able to expand supply stably. Accordingly, commodity component vendors currently in the supply chain should enjoy growing order momentum from the low-price to mid-range smartphone segments. However, when it comes to PCBs, FPCBs, and touch screen-related components, smartphone makers tend to add vendors when their demand surges. For instance, SEC sources PCBs from 10 suppliers and touch screen-related components from around 20. Furthermore, a multiple-vendor strategy is an advantage to set makers, as component ASP cuts have a considerable impact on bills of materials.

Second, when industry trends shift from the production of small items in large quantity to the production of varied items in small quantities, commodity part makers can be as efficient as they are with mass-produced items, because designs for their products change little. In fact, component makers are most efficient when mass-producing components of the same design. This explains how display-, casing-, PCB-, and touch screen-related component firms were able to enjoy profitability improvement with the production of SEC's Galaxy S series. Since their products are standardized, commodity component makers rarely see earnings suffer by more than is warranted by a change in product mix.

Third, a rising number of components once imported are now being manufactured in Korea. Since a stable supply of high-quality products is essential for commodity components, Japanese players have commanded large chunks of the market. Now, however, Korean players are establishing a presence and should enjoy considerable growth over the next several years, as: 1) quality issues preclude Chinese players from entering the market; 2) proximity and price-competitiveness over Japanese rivals leads to noticeable market share gains for some firms; and 3) low-priced smartphones rise in popularity. Promising candidates include SEC suppliers Partron, Uju Electronics, Amotech, InnoChips Technology, WiSol, RFsemi, and Electro Magnetic Wave.

Table 14. Customized vs commodity parts

	Specialized	Commodity
Component	Displays, cameras, PCBs/FPCBs, casing, antennae	Telecommunication modules, chip components, connectors, speakers, microphones
Outlook	Fierce competition, new models/designs need to be created; Localization almost complete ↓ **Margin squeeze**	Limited vendors, easily mass produced; **Still being localized** ↓ **Beneficiaries limited**
Qualities required for firm to benefit	Order reaction speed, technological prowess	Cost competitiveness, technological prowess

Source: Samsung Securities

NFC, Bluetooth, and Wi-Fi module to benefit from inter-device communication

Inter-device communication to increase: Mobile devices have thus far communicated with base stations, but will increasingly communicate between each other using NFC, Bluetooth, and Wi-Fi—and the necessary infrastructure has been laid thanks to the spread of lower-end smartphones. We expect NFC business models to materialize over the next two-three years. Demand for such models looks ample, given increasing demand for flip covers in which smartphone users can place their credit cards or transportation cards, while adequate infrastructure reduces risk on the part of NFC businesses. The provision of services by NFC businesses, in turn, should increase demand for NFC, forming a virtuous cycle.

Bluetooth and Wi-Fi modules are already embedded in almost all smartphones, but demand for such technology should grow more quickly than demand for lower-end smartphones, as peripherals with which it is hoped smartphones will communicate need to have the same Bluetooth and Wi-Fi modules. On a negative note, Korea has no Bluetooth or Wi-Fi modules manufacturers, only assemblers.

Chart 75. More devices employing NFC technology

Source: LiHom-Cuchen, SD Biosensor, Sony, LG Electronics

Increase in mobile devices per person to have positive impact on camera and NFC firms

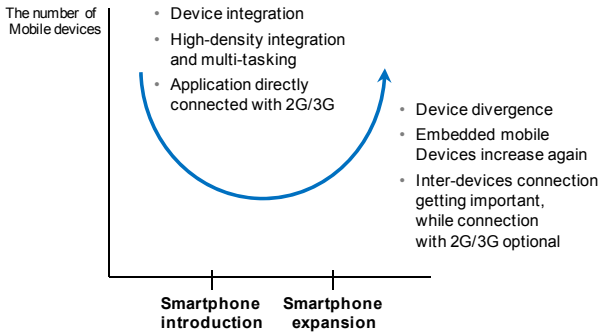
How many mobile devices will each person carry? Before the advent of smartphones, people would carry a portable CD player, MP3 player, or portable media player alongside a handset. Many also carried around electronic dictionaries and cameras. All of these items have since been integrated into a single device.

Apple launched its iPad in 2010, before the iPhone had dominated the handset market. The new device proved a success, being accepted as a second mobile device by numerous users. The tablet-PC market is still growing quickly, and 2013 should see the sale of 200m tablet PCs, up 68.4% y-y. Recent announcements and rumors of Google Glass and an Apple iWatch have increased interest in other mobile devices. Unlike the iPad, which simply differed in size, such new devices would come in completely different designs, offering unique user experiences. Thus, we believe people may carry more mobile devices in the next 1-2 years.

It is still difficult to say whether the number of devices a person will carry will continue to grow, and whether any such growth will be driven by peripherals or stand-alone items.

With that in mind, we are most bullish about the prospects of cameras and NFC components. Bluetooth, Wi-Fi, and NFC modules, in particular, are likely to be incorporated into all devices. Demand for touch and display modules may also rise, though set makers may adopt low-value-added items (contributing little to earnings growth at major players).

Chart 76. An increase in mobile device per person



Source: Samsung Securities

Chart 77. Sony's Smart Watch

Source: Sony

Mobile parts vs TV and PC parts

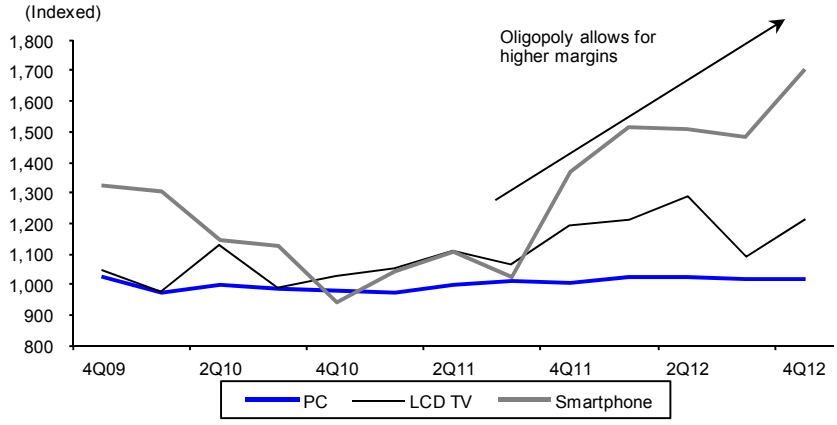
Unlike TV and PC parts, mobile parts to benefit from trend of adopting high-end components in mobile device

Mobile parts vs TV parts: High-end mobile devices have become affordable devices that consumers can display with a sense of pride, thanks to telco subsidies and parts makers' efforts to produce thinner and lighter components. Life cycles of mobile components are growing shorter than TV-part life cycles, which should ensure solid growth at parts makers in the long term. As consumers spend most of their tech budgets on mobile devices, mobile parts makers should also enjoy clear quantitative growth.

Mobile parts vs PC parts: Compared with PCs, mobile devices lack substantial global penetration and infrastructure. In addition, consumers are more eager for technological advancements in mobile devices. Finally, mobile device parts cannot be replaced separately—*eg*, unlike CPUs, a device's AP cannot be upgraded on its own.

Brand preference clear: Brand preference is more pronounced in the mobile device market than in the TV and PC markets. This is because: 1) mobile devices are well-suited for consumers who wish to show off their gadgets; 2) users spend vast amounts of time on their devices; and 3) set makers have gained bargaining power since Apple launched the iPhone. A clear brand preference is positive for set makers, which can maintain fat margins, and parts makers, which can expect consumers to buy (seemingly unnecessary) high-specification parts. We believe makers of high-end parts will soon re-rate. While the smartphone manufacturing process—design, development, and assembly—is the same as the process for making PCs and LCD TVs, there is a much stronger oligopoly in the smartphone market thanks to brand preference.

Chart 78. Herfindahl-Hirschman Index: PC, LCD TV, and smartphone market



Note: For top-10 companies only
Source: IDC, Displaysearch, Samsung Securities

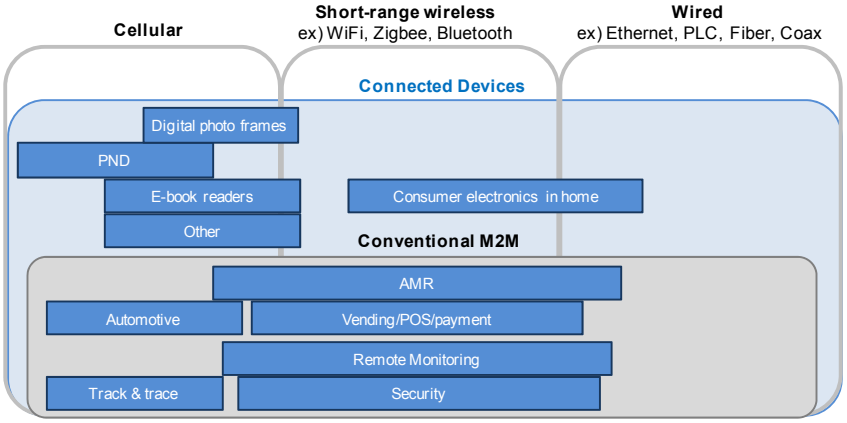
Mobile service market to blossom

Evolution of mobile device resulting in new mobile services. Machine-to-machine(M2M) service a top beneficiary

As the mobile IT environment evolves, new services—*eg*, machine-to-machine (M2M), mobile payment, biometrics-based personal identification, and mobile security—should gain popularity. These service markets are in a fledging phase, with related technology still in development, but they should quickly expand on: 1) the increasing role of smartphones as identification tools thanks to their rising penetration; and 2) advances in mobile Internet and mobile computing technology.

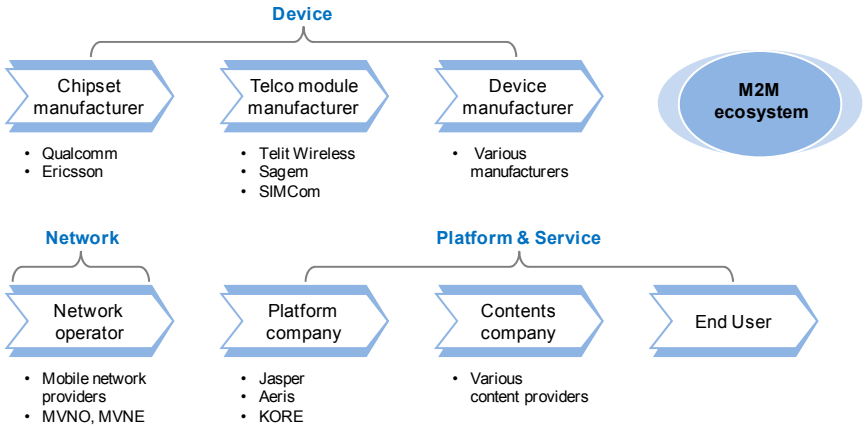
Machine-to-machine (M2M) service: M2M works through the addition of a sensor to a product. That sensor relays real-time information from the product through a network (wireless or wired) to autonomic computing software programmed to interpret data and perform actions. Where sensors used to be tacked onto fixed objects and relayed information to a central hub for human analysis, they are now tacked onto mobile objects which can communicate between themselves without the assistance of humans. As a tool that boosts business efficiency, M2M has wide applications ranging from car management and logistics services to home electronics and health care.

Chart 79. M2M concept map



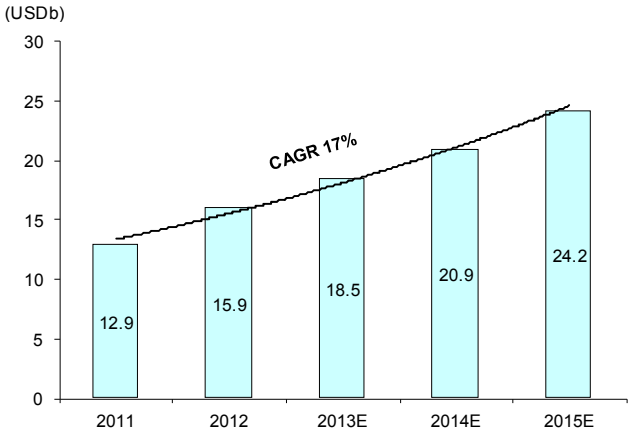
Source: Gartner

Chart 80. M2M ecosystem



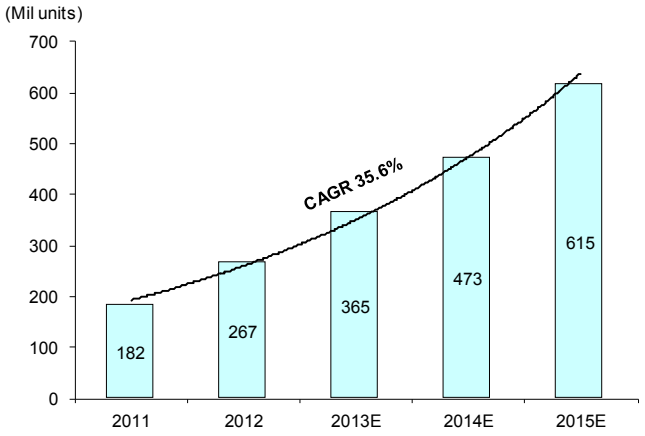
Source: SA (Oct 2012), KISA

Chart 81. Global M2M market forecast



Source: SA (Oct 2012), KISA

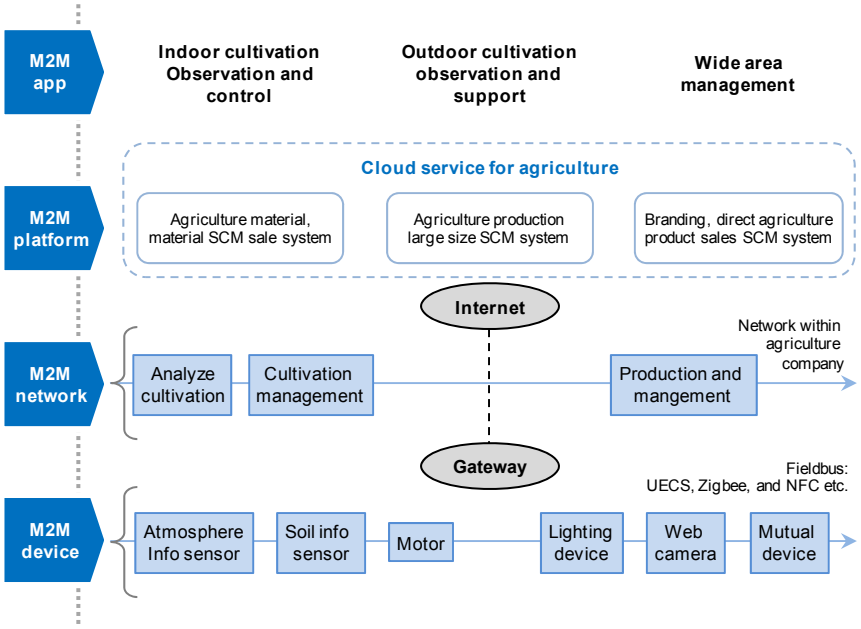
Chart 82. Global M2M device shipment forecast



Source: SA (Oct 2012), KISA

Since M2M computing is designed for real-time operating system or embedded software, we believe software companies (esp, development solution/OS service providers) will enjoy benefit first. For instance, SK Telecom is preparing a logistics control service, for which MDS Technology offers Linux OS technology to the M2M module installed in vehicles and develops the software for related services.

Chart 83. Examples of M2M system: applied in agriculture system in Japan



Source: Nikkei Communication, Atlas DB

Top picks: Amotech and Uju Electronics

We expect both the high-end and commodity parts markets to grow over the next two-three years, but FPCB, camera, short-distance telecom parts, and connector firms are more attractive in the long term.

We believe smartphone parts makers will enjoy a structural rerating over the next two-three years as their sales soar more and more IT devices go mobile and smartphone penetration spreads. Both the high-end and commodity parts markets should grow. The former should enjoy qualitative growth, as amid a rise in device sales volume, parts should become thinner and lighter and be upgraded rapidly, and peripheral parts should be developed. The commodity parts market should also grow, but will likely be dominated by a few leading firms with price competitiveness in their respective product segments. Those firms should continue to enjoy earnings growth and rerating, despite recent share-price rallies.

For long-term investors, we recommend: 1) FPCB and camera-parts makers, which should enjoy technology evolution and quantitative growth; and 2) manufacturers of short-distance telecom parts—*ie*, NFC, Wi-Fi and Bluetooth—and connectors, which should gain from growing numbers of peripheral devices and new mobile parts.

Partron stands to benefit in both areas. It has strong camera module and antenna businesses and is seeing sensor-module sales grow—all of which fall qualify it in the first group. Meanwhile, its NFC and low-end camera module businesses are poised to enjoy quantitative growth—and qualify it in the second group.

Uju Electronics, Amotech, Innochip, and EMW should also make good investments, as they are leading suppliers of commodity products. Amotech should: 1) enjoy structural growth in chip varistor demand thanks to robust downstream industries; and 2) see its NFC business grow as mobile-related businesses get on track. We forecast that Uju Electronics will boast outstanding growth momentum, as: 1) the company in 2012 began to supply SEC with smartphone-use ultra-small connectors—a product previously monopolized by a Japanese firm—and its SEC-bound connector shipments look set to expand rapidly; 2) its connector ASP should trend up amid trends towards thinner and lighter designs and modularization; and 3) its new businesses offer additional earnings upside from 2H.

Table 15. Major Korean component firms: Peer valuation

Company	Market cap	P/E (x)		P/B (x)		EV/EBITDA (x)		ROE (%)		OPM (%)		EPS growth (%)	
	(KRWb)	2013E	2014E	2013E	2014E	2013E	2014E	2013E	2014E	2013E	2014E	2013E	2014E
Partron	877.8	11.3	9.1	3.9	2.8	8.3	5.8	41.7	38.0	10.8	10.8	12.2	24.0
Uju Electronics	281.1	9.7	7.5	1.6	1.3	4.6	3.3	17.3	19.1	13.3	14.6	238.4	32.3
Amotech	205.1	10.9	8.5	1.4	1.2	7.2	6.0	14.6	15.9	10.7	10.8	105.5	27.6
Innochip	229.6	10.5	9.2	1.6	1.3	6.4	5.2	23.4	21.6	26.2	24.1	53.8	14.5
Wisol	171.7	15.3	13.0	3.2	2.6	10.0	8.4	22.8	22.2	9.9	10.3	23.4	20.5
Average		**11.5**	**9.4**	**2.3**	**1.8**	**7.3**	**5.8**	**24.0**	**23.3**	**14.2**	**14.1**	**86.6**	**23.8**

Note: As of May 2 close
Source: Bloomberg, Samsung Securities estimates

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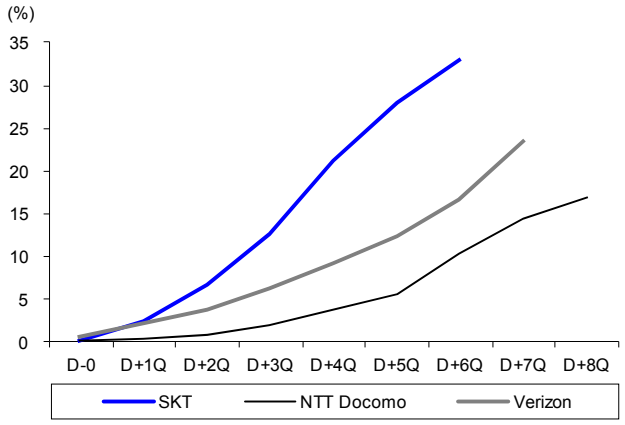
4. Telcos: Overcoming wireless limitations

Another step in evolution: LTE-advanced

Mobile catching up to fixed line in network speeds

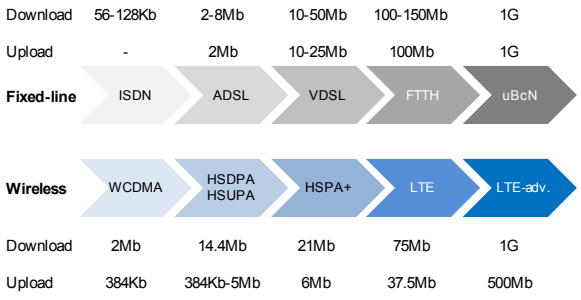
Korea's telcos launched LTE services in Jul 2011, and penetration of the service has been increasingly more rapidly in the country than anywhere else in the world. LTE networks in Korea run at 73Mbps in the 20MHz bandwidth, offering download speeds of 10-15Mbps, easily able to handle all types of content (streaming 1080p videos with 5.1-channel surround sound requires speeds of 8-10Mbps). Rapid advances in mobile networks make Korea a perfect test-bed for new content and technology.

Chart 84. LTE penetration: SKT (Korea), NTT DoCoMo (Japan), and Verizon (US)



Source: Company data

Chart 85. Network speed comparison: Wireless vs fixed line



Actual wireless-network speeds are about 1/7 of maximum speed, implying that LTE performs similarly as VDSL

Source: Samsung Securities

Another innovation: LTE-advanced

The launch of LTE-advanced technology this year should upgrade Korea's network environment further. Antennae and bandwidth determine LTE-network download speeds, and existing networks operate with 2x2 MIMO antennae in 20MHz of bandwidth (half for uploading and half for downloading). Given the increased electricity, cost, and space demands of the 4x4 MIMO antennae that LTE-advanced networks will use, telcos will likely expand downloading bandwidth to 20MHz through carrier aggregation (CA) to offer download speeds of up to 147MHz. LTE-advanced technology should enable wireless networks to offer a user experience comparable to that of 100Mbps fixed line, blurring the line between the wireless and fixed-line experiences.

Table 16. Maximum download speeds, by antenna and bandwidth

	DL		UL
	2x2	4x4	1x2
5MHz	37Mbps	72Mbps	18Mbps
10MHz	73Mbps	147Mbps	36Mbps
20MHz	150Mbps	300Mbps	75Mbps

Source: 3GPP

Table 17. Korea: LTE-advanced introduction: Schedule

	Spectrum	Multi carrier	Carrier aggregation
SKT	800MHz / 1.8GHz	2H12	Sep 2013
KT	1.8GHz / 900MHz	1H13	2H13
LG Uplus	800MHz / 2.1GHz	2H12	TBD

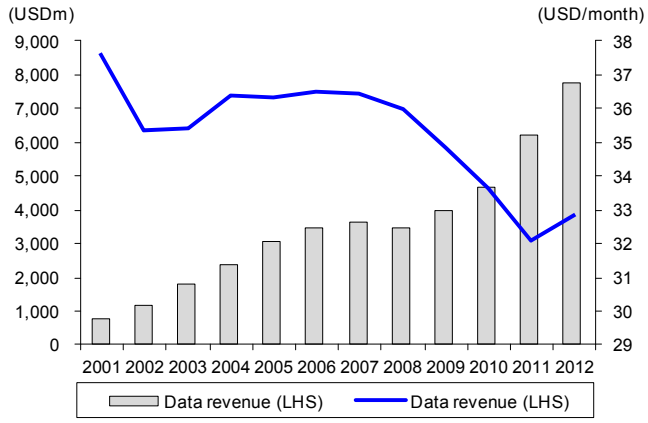
Source: Company data

Do better networks lead to better earnings?

Better networks not necessarily better for telco profitability

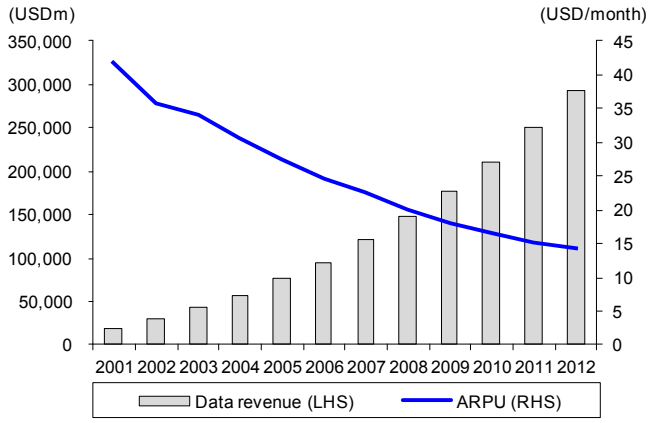
LTE clearly adds to network capability, but it remains to be seen whether it will lead to a proportional increase in profitability. Telco ARPUs have been rising since the launch of LTE services, mainly because LTE plans generate higher tariffs than 3G plans and do not offer unlimited data. How long and high they will grow remains a question, however. We expect telco ARPUs to jump an average of 7.4% in 2013, but increases to slow to 3.1% in 2014 and 2.5% in 2015 as: 1) LTE conversion should be largely completed by the end of 2013; and 2) it will not be easy for telcos to charge additional fees (besides tariffs) due to their deteriorating position in the content-platform-network-terminal (CPNT) value chain.

Chart 86. Korea: Data revenue and total ARPU



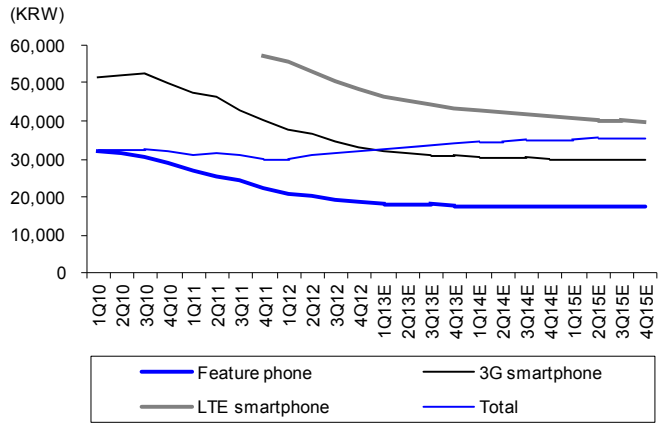
Source: SA

Chart 87. World: Data revenue and total ARPU



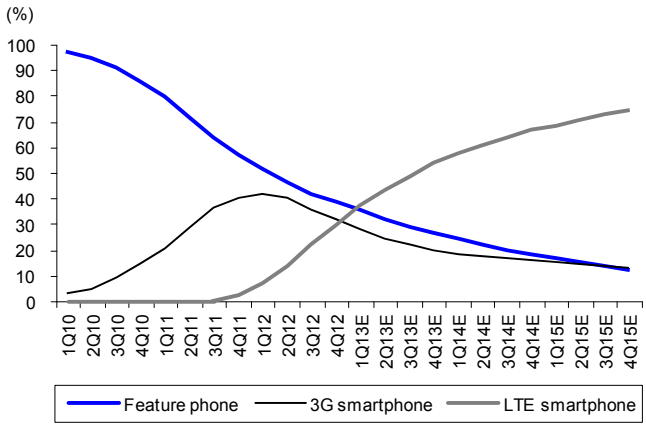
Source: SA

Chart 88. Korea: ARPU forecasts, by network and handset type



Source: Company data, Samsung Securities estimates

Chart 89. Korea: Subscriber forecasts, by network and handset type



Source: Company data, Samsung Securities estimates

Table 18. Korea: ARPU and subscriber forecasts, by network and handset type

	1Q12	2Q12	3Q12	4Q12E	1Q13E	2Q13E	3Q13E	4Q13E	1Q14E	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15E	4Q15E
Total subscribers	**52,709**	**52,999**	**53,278**	**53,624**	**53,940**	**54,230**	**54,498**	**54,745**	**54,970**	**55,179**	**55,373**	**55,553**	**55,718**	**55,872**	**56,016**	**56,152**
Feature phone	26,991	24,664	22,402	20,897	19,309	17,693	16,051	14,511	13,249	12,037	10,868	9,709	8,844	7,971	7,120	6,448
3G smartphone	22,117	21,245	19,159	16,916	15,146	13,508	12,047	10,833	10,210	9,670	9,183	8,734	8,338	7,807	7,516	7,240
4G smartphone	3,602	7,089	11,718	15,811	19,484	23,028	26,399	29,401	31,512	33,472	35,321	37,110	38,536	40,094	41,380	42,464
Portion (%)																
Feature phone	51.2	46.5	42.0	39.0	35.8	32.6	29.5	26.5	24.1	21.8	19.6	17.5	15.9	14.3	12.7	11.5
3G smartphone	42.0	40.1	36.0	31.5	28.1	24.9	22.1	19.8	18.6	17.5	16.6	15.7	15.0	14.0	13.4	12.9
4G smartphone	6.8	13.4	22.0	29.5	36.1	42.5	48.4	53.7	57.3	60.7	63.8	66.8	69.2	71.8	73.9	75.6
Total ARPU	**29,863**	**30,911**	**31,165**	**31,601**	**32,018**	**32,582**	**33,293**	**33,932**	**34,193**	**34,462**	**34,706**	**34,976**	**35,169**	**35,415**	**35,655**	**35,845**
Change																
(% q-q)	(0.1)	3.5	0.8	1.4	1.3	1.8	2.2	1.9	0.8	0.8	0.7	0.8	0.6	0.7	0.7	0.5
(% y-y)	(3.0)	(0.5)	1.5	5.7	7.2	5.4	6.8	7.4	6.8	5.8	4.2	3.1	2.9	2.8	2.7	2.5
Type																
Feature phone	(7.1)	(1.6)	(6.5)	(2.7)	(2.2)	(0.5)	(0.3)	(0.2)	(0.1)	(0.0)	0.1	0.2	0.1	0.2	0.3	(0.2)
3G smartphone	(6.1)	(3.1)	(5.7)	(4.3)	(2.9)	(1.9)	(1.1)	(0.6)	(0.9)	(0.6)	(0.6)	(0.3)	(0.2)	0.3	(0.2)	(0.1)
4G smartphone	(3.3)	(4.2)	(5.3)	(3.8)	(4.1)	(3.2)	(2.0)	(1.7)	(1.8)	(1.5)	(1.4)	(1.2)	(0.9)	(0.8)	(0.5)	(0.4)

Source: Company data, Samsung Securities estimates

Telco limitations and opportunities

Killer content for LTE networks could spawn plethora of opportunities

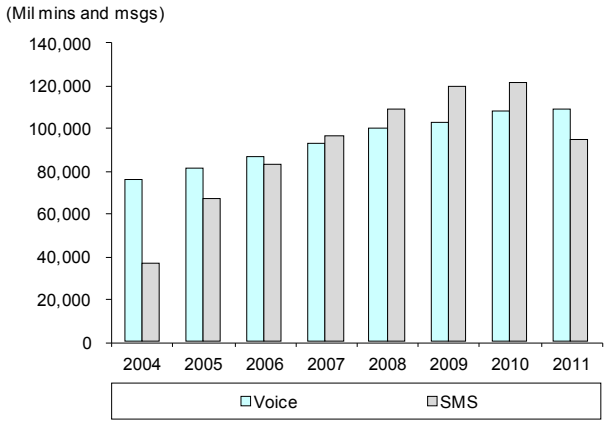
Some say network advances will encourage data downloading, benefiting network providers. This may be why telcos are moving toward data-based tariffs, offering unlimited calls and text messages but charging users commensurate to data usage. At the same time, however, pricing competition is likely and there has as of yet been no visible increase in data usage. Moreover, content-usage patterns between 3G and LTE users differ little, which we believe is because no killer content has been developed to exploit the advantages of the LTE network. If and when such content emerges, data demand should grow, and telcos should find a new plethora of opportunities, but for now we are less optimistic about this than many in the market.

Table 19. SKT: Intra-network unlimited voice plans vs LTE plans

Monthly charge (KRW)*		Voice (min)**		SMS (msgs)		Data (GB)	
Unlimited voice	LTE	Unlimited voice	LTE	Unlimited voice	LTE	Unlimited voice	LTE
27,800	27,000	80	120	Free	200	0.55	0.55
33,750	31,500	130	180	Free	200	1.1	1.1
40,750	38,500	180	250	Free	250	2	2
48,250	46,000	280	350	Free	350	5	5
56,250	54,000	380	450	Free	450	8	9
65,000	65,000	500	650	Free	650	12	13
76,000	76,000	80	120	Free	200	0.55	18

Note: * Excluding basic discounts
** Intra-network calls are free
Source: Company data

Chart 90. Korea: Voice and SMS usage



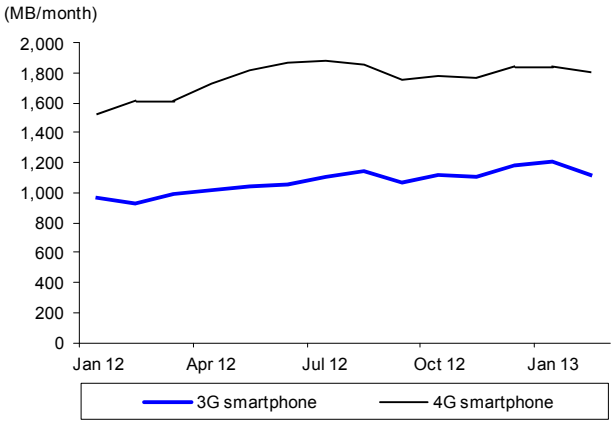
Source: KCC

Chart 91. Korea: Average times of use, by application—3G vs LTE users

(Min/day)	LTE user	Comparison	3G user	Difference
Voice	43.33	≒	42.75	0.58
SMS	17.8	<	19.73	1.93
Messenger	13.75	≒	14.72	0.97
Music	5.25	≒	4.7	0.55
SNS	4.92	>	3.4	1.52
Information	3.74	≒	4.2	0.46
Games	2.69	≒	2.77	0.08
TV/radio	1.55	≒	1.75	0.2
Movie/video	1.32	≒	0.86	0.46
Other	2.5	≒	2.43	0.07
Total	96.85	≒	97.31	0.46

Source: KISDI

Chart 92. Korea: Average data use per month—3G vs LTE users

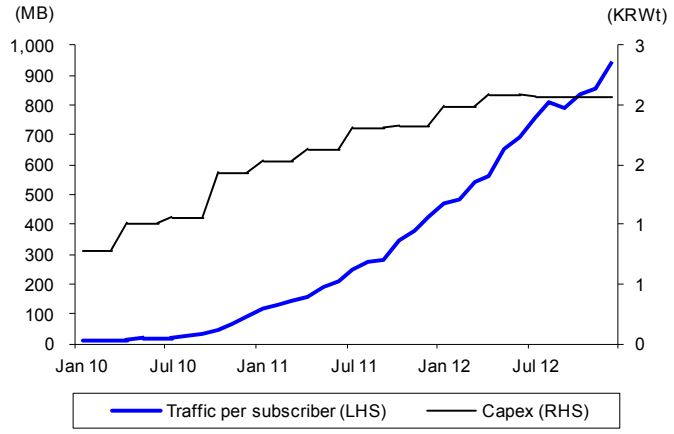


Source: KCC

Billing data creators for network usage unlikely in near term

News that Chinese telcos are seeking to charge data creators network-usage fees on WeChat—as Orange has done with Google in France—has heightened interest in network neutrality. However, we believe it will be a long time before Korean telcos can charge such fees, given the differences between the government stances and levels of competition among the countries. In Korea, the leading network operator (SK Telecom) controls more than 50% of the market—compared to 42% in France, 35% in Italy, 32% in Germany, and 29% in the UK—so the Korean government is unlikely to let telcos self-govern network neutrality. Indeed, the new government's ICT policy focuses on maintaining the principle of net neutrality and nurturing content providers.

Chart 93. Korea: Traffic per subscriber vs telco capex*



Note: * Moving average for SKT, KT, and LG Uplus combined
Source: Company data, KCC

Table 20. Korea: Net neutrality guidelines

Principle	Note
User rights	All users have the right to freely use any legally accessible content, applications, and services with any device that does not harm the network
Management transparency	Network operators should disclose traffic management policies
Content blocking	Network operators should not block any legally accessible content, applications, services, or devices that do not harm the network
Discrimination	Network operators should not unreasonably discriminate between any traffic by content, application, or service, or according to content type or provider
Differentiated service	Network operators may provide differentiated services, provided basic network quality for normal users is guaranteed at a certain level

Note: Exceptions to content-blocking and discrimination guidelines can be made for purposes of network management; these exceptions, as well as the differentiated service principle are favorable for telcos
Sources: KCC

MNO business model evolving: SK Telecom

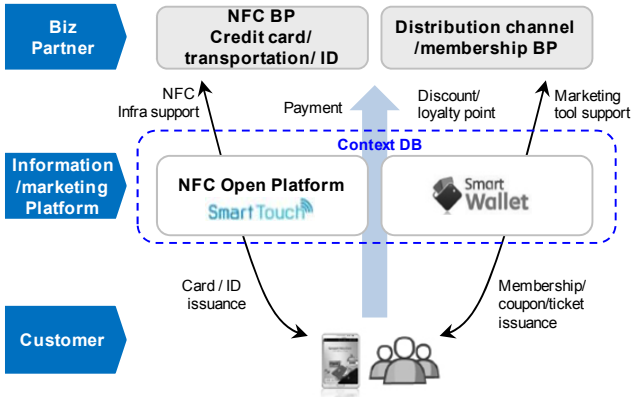
The mobile network operator (MNO) model under which telco charge subscribers fees for network usage is revealing growth limitations in a changing business environment, and in response telcos are diversifying into platform and content businesses. SKT has made the greatest progress, offering through subsidiaries the nation's largest app store (T-store), navigation service (T-map: 6m users), and online mall (11st: 30% market share), and online music service (Melon). The sales these businesses currently generate are too small (compared to the MNO business) to drive growth, but should lay the groundwork for longer-term growth in a changing ICT ecosystem.

We believe telcos have a strong chance of success in the mobile payment market, as: 1) they possess a larger customer base than credit/debit card firms, which operate in a highly fragmented market; and 2) the subscriber identification modules in mobile phones—*ie*, SIM cards—should simplify security and authentication processes. SKT's Smart Wallet, for example, is already attracting a growing number of partners and users, and has the potential to become an NFC-based payment tool. If it can carve out a presence in the mobile payment market, SKT should be able to utilize payment data to create numerous business opportunities in the marketing/advertising arena.

Chart 94. SKT: Major subsidiaries and content

Source: Samsung Securities

Chart 95. SK Planet: Mobile payment business structure



Source: Company data

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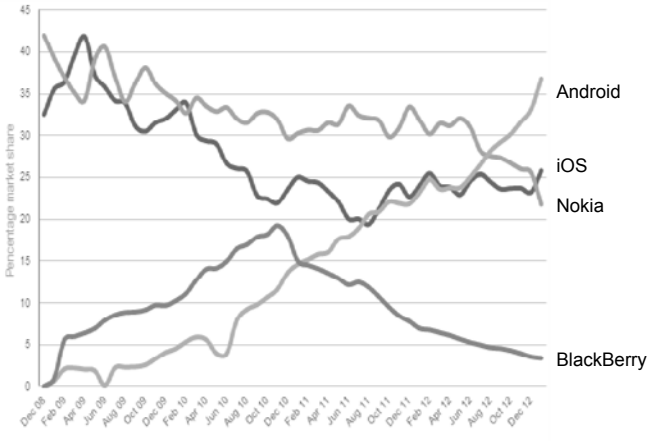
Android to gain further market share, despite fragmented global OS market amid disparate preferences and market environments

5. Software big bang

Mobile environment varies by nation

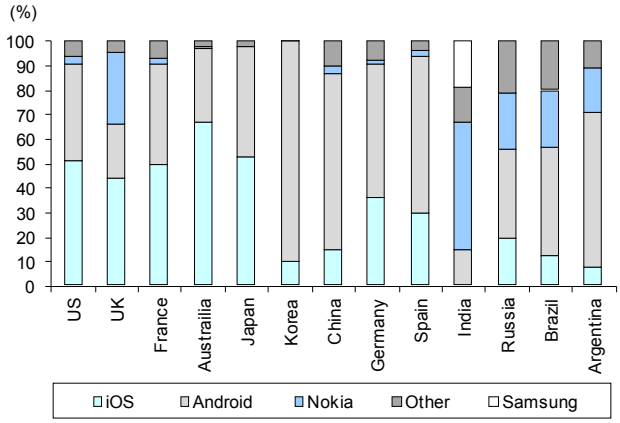
Mobile environments vary by nation, as is seen smartphone operating systems (OS), with Google's Android accounts for over 90% of the Korean market thanks to the dominance of Samsung Electronics (SEC) and Apple's belated response—although the latter's iOS remains prevalent in North America and Europe. Feature phone leader Nokia sees its Symbian OS remain dominant in emerging markets (EMs such as India, Russia and Brazil) where low-end handsets abound. We expect the global OS market to remain fragmented for some time, as preferences and market environments differs by nation, while handset makers concerned over Android's growth are considering adopting new OSs (*eg*, Tizen and Ubuntu). That said, Android should continue to gain market share as most smartphone makers (except Apple) prefer the open-source OS.

Chart 96. Global mobile OS market



Source: ICrossing

Chart 97. Mobile OS market share, by nation



Note: As of February
Source: ICrossing

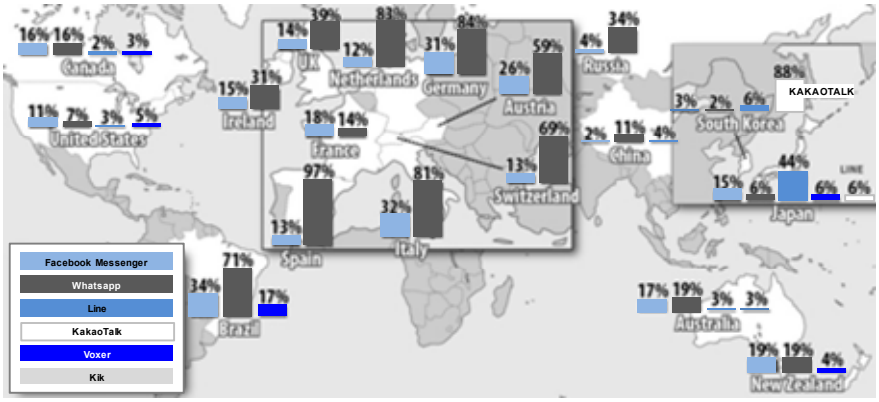
MIM players going global

LINE and WeChat seeing greatest growth, although MIM dominance varies by region

Mobile instant messenger (MIM) players dominant in their respective local areas are striving to go global, with key players in North America, and Europe being WhatsApp, Facebook Messenger, and Skype, while Korea, Japan, and China are dominated by KakaoTalk, LINE, and WeChat, respectively. Local players perform well in Asia, which we attribute to language and culture, but they now seek to expand globally—notably LINE and WeChat, which are backed by the capital of their parent firms NHN and Tencent, respectively, with aggressive incursions into Europe and the US by offering subscribers free services, so we expect them to face direct competition with the regional firms mentioned above.

WhatsApp dominates in Spain with a market share that exceeds 90%, but LINE and WeChat still have opportunities there as the former recently shifted its Android version to partial monetization and suffered a temporary server disruption earlier this year. Moreover, WhatsApp now charges 99 cents for one-year of Android service, after previously offering the first year of service for free—unlike Apple's version, which only charges for downloads. Unlike WhatsApp, LINE and WeChat offer free, diverse content including emoticons, free voice calls, and games, so more WhatsApp user defections are likely.

Chart 98. MIM market share, by nation



Note: As of Dec 2012
Source: Onavo, Tech Crunch

Cultural differences give MIMs disparate usage patterns in North America

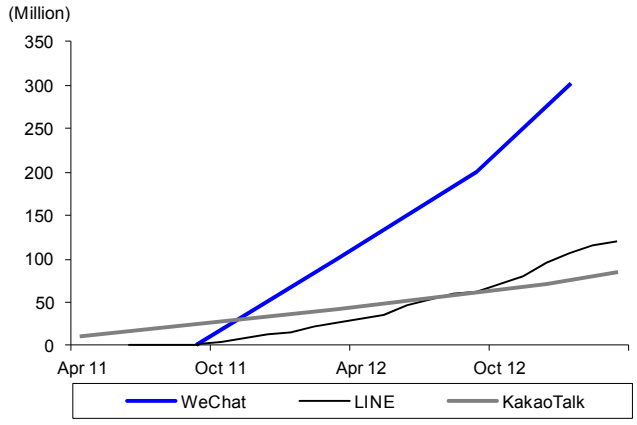
Despite North America's high smartphone penetration, MIM usage is low there, which we attribute to cultural reasons and the preference of SNS services on Facebook or Twitter over chatting. Still, Asians and Hispanics in North America are relatively heavy MIM users, so if differentiated mobile messengers are rolled out there, we would expect the subscriber base to expand to other demographics including Caucasians.

Table 21. Global MIM players

	LINE	KakaoTalk	WhatsApp	Facebook Messenger	WeChat (Weixin)	Skype	Viber	Google Talk	iMessage
Developer	NHN	Kakao	WhatsApp	Facebook	Tencent	Skype	Viber	Google	Apple
Major market	Japan	Korea	US	US	China	US	US	US	US
Download fee	None	None	USD0.99	None	None	Free to download, costs to use	None	None	None
Supporting OS	Android, iOS, Blackberry, Windows	Android, Bada, iOS, Blackberry, Windows	Android, iOS, Blackberry, Nokia, Windows	Android, iOS, Blackberry	Android, iOS, Blackberry, Nokia, Windows	Android, iOS, Blackberry, Symbian, Windows, Kindle Fire	Android, iOS, Blackberry, Nokia, Windows, Bada	Android, iOS (Web), Blackberry	iOS
Features									
Messaging	✓	✓	✓	✓	✓	✓	✓	✓	✓
Voice call	✓	✓	×	×	✓	✓	✓	✓	✓
Group chatting	✓	✓	✓	✓	✓	✓	✓	✓	×
Multimedia transmission	✓	✓	✓	✓	✓	✓	✓	✓	✓
Location transmission	✓	×	✓	×	×	×	✓	×	×
Emoticons	✓	✓	✓	✓	✓	×	×	×	×
Games	✓	✓	×	×	×	×	×	×	×
Advertising	✓	✓	×	×	×	×	×	×	×
Social networking	×	✓	×	✓	✓	×	×	×	×
Gift giving	×	✓	×	×	×	×	×	×	×
PC compatibility	✓	×	×	✓	✓	✓	×	✓	×
Video phone	×	×	×	×	✓	✓	×	✓	✓
Auto friend registration based on phone book	✓	✓	✓	×	×	×	✓	×	✓
Search for nearby users	×	×	×	×	✓	×	×	×	×
Facebook connect	×	×	×	✓	✓	×	×	×	×

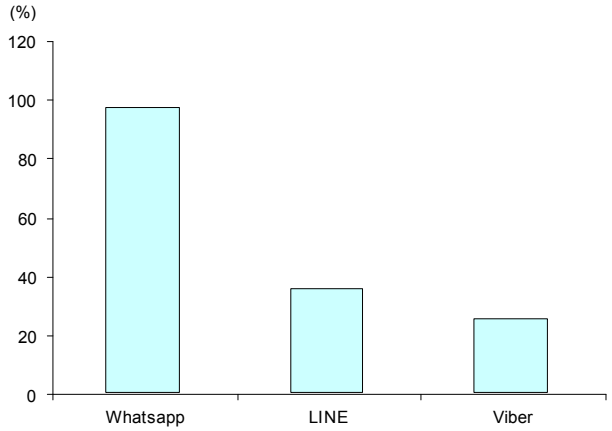
Source: Company data

Chart 99. Global MIM users



Source: Company data

Chart 100. MIM penetration rates (Spain)



Note: As of 4Q12
Source: Mobidia

Expanding role of global MIMs

MIM firms developing various business models to evolve into content hubs

MIM players have rapidly expanded their subscriber bases by offering multimedia transmissions (*eg*, video and images) and various functions not offered by existing text messaging services (*eg*, group chatting, emoticons). These firms are morphing into content hubs by developing diverse business models (*eg*, sending gifts, providing shopping information) and offer games using social graphs. For example, LINE currently provides games and fortune telling, and should eventually offer movies and music, while KakaoTalk offers emoticons, games, and shopping information. Given high usage rates and time spent, the transition to sub platforms appears natural, while offering diverse content on single platforms should also create synergies.

We note that on Apr 1 LINE began selling GD emoticons to promote Korean singer G-Dragon's new song MichiGO, with users who made the purchase able stream and download the song and related video. The promotion went over well, with the emoticon becoming a top seller in Korea and Japan and ending up a win-win situation for the artist and company alike—*ie*, G-Dragon successfully promoted his new song to LINE's 100m subscribers, while the latter made substantial emoticon sales. We believe the promotion's success points to LINE's enormous mobile content platform potential, while simultaneously marking the birth of a new business model that combines platform and content (vs a simple ad model).

Table 22. Korea: Mobile application usage rates

Rank	Application	Provider	Net users	Use rate (%)	Total time spent (*1000)
1	Market	Android	21,727,565	98.4	744,871
2	KakaoTalk	Kakao	21,446,319	98.9	24,972,477
3	Phone book	Android	21,390,677	98.8	3,049,747
4	KakaoStory	Kakao	15,664,127	94.0	3,808,337
5	Google Search	Google	15,567,626	72.2	154,525
6	Calendar	Android	14,585,042	71.0	251,939
7	YouTube	Google	14,473,951	66.6	1,477,120
8	Naver	NHN	12,863,723	96.1	7,892,402
9	Camera	Samsung Electronics	12,785,460	96.9	371,411
10	Video Player	Samsung Electronics	11,858,737	89.2	1,704,210

Note: Based on Android users; as of March
Source: Nielsen KoreanClick

Chart 101. Expanding platform role of MIMs

KakaoTalk: Games

KakaoTalk: Gifts

KakaoTalk: E-Commerce

KakaoTalk: Advertising

Source: Company data

Chart 102. LINE: E-comics

Source: Company data

Chart 103. LINE: Cross promotion

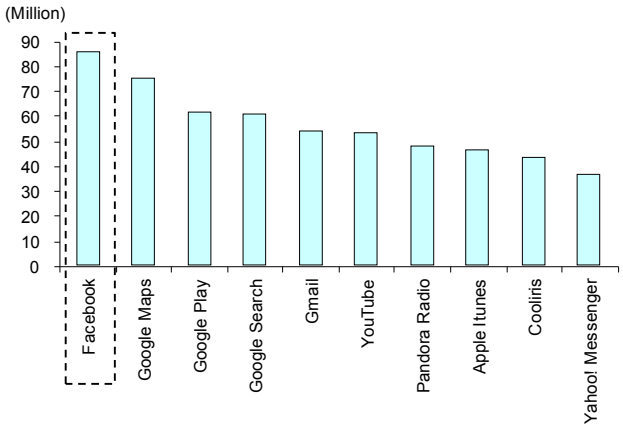
Source: Company

Facebook emerging as mobile challenger

Facebook update leads to increased traffic share and mobile ad sales

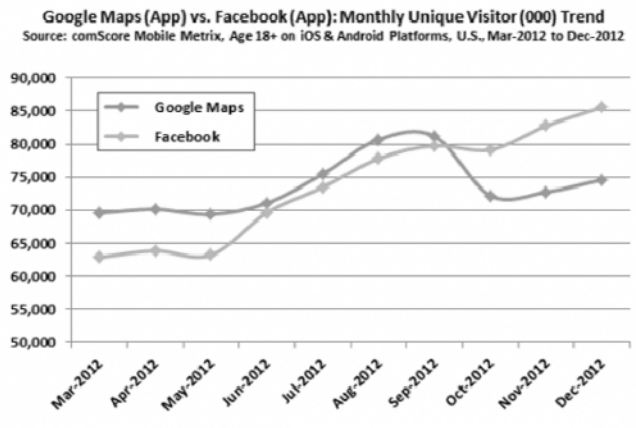
North America's most popular smartphone application is Facebook, and while Google saw its unique visitors via PCs exceed 170m in January (vs Facebook's 160m), their roles are reversed on mobile platforms. We believe this indicates a preference to communicate in the smartphone environment, whereas information gathering dominates in the PC world. During its mobile nascence, Facebook disappointed by failing to create a profit model that could rapidly exploit traffic growth, but it has since aggressively adapted, and in Sep 2012 launched new applications to enhance speed and messenger functionality. Subsequently, Facebook saw its mobile ad sales portion jump from 14% in 3Q to 23% in 4Q, and ought to grow further in tandem with mobile traffic growth.

Chart 104. Mobile application ranking (US)



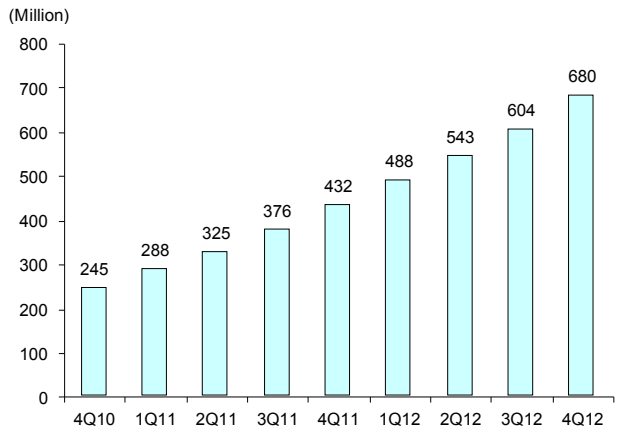
Source: Based on unique visitors; as of Dec 2012
Source: ComScore

Chart 105. Unique visitors on Facebook mobile and Google Maps



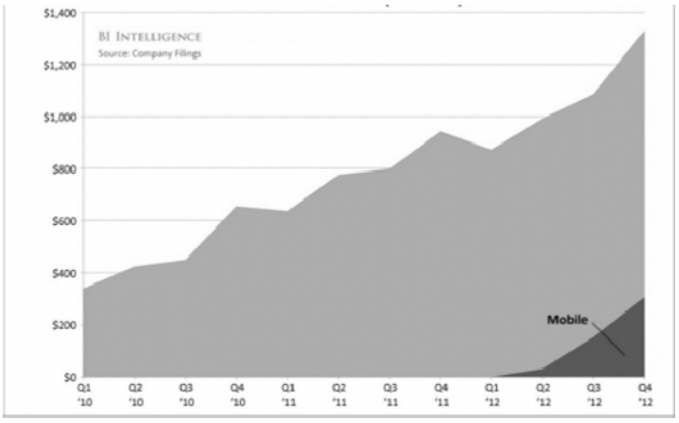
Source: ComScore

Chart 106. Facebook: Mobile monthly active users (MAU)



Source: Facebook

Chart 107. Facebook: Advertising revenue



Source: Business Insider

Facebook has bolstered its mobile messenger functionality, and in Sep 2012 enabled users to send text messages to friends listed in address books, and is beta testing mobile Internet call services (M-VoIP) in Canada and the US. In early April, the company began offering Facebook Home, which is a launcher that allows users to customize smartphone home screens.

Facebook to eventually clash with domestic MIMs

We expect Facebook to eventually come into conflict with domestic MIMs as the business models of the latter evolve from messenger to platform, while the former's highly loyal user base across North America and Europe already serves as entry barriers in those regions, which have strong online human network. Korean players striving to go global, especially in those regions, have to not only compete with global MIMs like WhatsApp, but also with SNS firms like Facebook.

Reshuffling of content provider market

WeChat's game center to favor large mobile gaming players able to develop unique, sophisticated titles, unlike smaller firms

WhatsApp charges for its usage, whereas WeChat is free and utilizes a game center that collects commissions from game developers (à la KakaoTalk and LINE), and apparently is able to weather initial financial burdens (unlike WhatsApp) thanks to the substantial capital of Tencent Games. This differs from the US and Europe as Chinese users are rarely willing to pay for mobile applications.

If more MIM firms adopt free service models, demand for high-profit content like games should grow further, and subsequently increase the interest in game development firms able to develop mobile games by utilizing the social graphs of MIMs. However, as has been seen with LINE, mobile platform firms are likely to pursue profit maximization by developing easy-to-copy mobile games like puzzles, and highly-capable game developers like Tencent might pursue in-house-game-oriented content sourcing strategies. Growing content demand from platform firms is therefore only likely to favor large mobile gaming firms able to develop unique, sophisticated games (unlike smaller players).

Game genres becoming more diversified

IT hardware development to foster genre diversification in mobile game market

Trading card (TCG), RPG, and sports games or combinations of these genres are gaining popularity in Korea's mobile market that has long been dominated by light games (*eg*, SNG, puzzles, racing). This trend began abroad and appears attributable to the growing demand for complex, sophisticated entertainment. We do not see this as a shift in game popularity, but instead believe it points to genre diversification and could be further lifted by IT hardware advancements. Larger smartphone screens and greater tablet penetration should boost the demand for 3D MMORPGs—the development for which has been limited by screen and control restraints—while CPU and GPU enhancements ought to spur the development of FPS and RPG games (as they require high-performance graphic engines). Moreover, rapid LTE penetration is likely to better enable multi-play gaming that requires real-time, high-density traffic processing and eventually lead to the true synchronization of fixed-line and wireless games.

Table 23. Top-ten grossing games on Google Play (US)

Rank	Game	Publisher	Genre
1	Candy Crush Saga	King.com	Puzzle
2	Marvel War of Heroes	Mobage	TCG
3	Blood Brothers (RPG)	Mobage	RPG
4	Slotomania - slot machines	Playtika	Cards
5	Dark Summoner	Ateam	RPG
6	The Simpsons	Electronic Arts	SNG
7	Rage of Bahamut	Mobage	TCG
8	Megapolis	Social Quantum	City building
9	Slot City - Slots Machines	Dragonplay	Cards
10	The Hobbit: Kingdoms	Kabam	Strategy action

Note: As of Apr 8
Source: App Annie

Table 24. Top-ten grossing games on Apple App Store (China)

Rank	Title	Publisher	Genre
1	My Name is the MT Online	LocoJoy	TCG
2	Big Head	Air & Mud Studio	RPG
3	Dragon Force	com.digitalcloud	RPG
4	Three Kingdoms	RedAtoms	TCG
5	Time and Space Hunter		Action
6	Wolong Yin	UQEE	Strategy
7	Magic Card Fantasy	iFree Studio	TCG
8	The Legend of King	LineKong Entertainment	MMORPG
9	My name is the MT Online (international)	LocoJoy	TCG
10	World Domination	com.digitalcloud	Strategy

Note: As of Apr 8
Source: App Annie

Table 25. Google Play game rankings (Japan)

Rank	Game	Publisher	Genre
1	Puzzle & Dragons	GungHo Online	TCG
2	LINE Pop	LINE	Puzzle
3	ProBaseball Pride	COLOPL	Sports/TCG
4	Secret Treasure Detective	COLOPL	TCG
5	LINE Bubble	LINE	Puzzle
6	Motocycle	Donuts	Casual
7	Tanken Driland	GREE	TCG
8	LINE Wind Runner	LINE	Arcade
9	Dark Summoner (JP)	Ateam	TCG
10	Princess Punt Sweets	GungHo Online	Arcade

Note: As of Apr 8
Source: App Annie

Table 26. Google Play game rankings (Korea)

Rank	Game	Publisher	Genre
1	Wind Runner for Kakao	WeMade	Action
2	ChaChaCha for Kakao	CJ E&M	Racing
4	Hello Heroes for Kakao	Fincon	RPG
3	Million Arthur	Actoz Soft	TCG
6	Bow for Kakao	4:33	Action
5	Fish Friends for Kakao	NHN	Fishing
7	Every Town for Kakao	WeMade	SNG
9	Help! Animal Rangers for Kakao	CJ E&M	Adventure
8	Wooparoo Mountain for Kakao	NHN	SNG
4	Ani Pang for Kakao	SundayToz	Puzzle

Note: As of Apr 8
Source: App Annie

Market environment favors larger players

Large mobile game players should have an edge over smaller competitors as MIM diversifies increases their influence

We see three reasons that larger gaming firms with stable capital and able to developing diverse games will have an edge over smaller competitors amid a changing market environment—*ie*, established and new MIMs are wielding greater influence. First, gaming firms need large R&D staffs and enough time to develop titles for diverse mobile messenger platforms. Second, diverse marketing strategies are essential as new offerings on Kakao Talk's game center are no longer unique as it offers over 100 titles. Accordingly, banner advertising in partnership with Kakao or online-offline combination marketing campaigns are becoming ever more important. We would expect strategies to raise brand recognition as a way to boost downloads during initial mobile game stage to prove effective. Third, diverse games genres are gaining popularity, which means the ability to develop such games ought to become critical.

Table 27. Apple App Store game rankings (Korea)

Rank	Game	Publisher	Genre
1	Million Arthur	Actoz Soft	TCG
2	Hello Heroes for Kakao	Fincon	RPG
3	Bow for Kakao	4:33	Action
4	Puzzle & Dragons	GungHo Online	TCG
5	Card Load Three Kingdoms	Red Atoms	TCG
6	Devil Maker	Pample	TCG
7	Heroes Wars for Kakao	Com2us	RPG
8	Wind Runner for Kakao	WeMade	Action
9	CookieRun for Kakao	Devsisters	Arcade
10	Ani Pang for Kakao	SundayToz	Puzzle

Note: Darkened lines represent large-and-medium sized developers and subsidiaries; as of Apr 8
Source: App Annie

Table 28. Google Play's game rankings (Korea)

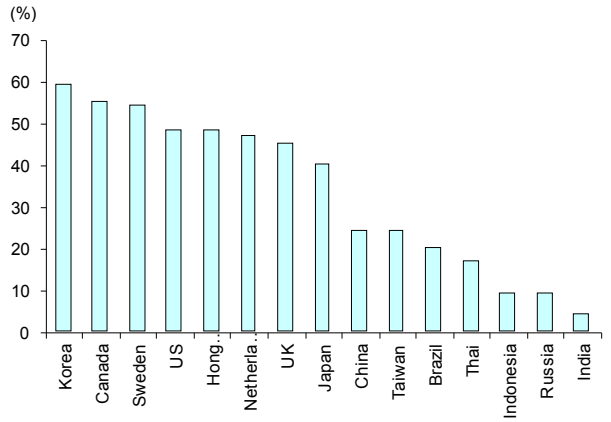
Rank	Game	Publisher	Genre
1	Wind Runner for Kakao	WeMade	Action
2	ChaChaCha for Kakao	CJ E&M	Racing
4	Hello Heroes for Kakao	Fincon	RPG
3	Million Arthur	Actoz Soft	TCG
6	Bow for Kakao	4:33	Action
5	Fish Friends for Kakao	NHN	Fishing
7	Every Town for Kakao	WeMade	SNG
9	Help! Animal rangers for Kakao	CJ E&M	Adventure
8	Wooparoo Mountain for Kakao	NHN	SNG
4	Ani Pang for Kakao	SundayToz	Puzzle

Note: Darkened lines represent large-and-medium sized developers and subsidiaries; as of Apr 8
Source: App Annie

Rising low-end smartphone penetration to spark mobile revolution in EMs

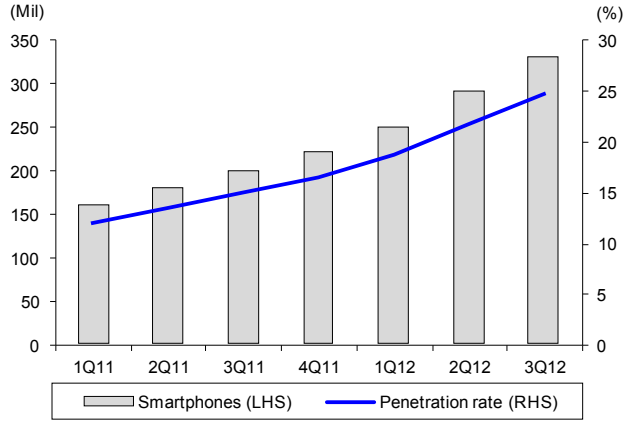
Smartphone penetration rates in developed markets (DMs like the US, Canada, Hong Kong and Korea) is near or over 50%, but those rates in EMs like China and India and throughout Southeast Asia average less than 30% with smartphones typically priced over USD300/unit. We expect the penetration rates in EMs to soon boom, however, as low-end smartphones priced at USD200/unit or less poised to take off.

Chart 108. Global smartphone penetration ratios



Note: As of 4Q12
Source: Informa, Samsung Securities estimates

Chart 109. Smartphone penetration ratio (China)

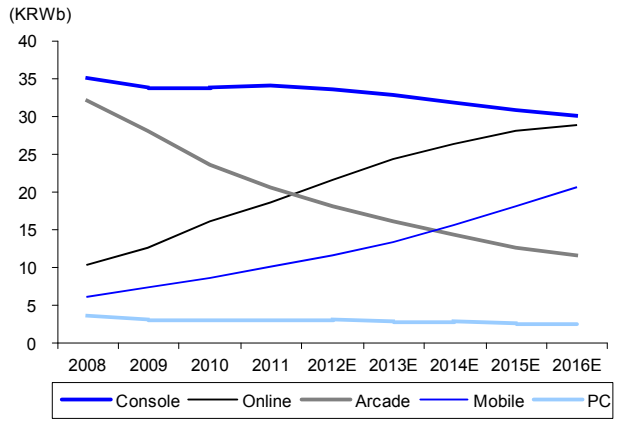


Source: IiMedia, CIA, Samsung Securities

EM smartphone penetration rising on availability of inexpensive models, Korean IT and content firms stand to benefit

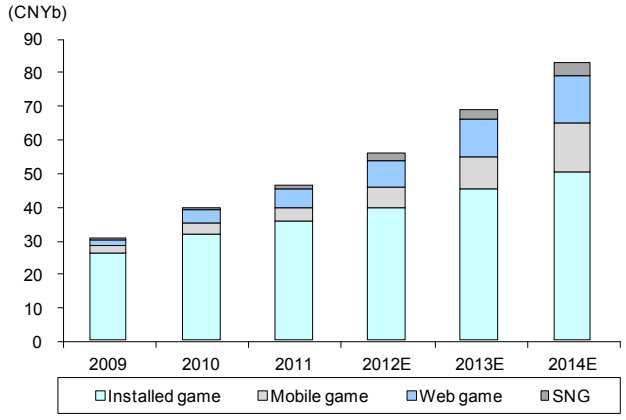
EMs may therefore soon see smartphone revolutions—as were seen in Korea and other DMs over the past several years—that should naturally boost content demand and mobile traffic, which should then lay foundations for developing cloud services and fostering big data industries (albeit with a time lag). We would then expect Korean IT and content firms to see opportunities—thanks to cumulative knowhow gained domestically—including: 1) free messenger service providers like NHN, which enjoys high EM penetration with LINE; and 2) mobile game players with diverse content and developmental knowhow.

Chart 110. Global game market, by platform



Source: 2012 Korea Game White Paper

Chart 111. China's online game market, by platform



Source: Analysys International

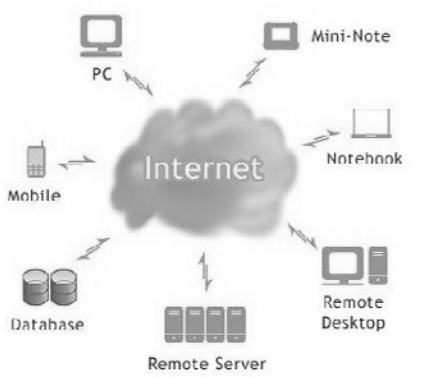
Growing popularity of mobile devices to encourage cloud service market

Cloud storage demand to rise on mobile device usage growth

Embedded memory capacity in mobile devices grew gradually amid technological advancements, but this is unlikely adequate to meet the demand for high-density and high-resolution content. Telecom network development like LTE enables the real-time transmission of full-HD videos. We foresee growing demand for cloud storage businesses that maintain, manage, and make customer data available over networks. These services are provided by diverse firms, including global giants Apple, Google, and Amazon as well as Internet portals and telcos. Customers use clouds to store myriad data (*eg*, pictures, video, and contact information) in central servers and that are easily accessible via sundry devices (*eg*, smartphones, PCs, and tablets).

Cloud storage is a part of cloud computing, and once the latter becomes ubiquitous, customers can not only utilize innumerable programs (except OS), but also do complex calculations on their own devices. Moreover, users should be able to utilize costly programs inexpensively and accomplish task that would otherwise require a super computer. Many firms provide complimentary cloud computing services as the business is still in its infancy, but we expect it to eventually become a major revenue source.

Chart 112. Cloud computing



Source: Samsung Securities

Table 29. Personal cloud storage services

	Daum Cloud	Ndrive	Ucloud	Tcloud	iCloud	Google Drive	Amazon Cloud Dive	DropBox
Company	Daum Communications	NHN	KT	SKT	Apple	Google	Amazon	DropBox
Free storage (GB)	50	30	50	20	5	5	5	2
Size limit per file (GB)	4	4	No	4	No	10	2	No
Direct play	Support	Support	Support	Support	Disable	Support	Support	Support
File link	Disable	Support	Support	Disable	Disable	Support	Support	Support
PC sync	Support	Support	Support	Disable	Support (limited)	Support	Support	Support
Mobile app	Support	Support	Support	Support	iOS only	Support	Support	Support

Source: Company data, Samsung Securities

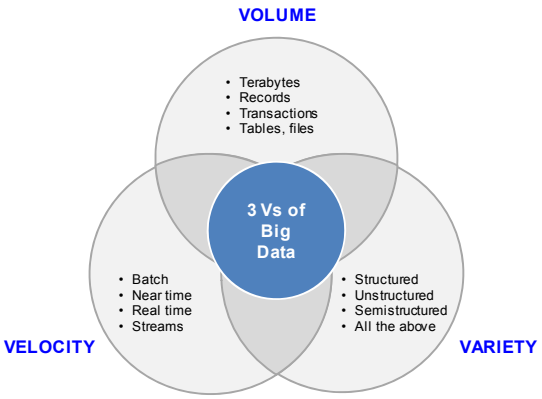
Big data implications

What is big data?

Mobile traffic booming amid rising smart device penetration, which is spurring big data development

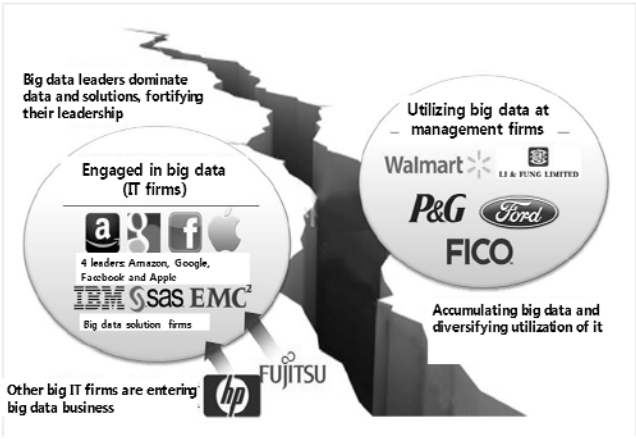
Gartner defines big data as high-volume, high-velocity, and high-variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight and decision making. Such data were previously ignored or deleted due to limitations related with storage, management, and analysis technologies, but they are emerging as crucial resources that may create value based on hardware and software development. Rising smart device penetration has brought about a mobile traffic explosion—*eg*, location information, social graphs made via call/text analysis, searches, and application usage data that are stored indefinitely. Proper processing and analyses of these data may enable firms to better predict consumer needs and spot business trends.

Chart 113. Three features of big data



Source: CIT Soft

Chart 114. Divergence of big data industry



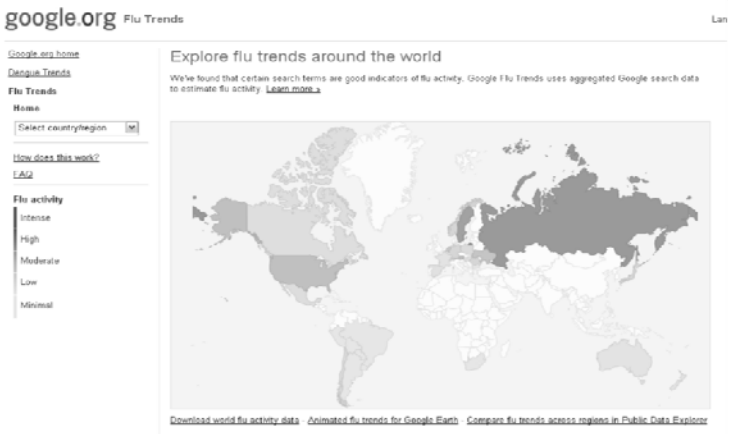
Source: SERI

Applications of big data

Big data uses include trend forecasting

Around 600m people utilize Google daily, generating 1b search words and 7.2b page views, with millions searching for health information. The company's Google Flu Trends aggregates search data to forecast influenza activity globally in near real-time, and it has found a close relationship between how many people search for flu-related topics and how many are actually diagnosed with influenza.

Chart 115. Google Flu Trends



Source: Company data

In the shopping industry, E-bay sends tailored gift recommendations to customers based on their purchase history and social media activity. Amazon recommends books based the search word and shopping histories of its customers, with the recommendation algorithm generates around 30% of its sales, similar to what Netflix does. In addition, Walmart utilizes big data to enhance its inventory management and for real-time monitoring.

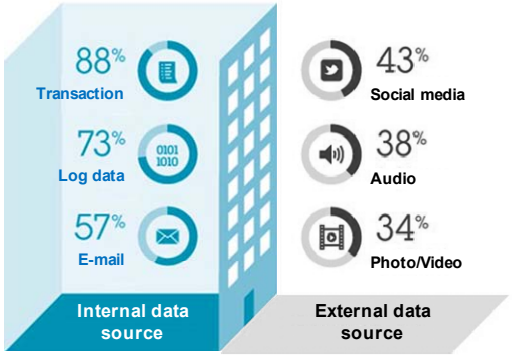
Big data potential of Korean firms

NHN has potential to become Korea's big data leader...

Unlike the firms above, Korean players have yet to aggressively use big data due to insouciance and lack of related technology and R&D staff. We nevertheless believe domestic firms have the potential to become global players once they recognize and pursue the opportunity, with one such player being NHN, which accounts for 70% of Korea's search traffic and collect some 200m queries daily. By utilizing its queries, the company should not only enhance the quality of its search service, but also provide consumption forecasts and trend analyses to other firms. For example, Naver Trend could be used to glean public sentiment for a socially relevant issues, consumer feedback on new products, or voter preferences for political candidates. Although the service is currently free, we believe it could eventually generate revenue once big data analysis becomes mainstream and firms start seeking the service. Another advantage NHN has in big data is its global mobile messenger service LINE, and while around 43% of the company's big data come from SMS sources like Twitter and Facebook, its 100m-plus MIM subscribers and analyses of logs and search keywords could help it create social graphs and subsequently form diverse business models.

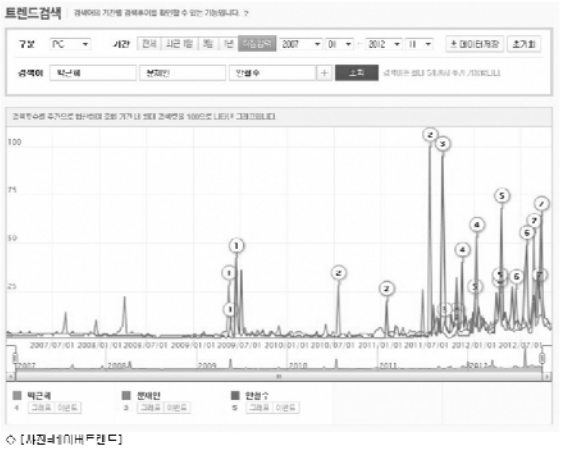
...thanks to Naver, the nation's largest search portal, and LINE

Chart 116. Big data sources



Source: IBM, Analytics

Chart 117. Naver Trend screen shot



Source: Company data

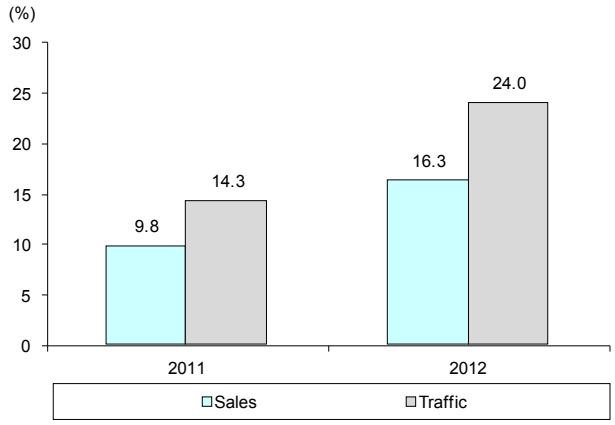
Mobile shopping growth

Rising smartphone penetration positive to mobile shopping market

Nascent domestic mobile market may be lifted by commerce-related infrastructure improvements

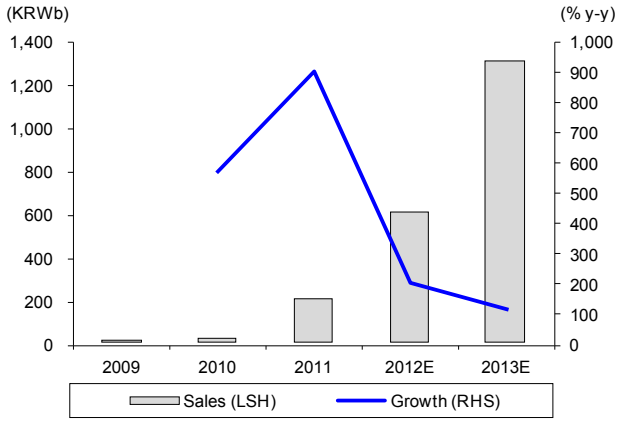
Mobile shopping has flourished globally amid rising smartphone penetration, and IBM reports that among US online shopping malls on Black Friday 2012, the mobile device portion rose 9.7%pts y-y to 24%, while overall online shopping rose 6.5%pts y-y to 16.3%. Korea's mobile shopping market is also seeing rapid growth, going from around KRW200b in 2011 to KRW600b last year according to Korea's Online Shopping Association. The burgeoning domestic mobile market represents just 1.6% of the nation's online shopping market, but its rapid growth could be further lifted once the mobile commerce-related infrastructure improves.

Chart 118. Mobile to online shopping ratios (US)



Note: Black Friday
Source: IBM, Strabase

Chart 119. Mobile shopping market (Korea)



Source: Kolsa

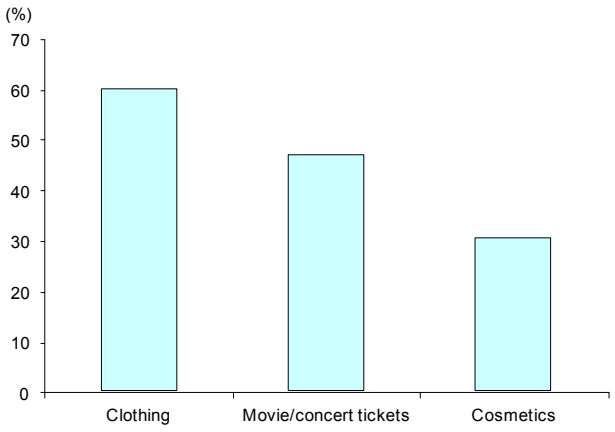
Hardware advances to spur mobile shopping growth

Mobile shopping limitations could be overcome by greater use of phablets

Conversion rates (*ie*, the percentage of visitors that make a purchase) among mobile shoppers using smartphones is just 1/4 of online shoppers that use PCs. Despite mobile convenience, shoppers tend to shun smartphones due to their smaller screens making product reviews and price comparisons more troublesome. Korea's top-selling mobile shopping category is clothing (which has also sold well online), while movie/concert tickets and cosmetics take the second and third spots, respectively, as their quality does not differ by site or by the importance of timeliness.

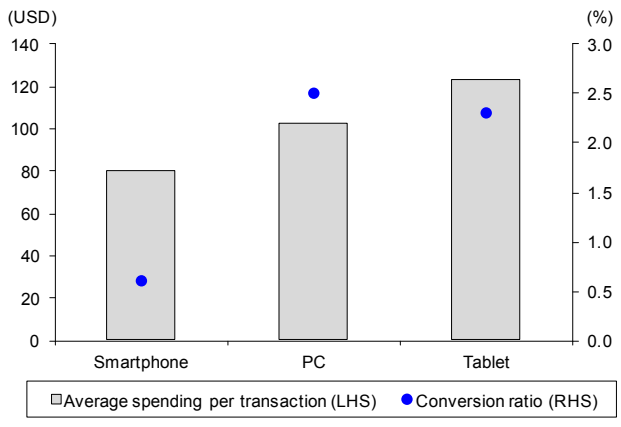
The growing popularity of phablets—*ie*, smartphones with 5-inch screens or larger—was sparked by SEC's Galaxy Note, with LGE, Pantech, and Chinese players like Huawei all joining the competition that has driven a trend toward larger screens. Strategy Analysis (SA) projects the global phablet market soaring from 17m units in 2012 to 53m units in 2015, and with the wide-screened devices enabling greater readability, mobile shoppers should be able to make better-informed decisions.

Chart 120. Popular online shopping items (Korea)



Note: Percentage of visitors making purchases; multiple choice allowed
Source: KCC

Chart 121. Average spending and conversion ratio, by device (US)

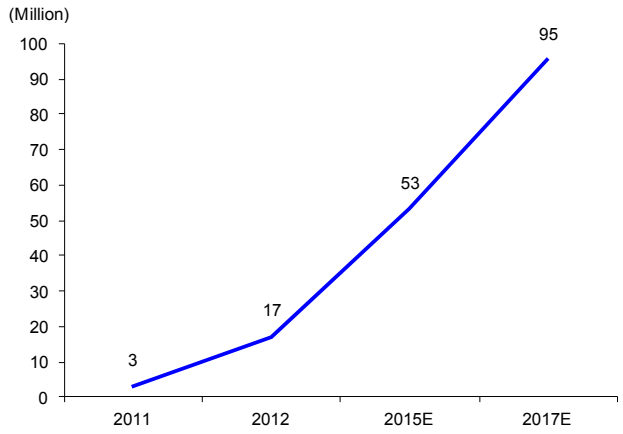


Note: As of 2011
Source: Adobe, Strabase

Mobile shopping to be further boosted by tablet growth

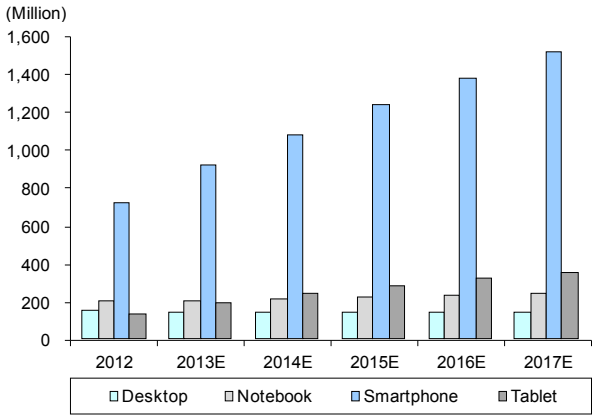
We expect mobile shopping to receive a further lift from tablet growth as the devices offer the mobility of smartphones, screen sizes comparable to PCs, and multiple interfaces (*eg*, touch, sensors, cameras) to enrich a user's experience. Adobe estimates the conversion rate of tablet users being far greater than that of smartphones and on par with that of PCs, and while the average purchase value of mobile shoppers using tablets exceed that of PCs by 21%, we attribute it to the early adapter nature of the former and the purchasing power they have over online shoppers using PCs.

Chart 122. Global phablet market



Source: SA

Chart 123. Global computing device shipments



Source: IDC

Future of mobile shopping

Advance in ITC technology should lead a growth in the mobile shopping market

Convenient payment systems and security are prerequisites to mobile shopping growth, and once these are established, we expect the segment to boom as it offers what online shopping cannot. In an era of one smart device per person, big data analytics and location information should combine to provide sophisticated shopping figures. For example, when new movies are released, push ads offering discounted tickets could be sent to smart device users nearby cinemas who had recently searched for the film or who are frequent cinema goers. Another example could be when temperatures exceed a certain level and coupons are sent out to promote the purchase of ice cream or beverages at nearby convenience stores. Augmented reality technology and quick response (QR) codes should also invigorate mobile shopping growth, with Tesco's temporary virtual store that it set up inside a domestic subway station in 2011 offering a glimpse into the future of QR code-based mobile shopping. Indeed, there may come a day when consumers wearing a device like Google Glass could immediately search and order an item being worn by someone they pass on the street.

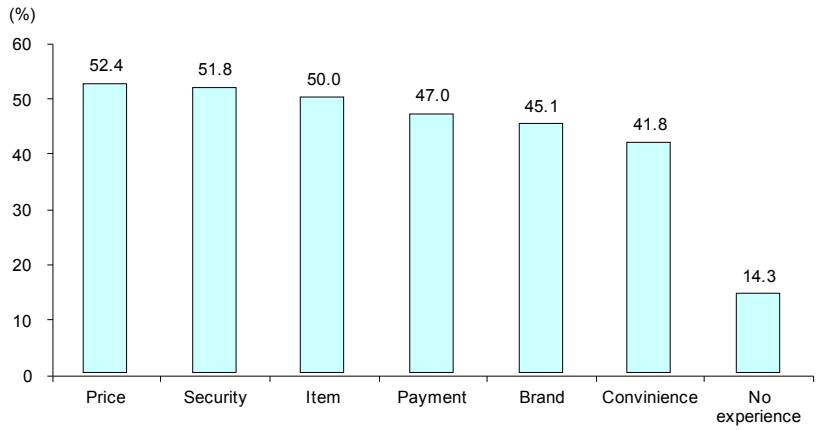
Chart 124. Tesco's virtual store

Source: Company image

Chart 125. Future of mobile shopping using augment reality technology

Source: Wikitude, company image

Chart 126. Survey of mobile shopping criteria



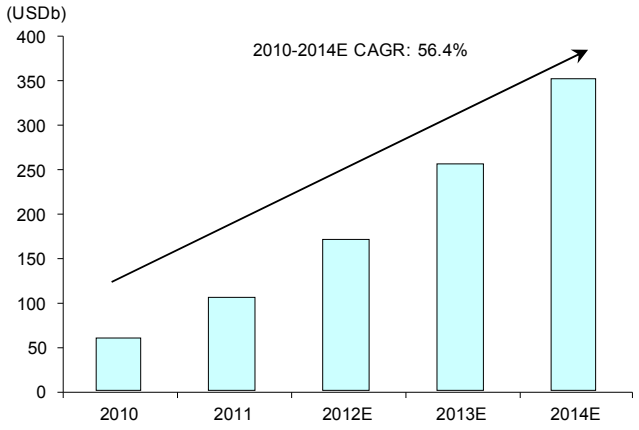
Note: Multiple choice
Source: Prosper Mobile Insight Sep 2012

Mobile payment

Mobile shopping growth to spark mobile payment market

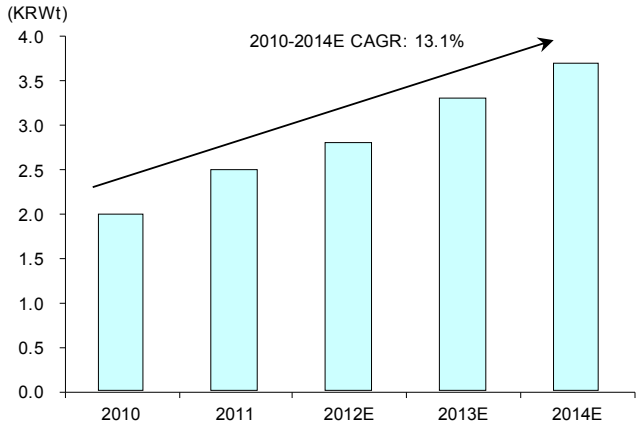
Continual mobile-commerce growth driven by smartphone penetration has increased the need for safe, convenient mobile payment systems, with such systems and security being of concern for a respective 47% and 51.8% of mobile shoppers. Smartphone and tablet growth should spur mobile shopping and thus that of mobile payments, the global market for which will likely bound 49.2% to USD255.8b this year, while that of Korea grows 18% to KRW3.3t.

Chart 127. Global mobile payment market and number of users



Source: Gartner

Chart 128. Mobile payment market (Korea)



Source: Strabase

Mobile payments evolving into mobile banking apps, SMS-based micropayments, e-cash, and mobile credit cards

Types of mobile payment

Banks, credit card firms, telcos, and platform providers have all tried to utilize smartphones as a payment tool, which has led to various mobile payment types, including mobile banking apps, SMS-based micropayments, e-cash, and mobile credit cards.

Table 30. Mobile payments

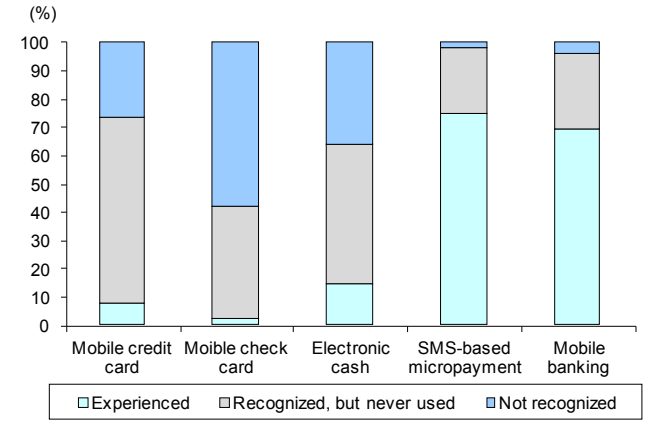
Type	Note
Mobile banking	Transfer money via mobile banking application
Mobile credit card	Pay using downloaded credit card app
In-app payment	Pay for digital contents with ID and password in smartphone apps like iTunes and Google Checkout
SMS-based micropayment	Typical usage includes micropayments with SMS verification
e-cash	Use funds deposited into mobile phone account (*eg*, mobile T-money)
Other	Offline payments via QR codes or barcodes on smartphones

Source: Samsung Securities

Mobile credit cards utilize the same information as traditional plastic cards, but store it on a handset's USIM chip, which not only enables online payments, but also offline one with NFC technology. Mobile cards were initially forecast to supplant cash, but they failed to catch on due to the anemic penetration of NFC smartphones and territorial skirmishes between telcos, financial service providers, payment processors, and retailers. Gartner, IDC, and ABI Research nevertheless still expect market to see significant growth from 2015 —given the convenience of NFC-based mobile payments—which is when NFC handset penetration is forecast to surpass 50%.

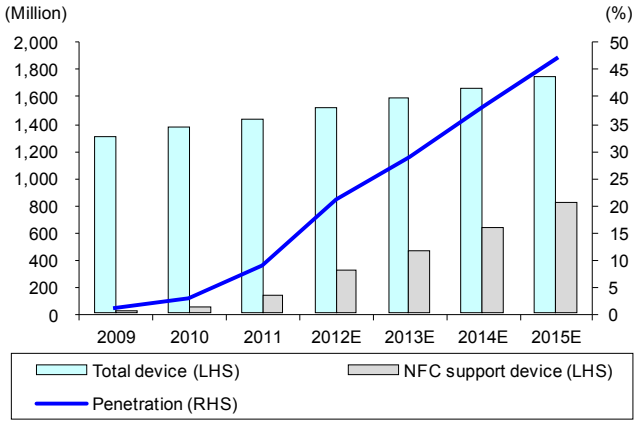
We note the mobile card services Paypass Wallet and V.me by MasterCard and Visa, respectively, which store the credit card information of customers in the cloud and allows them to simply enter an email account and password to make on- and off-line-payments (vs entering a 16-digit card number and PIN). The simplicity and additional security of these services should help them gain popularity before NFC goes into wide usage

Chart 129. Mobile payment awareness (Korea)



Note: Surveyed smartphone users aged 19-59
Source: DMC

Chart 130. Global penetration of NFC-supported device



Source: VisionGain

Domestic mobile payment gateway market poised for growth

Mobile shopping market growth to lead relevant sales growth in payment gateways (PGs)

Despite supporting various forms of mobile payments, smartphones are unlikely to replace offline payments any time soon. The demand for smartphones as an online payment tool should continue to rise, however, as mobile shopping goes mainstream, which bodes well for the growth of payment gateways (PG) services.

PG players contract with credit card companies and handle payments for small shopping malls that lack related systems, with domestic players including KG Inicis, Korea Cyber Payment, and LG Uplus operating mobile payment systems to meet explosive demand. The INIpay system of KG Inicis simplifies mobile payments by storing the credit card information of shoppers after they enter it for their first purchase. The mobile payment sales of PG firms should mushroom as the market will likely become long-tailed (growth in the number of small malls) as was seen in the online shopping market.

Risks to SMS-based micropayment market growth

Rising security concerns a risk for SMS-based micro payments, despite stable growth

Danal and KG Mobillians are domestic SMS-based micro payment service providers, which authenticate payments via text message and bill the purchases on their mobile phone bill. The service is typically used for inexpensive transactions, and since it requires neither a credit card nor initial download process (unlike mobile credit cards), the service is diverse and enjoying stable growth. Danal and KG Mobillians enjoy an oligopoly in Korea thanks to the segment's entry barrier of close relationship with merchants and the two firms' reliable systems. The two firms benefit little from the growing app market, however, due to the in-app payment policies of Apple and Google. Moreover, there are further concerns the security of such payments amid surging text message scams known as smishing (*ie*, spam plus phishing).

Incentives needed to vitalize mobile debit card market

Government needs to provide incentives beyond income tax deductions to stimulate mobile debit card market

Danal and KG Mobillians launched mobile debit card services in January, both of which are accessible through their respective barcode payment apps BarTong and M-Tic and that allow users to make purchases of up to KRW300,000 a day offline using barcodes displayed on their phones—and which are debited to their pre-authenticated account. The services have fizzled, however, due to: 1) Korea having only around 300,000 debit card merchants—vs 2.4m for credit cards; 2) hassles surrounding downloading and obtaining pre-authentication; and 3) the absence of services provided by credit card firms. We believe the government needs to provide incentives beyond income-tax deductions to stimulate the mobile debit card market.

Internet sector top picks

NHN, WeMade Entertainment, and Com2us

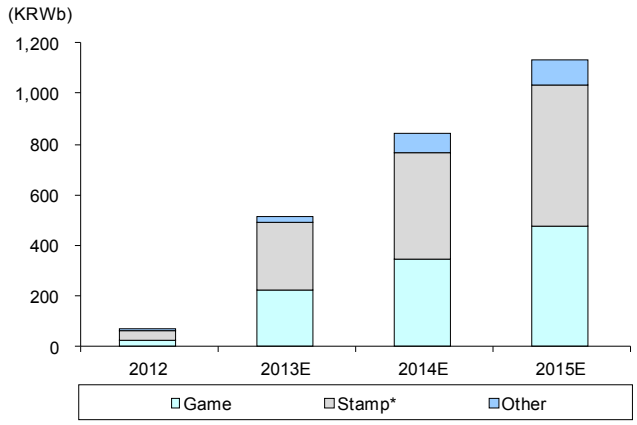
LINE to help NHN become a global content provider

MIM is poised to become more significant and see its role shift from simple messaging to that of a content hub in a smartphone-centered mobile environment. Such a phenomenon was initiated domestically by KakaoTalk, and has since spread to Japan via LINE and China through WeChat, with the trend likely to soon spread across Europe and North America. We also expect EMs (*eg*, Southeast Asia and India) to see similar stories thanks to the penetration of low-end smartphones. All in all, NHN is the most probable Korean firm able to evolve from a domestic portal into a genuine global IT firm, thanks primarily to LINE, its global MIM. We therefore see this as a good time to accumulate the stock as it is still weighed on by concerns over LINE's global success outlook.

Large mobile game players becoming more attractive

Korea's mobile game makers are capitalizing on domestic success to go global, but achieving success overseas may prove difficult, given the: 1) disparate preferences of users in different nations; 2) uniqueness of mobile environments abroad; and 3) competition from local players. Expectations are on the rise for China's mobile game market in anticipation of Tencent's WeChat launching a game center, but we do not expect mobile domestic titles to succeed—unless there are technologically-advanced blockbuster titles—due to pirating and hacking. Among Korean players, WeMade Entertainment and Com2us both possess competitiveness based on their solid game-development capabilities.

Chart 131. LINE sales



Note: * Emoticons
Source: NHN, Samsung Securities estimates

Table 31. Forecasts for domestic mobile game players (2013)

Firm	Developers*	Sales* (KRWb)	New games
WeMade	900	199.2	40
NHN**	400	100.0	50
Com2us	360	123.4	50
Gamevil	150	104.9	50
JCE	100	26.6	12
Actoz Soft	80	112.0	20

Note: * Mobile game related figures
** estimates include Hangame and Orange Crew
Source: Company data, Samsung Securities estimates

■ CONTENTS

6. Media/Entertainment: The final winner

Vibrant mobile market, N-screen services, and K-pop to drive content industry

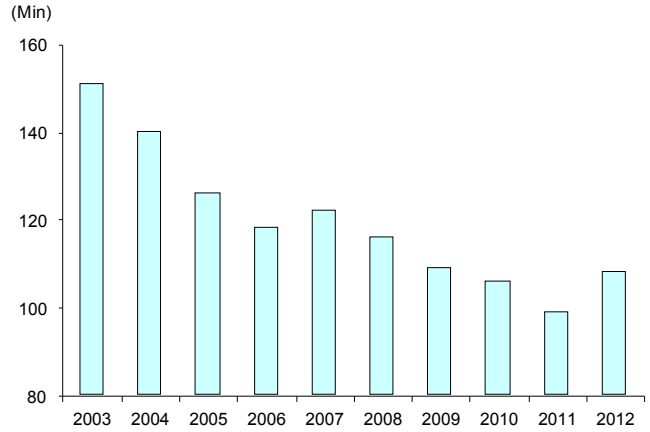
We believe a vibrant domestic mobile market, expansion of N-screen services, and K-pop will drive Korea's content industry going forward, sustaining structural growth in demand and profits at content providers. SBS and CJ E&M should benefit. In addition, a collaboration of entertainment and IT service companies is boosting overseas demand for Korean content, and should ultimately benefit the entertainment industry.

Smart device and LTE penetration increase contents demand

Content demand grows due to growing smartphone penetration

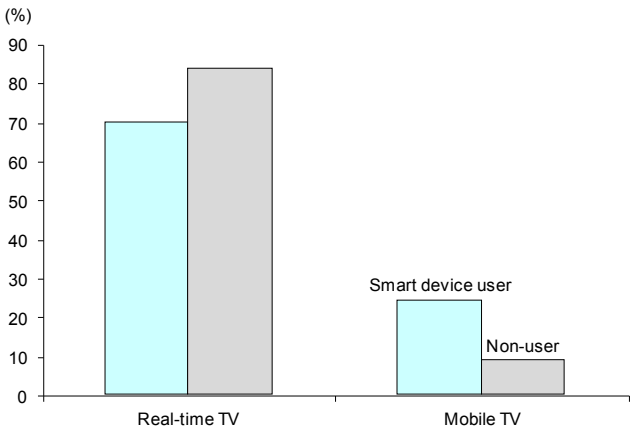
As of Feb 2013, 34m or 63% of Korean cellular phone users used smartphones, and 19m of them subscribed to LTE services. There is a significant decrease in the TV watching time at home, while watching TV with various devices including mobile phones increases.

Chart 132. Korea: Average time per day spent watching terrestrial TV



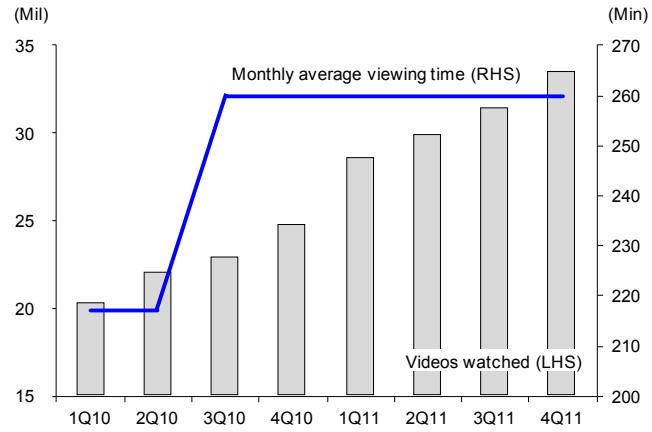
Source: Company data, Samsung Securities

Chart 133. Korea: Viewing of terrestrial TV—real-time vs mobile



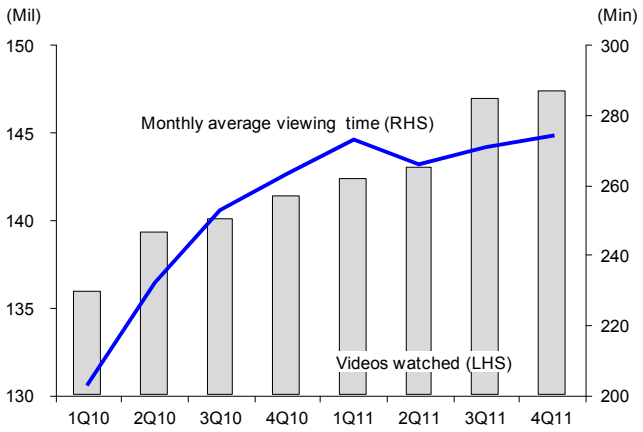
Source: Company data, Samsung Securities

Chart 134. Korea: Handset video-watching trends



Source: Company data, Samsung Securities

Chart 135. Korea: IPTV watching trends



Source: Company data, Samsung Securities

N-screen services a new source of profits

N-screen services make it possible to watch TV anywhere

N-screen services allow users to access broadcasting content via TVs, computers, and other smart devices. SBS's Pooq has 33 channels (including terrestrial stations KBS, MBC, SBS, and EBS) and about 1m paid subscribers. CJ HelloVision's Tving has more than 3m. We expect the market to continue growing.

Table 32. Korea: N-Screen services

Terrestrial TV

Service	Pooq
Owner	**SBS and MBC**
Launch	Oct 2011 (fee-based: Jul 2012)
Supporting OS	iOS, Android
Content	33 real-time channels (KBS, MBC, SBS, EBS, terrestrial PPs); 6,000 VOD offerings (as of Nov 2012)
Fees	Based on regular fees (after discount event ends Nov 30, 2012) Monthly: Real-time KRW3,900 / VOD KRW9,900 / Real-time + VOD KRW11,900 Single item: KRW1,000 (48 hours) Daum TV: KRW9,900 for 30 days (automated service KRW4,900)
Notes	Reached 1m subscribers within 100 days of launch. As of Nov 2012, 7% had switched to fee-based services. Subscriber coverage expected to expand to fee-based CATV after launching combined service package with C&M, which has 2.46m subscribers.

IPTV

Service	Olleh TV Now	Btv Mobile	U+HDTV
Owner	**KT**	**SK Broadband**	**LG Uplus**
Launch	Jul 2011 (fee-based: Nov 2011)	Oct 2012	Oct 2011
Supporting OS	iOS, Android	Android	Android
Content	59 real-time channels; 32,000 VOD offerings	40 real-time channels; 13,000 VOD offerings	60 real-time channels; 20,000 VOD offerings
Fees	Monthly packages of KT high-speed Internet, mobile telephone, and IPTV (free-KRW5,000)	Monthly packages of SK Telecom high-speed Internet (KRW2,000-3,000)	Daily: KRW1,500 Monthly: KRW5,000
Notes	4.65m subscribers (Sep 2012)	3,000-4,000 subscribers (Nov 2012)	1.82m subscribers (Oct 2012); 58% of LG Uplus LTE subscribers use service

CATV

Service	Tving	Everyon TV	C&M Pooq
Owner	**CJ HelloVision**	**Hyundai HCN**	**C&M**
Launch	Nov 2010 (mobile version)	May 2012	Dec 2012 (scheduled)
Supporting OS	iOS, Android	iOS, Android, Windows Phone	n/a
Content	200 real-time channels; 50,000 VOD offerings	160 real-time channels	n/a
Fee	Monthly: Terrestrial package (KRW3,900), Basic (KRW7,000), TV Plus (KRW18,000), Sports (KRW5,200) Per channel: KRW500-2,000 TV + VOD: (KRW7,900) Super Kids: KRW6,000	Free	n/a
Notes	3.46m subscribers with 0.1m paying (Nov 2012). Provides CJ E&M PP channels (Mnet, TvN, Tooniverse, *etc*), as well as most real-time channels and VOD offerings	1.76m subscribers (Nov 2012). Allied with video portal site Pandora TV. No terrestrial TV channels	Allied with CATV and terrestrial broadcasters

Platform

Service	Hoppin
Owner	**SK Planet**
Launch	Jan 2011
Supporting OS	Android
Content	20,000 VOD offerings
Fees	Monthly: TV unlimited (KRW8,000 for terrestrial channels) Film Mania 5 (KRW8,000 with 5 discounted films) Film Mania 10 (KRW15,000 with 10 discounted films) Film Mania unlimited (KRW3,000-8,800) Annual: Disney movies (KRW52,800) Weekly: Film (KRW3,000)
Notes	More than 3m subscribers (Nov 2012). Usage and sales have risen 8x since early 2012. Provides overseas content from Universal Studio, Warner Bros, Paramount, BBC. VOD specialization and discounted films spurring rapid subscriber growth

Source: Strabase

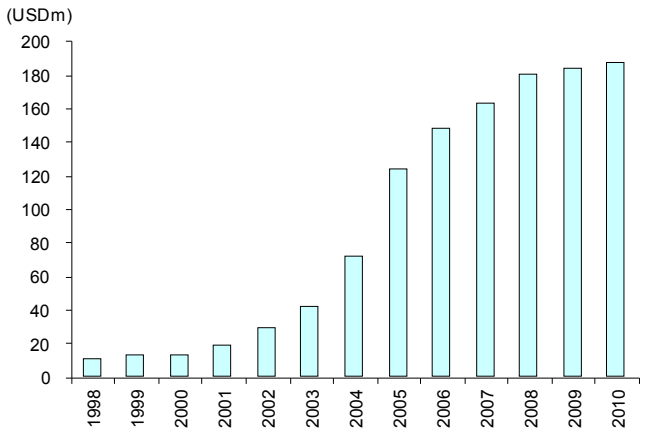
The Korean wave hasn't crested yet

Demand for Korean content keeps growing overseas

We expect global demand for Korean content to steadily rise as budget smartphones grow more popular. K-pop videos received 2.6b clicks on YouTube in 2011, more than triple their 2010 level. At end-2012, Psy's "Gangnam Style" alone had attracted 700m views, while K-pop had become the 24th music genre on YouTube and a new category on the Billboard music charts. The Korean Wave Index—created by the Korea Creative Contents Agency (Kocca) to measure the influence of Korean pop culture abroad—has risen to 262 from a base of 100 in 2004, when exports of drama "Jewel in the Palace" began and TVXQ debuted. Going forward, we expect demand for Korean music and drama to increase not only in Japan but also in China, Southeast Asia, Europe, and the US.

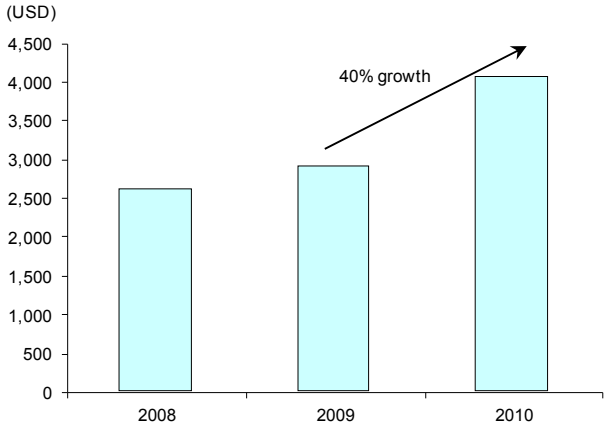
Drama: SBS produces about 20 dramas a year, and SBS Contents Hub (SBSCH) exports about 100, most produced in the previous five years. As Korean pop culture spreads, SBSCH should export to more nations. ASPs should remain the key driver of export revenues, however, and are rising in Japan as the importance of secondary sales rights grows.

Chart 136. Korea: Broadcasting content exports



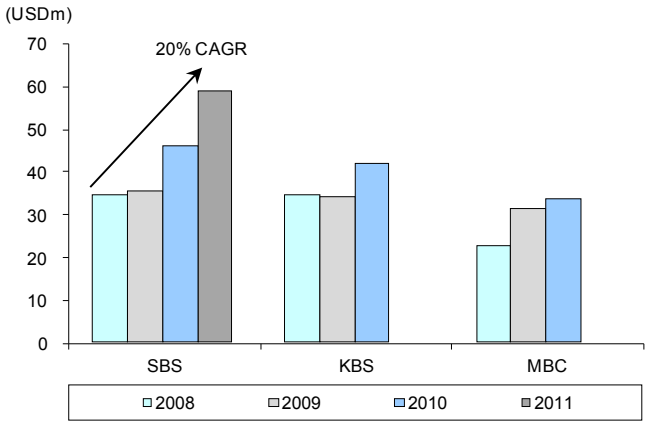
Source: Kocca

Chart 137. Korea: Drama export ASPs



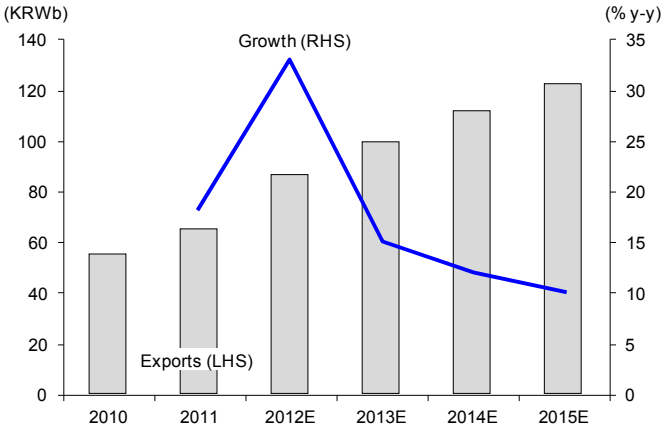
Source: Kocca

Chart 138. Korea: Terrestrial broadcaster exports



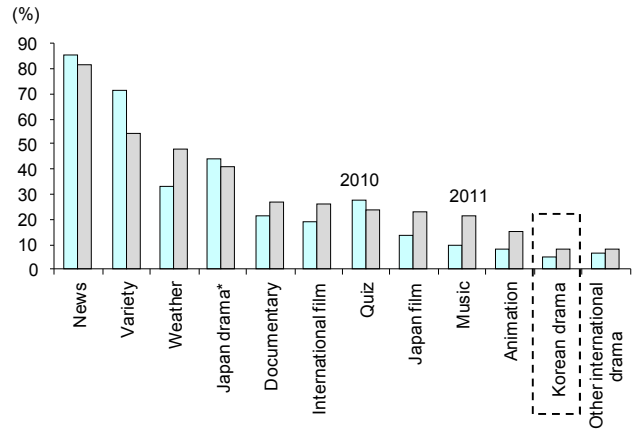
Source: Kocca, SBS

Chart 139. SBSCH: Export trends



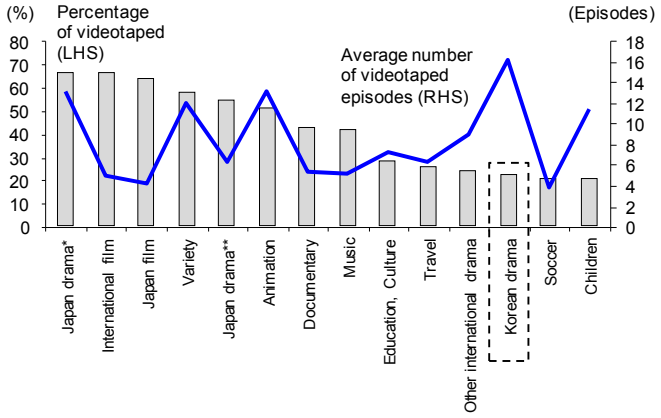
Source: Company data, Samsung Securities estimates

Chart 140. Japan: Percentage of TV programs watched in real-time, by genre



Note: * Multi episode-based
Subjects at least 20 years old and part of household of at least two people
Source: Strabase

Chart 141. Japan: Videotaping trends, by genre (2012)



Note: * Multi episode-based
** Single episode-based
Source: Strabase

Table 33. Korea: Average number of drama episodes recorded per month, by sex and age group

(Episodes)		Male	Female
Age	20s	14.4	14.0
	30s	14.1	14.4
	40s	15.6	16.5
	50s	11.5	18.5
	Over 60	18.1	21.1

Source: Strabase

Table 34. Korea: Terrestrial broadcaster drama exports and ASPs

Drama	ASP/episode (USD'000)	Total episodes	Total exports (USDm)	Total exports (KRWb)
Rooftop Prince	250	20	5.0	5.3
Iris	250	20	5.0	5.3
The Deep-rooted Tree	150	24	3.6	4.2
Fashion King	120	20	2.4	2.8
The City of Violence	100	32	3.2	3.4

Source: Local press

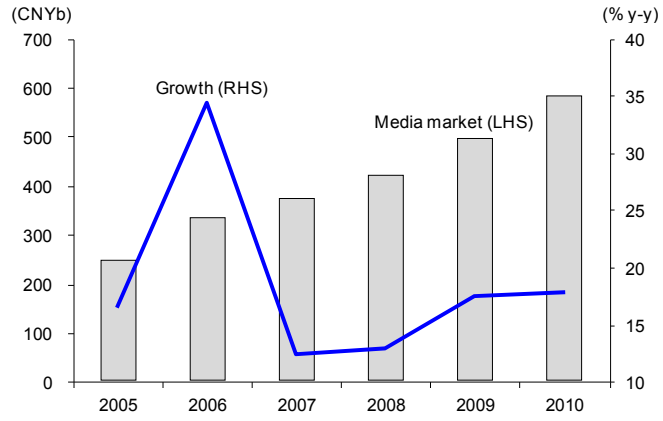
Online streaming demand soaring in China; Korean content emerging as best provider

Streaming in China: Online music streaming sales in China doubled to CNY6.3b (KRW11t) in 2011, and we believe the market grew to CNY12.6b (KRW22t) in 2012 and will hit CNY21.2b (KRW37t) in 2014 as: 1) 67% of traditional TV users have already converted to online amid increasing handset and tablet PC penetration; and 2) multiple online operators—such as Youku, Tudou, Sohu, and Baidu—are emerging as advertisers' perception of the platform improves and copyright controls strengthen.

While Korean content has met demand from an undersupplied Chinese market, it has been hard to monetize. This should change, however, as: 1) content providers should benefit as growth in the Chinese online streaming market allows viewers to watch Korean dramas online in real-time—instead of two years after airing, which is generally the case now due to strict regulations on importing dramas; and 2) online streaming operators have signed deals with Korean broadcasters.

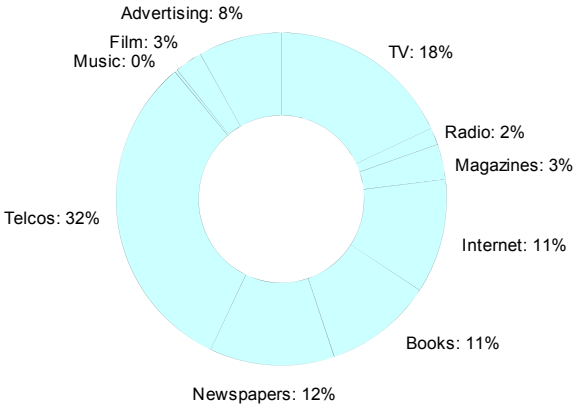
Steaming operator Youku, established at end-2006, paid SBS KRW10b in Mar 2010 for the rights to show the altter's dramas for three years, and in Feb 2011 made another deal with MBC for its entertainment programs. Sohu cut deals with SBS, KBS, and MBC in Jun 2010 to buy its most popular dramas produced in the past 10 and next 3 years, and has set up a homepage for Korean dramas. Sohu now holds Chinese copyrights for 9,800 Korean drams, making it the top Chinese platform for Korean dramas. Meanwhile, PPTV paid KRW8.5b to air MBC content made over 2011-2013.

Chart 142. China: Media market trends



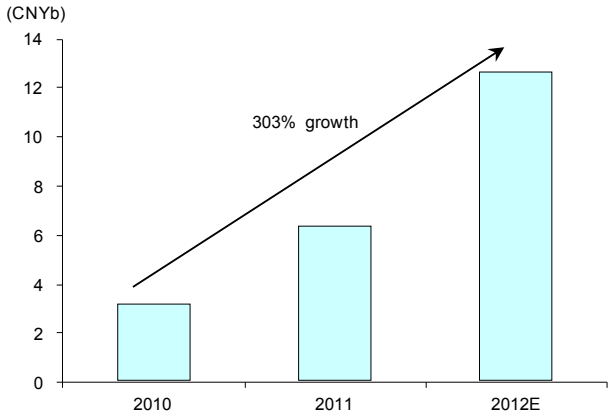
Source: Kocca

Chart 143. China: Media market share breakdown in 2011



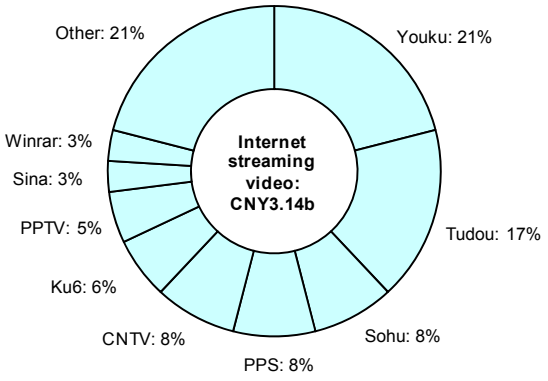
Source: Kocca

Chart 144. China: Streaming video sales



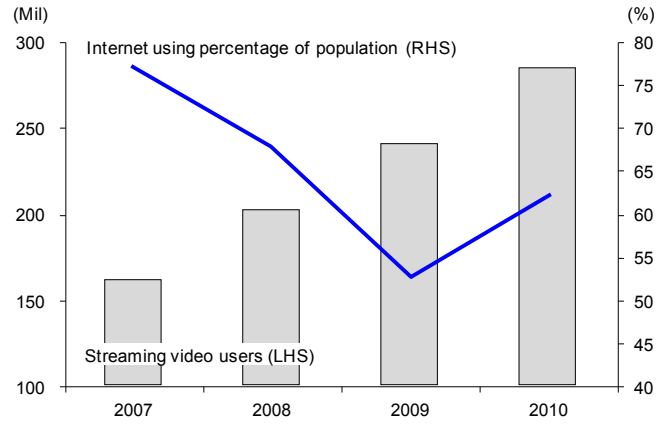
Source: Kocca, iResearch

Chart 145. China: Streaming video market share breakdown in 2010



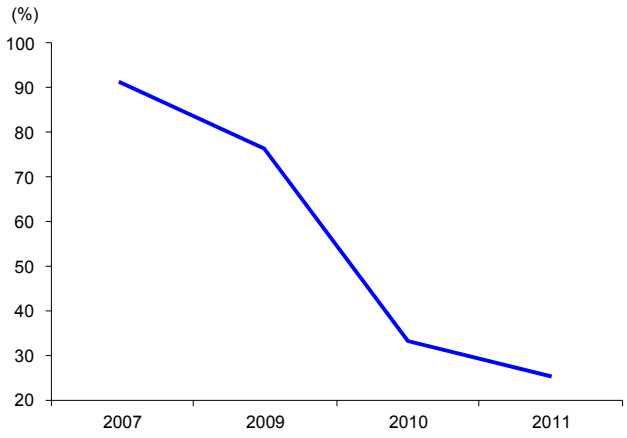
Source: CNNIC

Chart 146. China: Internet user and streaming trends



Source: Kocca

Chart 147. China: Illegal share of drama-distribution market



Source: Kocca

IT service and content industry collaboration to benefit both

We expect collaboration between the content and IT service industries to create new sales. The Increased diversity in distribution channels (*eg*, YouTube, social media, and mobile messenger services) has made content transmission faster and more efficient, and synergy should be created in a business that combines the two industries' profit model. NHN and YG Entertainment (YGE) have hit upon a win-win tie-up in promoting G-Dragon and Psy songs by selling stickers on LINE.

Chart 148. G-Dragon promotion on LINE Messenger

Source: YG Entertainment, NHN

Chart 149. Psy LINE sticker

Source: NHN

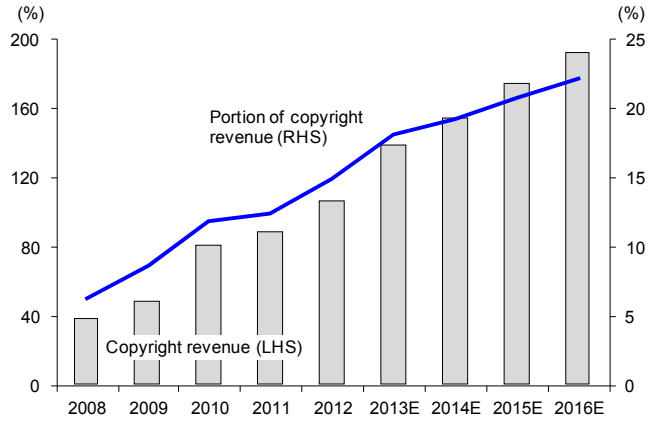
Biggest beneficiaries

Media: SBS, CJ E&M

Copyright sales to steadily rise

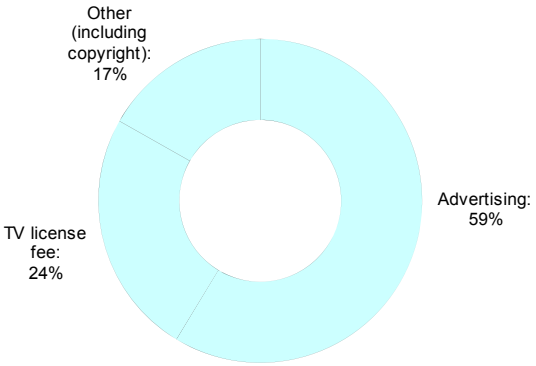
We expect copyright sales at content providers to steadily grow as demand grows and providers secure new profit sources in a changing mobile environment. CJ E&M's media division generated 9% of its sales from copyrights in 2012, up from 3%. We expect the figure at SBS to jump from 15% in 2012 to 22% in 2016.

Chart 150. SBS: Copyright sales trends



Source: Company data, Samsung Securities estimates

Chart 151. CJ E&M: Broadcasting revenue breakdown (2012)



Source: Company data, Samsung Securities estimates

Entertainment: YGE

Profitability to rise on aggressive new media marketing and collaboration with mobile platforms

YGE has been aggressive in marketing its own artists and their content on new media platforms (*eg*, SNS, Facebook, and YouTube). Psy's Gangnam Style continues to lead K-pop views on YouTube, with a cumulative share of 56% as of end-March. With the singer set to launch an aggressive global marketing for his new song, "Gentleman," YGE should see its profits jump this year if it can tap into the advantages of a changing global mobile environment (such as growing smartphone penetration) and new platforms—*eg*, Psy's Twitter followers increased 40-fold last year, and YouTube subscriber numbers for YG artists have been doubling or tripling annually.

Table 35. YGE: New media users

	2011	2012
YouTube subscribers	1,166,281	4,559,916
Growth (%)		391
Twitter followers	10,000	411,579
Growth (%)		4,116
Facebook likes	7,028,757	16,639,078
Growth (%)		237

Source: Company data, Samsung Securities

Table 36. YouTube rankings: Global and Korean content (Mar 2013)

Chart	Rank	Title	Views
Global	1	Gangnam Style (Korea)	1,495,310,263
	2	Justin Bieber - Baby (USA)	845,677,651
	3	Jennifer Lopez - On the Floor (USA)	661,259,508
	4	Eminem - Love the Way You Lie (USA)	551,801,865
	5	LMFAO - Party Rock Anthem (USA)	531,398,316
K-Pop	1	Gangnam Style	1,495,310,263
	2	You Are My Style (Gangnam Style remix)	326,726,567
	3	Gangnam Style (Stage)	203,895,528
	4	Gangnam Style (Dance)	102,115,121
	5	Girls' Generation - Gee	100,298,626
	6	Gangnam Style (Concert)	86,367,994
	7	Girls' Generation - The Boys	70,784,016
	8	Big Bang - Fantastic Baby	67,166,658
	9	2NE1 – I Am the Best	66,470,691
	10	Girls' Generation - Oh!	64,016,748

Source: YouTube

Company Update

Samsung Electronics (005930)

The top of the smartphone ecosystem

WHAT'S THE STORY?

Event: The emergence of smartphones has altered the IT industry dynamic into one increasingly shaped by technology convergence rather than economies of scale and cost efficiency.

Impact: This change provides Samsung Electronics (SEC) with a great opportunity to combine a variety of cutting-edge technologies, to continue to innovate in hardware, and to lead the smartphone cycle.

Action: We maintain BUY on SEC with a KRW1,900,000 target price.

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Research Associate
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AT A GLANCE

SELL | HOLD | **BUY**

Target price	**KRW1,900,000 (24%)**
Current price	**KRW1,528,000**
Bloomberg code	**005930 KS**
Market cap	KRW243.8t/USD221.4b
Shares (float)	147,299,337 (71.1%)
52-week high/low	KRW1,576,000/KRW1,091,000
Average daily trading value (60-day)	KRW 360.08b/ USD 326.99m

One-year performance	1M	6M	12M
Samsung Electronics (%)	-0.5	+17.1	+9.4
Vs Kospi (%pts)	+1.6	+13.7	+10.3

KEY CHANGES

(KRW)	New	Old	Diff (%)
Recommendation	BUY	BUY	-
Target price	1,900,000	1,900,000	0.0%
2013E EPS	196,030	196,030	0.0%
2014E EPS	217,900	217,900	0.0%

SAMSUNG vs THE STREET

No of I/B/E/S estimates	55
Target price vs I/B/E/S mean	-4.7%
Estimates up/down (4 weeks)	*0/0*
1-year-fwd EPS vs I/B/E/S mean	-8.0%
Estimates up/down (4 weeks)	*0/1*
I/B/E/S recommendation	BUY (1.7)

THE QUICK VIEW

Once driven by economies of scale and cost efficiency... Economies of scale and cost efficiency once shaped the IT industry—developed nations created standards, while manufacturers shifted production from Japan to Korea, Taiwan, and China to cut costs. Simple manufacturers failing to set standards, however, have had difficulty creating value added—as seen with memory makers that sought to free themselves from Intel's influence, but in the process succumbed to cutthroat competition among themselves that has led to severe ups and downs in the industry cycle.

...IT industry increasingly being shaped by convergence: Smartphones have not overturned this dynamic—but are altering it. The difficulty of packing varied technologies into a small device, the absence of standards due to the need for customer-tailored interfaces, and shortening product lifecycles provide Samsung Electronics (SEC) with an opportunity to combine cutting-edge technologies (in memory, logic semiconductors, panels, and sets) to create new products, innovate in hardware, and lead the smartphone cycle. The company already has shown its mettle in quickly outpacing Apple, the first true innovator in the smartphone arena.

Rivals and outlook: Toyota and Nokia—with their production efficiency and cost-saving technology—were once the benchmarks for success in the IT industry, but SEC is gaining respect for its strengths in technology combination and synergy. We believe Chinese players have the most potential as rivals, given their long history in set manufacturing, massive domestic market, ample capital, and desire to grow. They should quickly catch up in set businesses, where differentiation is difficult, but—given their lack of experience in semiconductors—should continue to lag far behind in convergence and synergy. In panels, Chinese players are taking over the TFT-LCD segment, but SEC remains dominant in the OLED, flexible, and HDTV segments.

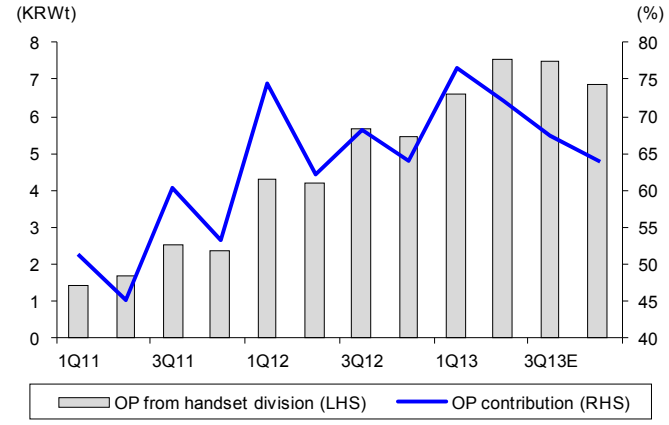
Turning eyes to software: SEC hinted at plans to build up software capacity when unveiling the Galaxy S4, but remains far behind US rivals. Still, a coalition with Intel to launch the Tizen OS and aggressive investments in software personnel and R&D should significantly enhance its software—and in turn, hardware—capabilities.

SUMMARY FINANCIAL DATA

	2011	2012	2013E	2014E
Revenue (KRWb)	165,002	201,104	232,349	263,315
Net profit (adj) (KRWb)	13,759	23,845	34,382	38,219
EPS (adj) (KRW)	77,126	137,480	196,030	217,900
EPS (adj) growth (%)	(15.1)	78.3	42.6	11.2
EBITDA margin (%)	18.6	22.5	27.2	26.2
ROE (%)	14.4	21.4	24.9	22.1
P/E (adj) (x)	11.6	9.2	7.6	6.9
P/B (x)	1.4	2.0	1.5	1.2
EV/EBITDA (x)	5.3	5.0	3.3	2.7
Dividend yield (%)	0.4	0.5	0.5	0.7

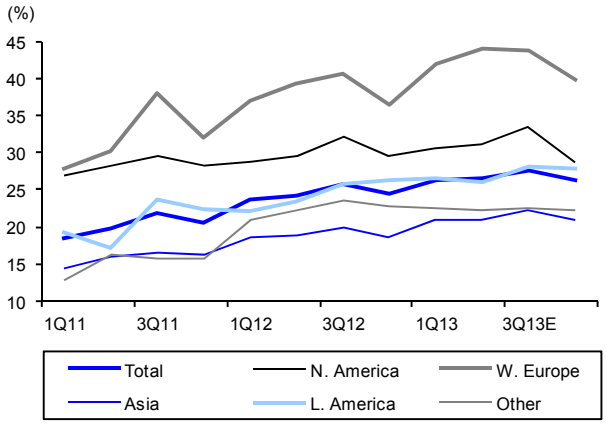
Source: Company data, Samsung Securities estimates

Chart 1. SEC's handset business OP and portion to total OP



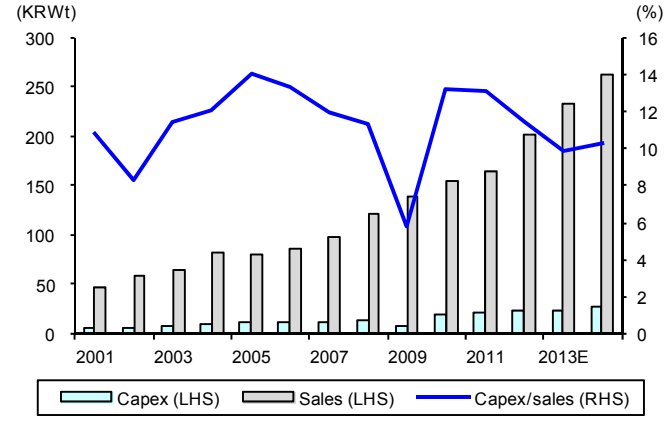
Source: Company data, Samsung Securities estimates

Chart 2. SEC smartphone market share, by region



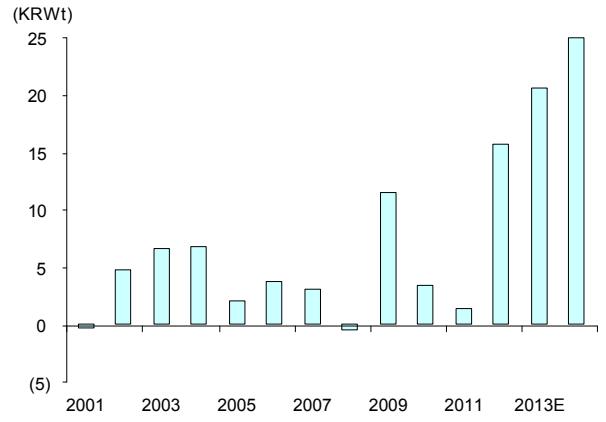
Source: Samsung Securities estimates

Chart 3. SEC's capex and sales



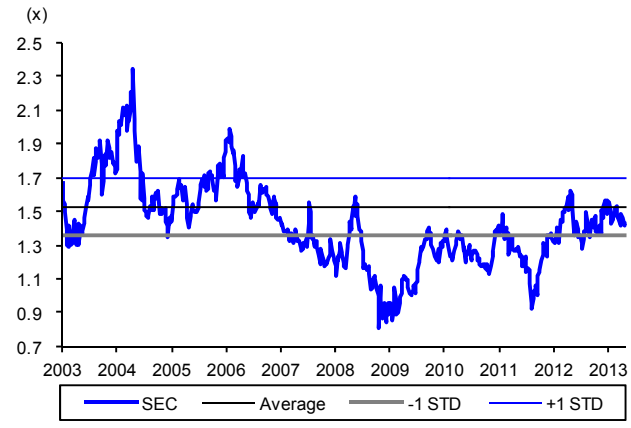
Source: Company data, Samsung Securities estimates

Chart 4. SEC's free cash flow



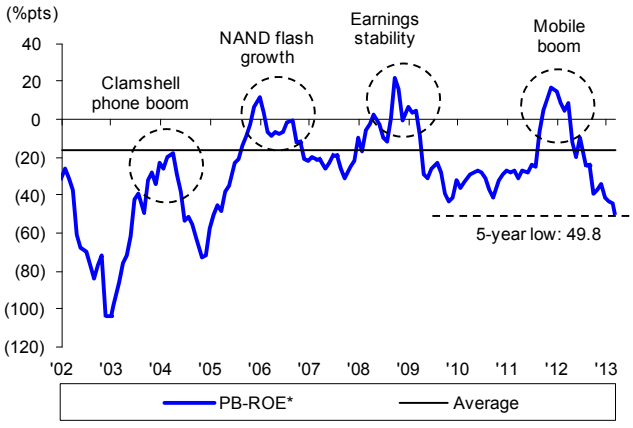
Source: Company data, Samsung Securities estimates

Chart 5. 12-month forward P/B



Source: Samsung Securities

Chart 6. P/B-ROE*



Note: * Relative to the MSCI Asia Pacific ex Japan
Source: DataStream, Samsung Securities

Income statement

Year-end Dec 31 (KRWb)	2010	2011	2012	2013E	2014E
Sales	**154,630**	**165,002**	**201,104**	**232,349**	**263,315**
Cost of goods sold	102,667	112,145	126,652	143,061	161,513
Gross profit	**51,964**	**52,857**	**74,452**	**89,288**	**101,802**
Gross margin (%)	33.6	32.0	37.0	38.4	38.7
SG&A expenses	35,342	37,212	45,402	48,126	54,721
Operating profit	**16,621**	**15,644**	**29,049**	**41,162**	**47,080**
Operating margin (%)	10.7	9.5	14.4	17.7	17.9
Net interest income	(23)	62	246	601	1,125
Net forex-related gains	0	0	0	(12)	0
Net equity-method gains	2,267	1,399	987	987	0
Other	464	87	(367)	18	(729)
Pre-tax profit	**19,329**	**17,192**	**29,915**	**42,757**	**47,477**
Taxes	3,182	3,433	6,070	8,374	9,258
Effective tax rate, (%)	16.5	20.0	20.3	19.6	19.5
Net profit	**16,147**	**13,759**	**23,845**	**34,382**	**38,219**
Net margin (%)	10.4	8.3	11.9	14.8	14.5
Operating net profit*	**15,456**	**13,122**	**23,390**	**33,351**	**37,072**
Operating net margin, (%)	10.0	8.0	11.6	14.4	14.1
EBITDA	30,746	30,722	45,291	63,120	68,878
EBITDA margin (%)	20	19	23	27	26
Reported EPS (KRW)	94,905	80,872	140,157	202,091	224,641
Adjusted EPS (KRW)**	90,848	77,126	137,480	196,030	217,900
DPS (common, KRW)	10,000	5,500	8,000	8,000	10,000
DPS (preferred, KRW)	10,050	5,550	8,050	8,050	10,050
Dividend payout ratio (%)	9.5	6.2	5.2	3.6	4.1

Cash flow statement

Year-end Dec 31 (KRWb)	2010	2011	2012	2013E	2014E
Cash flow from operations	**23,827**	**22,918**	**37,973**	**43,583**	**51,919**
Net profit	16,147	13,759	23,845	34,382	38,219
Depreciation & amortization	11,394	13,592	15,622	20,965	22,526
Net forex-translation income	0	0	0	12	0
Net equity-method income	(2,267)	(1,399)	(987)	(987)	0
Gross cash flow	**30,235**	**30,210**	**46,605**	**54,354**	**61,474**
(-) Change in working capital	(5,668)	(4,057)	(5,778)	(10,170)	(8,430)
Other	(2,135)	(3,977)	(4,180)	(0)	(0)
Cash flow from investments	**(23,985)**	**(21,113)**	**(31,322)**	**(30,062)**	**(37,470)**
Capex	(20,391)	(21,586)	(22,321)	(23,000)	(27,000)
Free cash flow	**3,436**	**1,332**	**15,652**	**20,583**	**24,919**
Change in investment assets	(128)	(101)	(1,002)	329	(221)
Other	(3,466)	575	(7,998)	(7,391)	(10,250)
Cash flow from financing	**(152)**	**3,110**	**(1,865)**	**647**	**664**
Change in debt	1,702	3,758	539	3,170	(454)
Change in equity	0	0	0	0	0
Dividends	(1,918)	(875)	(1,265)	(1,207)	(1,206)
Other	64	227	(1,138)	(1,316)	2,324
Change in cash	**(359)**	**4,900**	**4,100**	**14,168**	**15,113**
Cash at beginning of year	10,150	9,791	14,692	18,791	32,959
Cash at end of year	9,791	14,692	18,791	32,959	48,072

Note: * Excluding one-off items;
** Fully diluted, excluding one-off items
*** Cash and equivalents based on company's standard
Source: Company data, Samsung Securities estimates

Balance sheet

Year-end Dec 31 (KRWb)	2010	2011	2012	2013E	2014E
Current assets	**61,403**	**71,502**	**87,269**	**117,234**	**148,480**
Cash & equivalents***	21,570	22,480	26,878	37,448	55,473
Accounts receivable	19,153	21,882	23,861	31,020	35,154
Inventories	13,365	15,717	17,747	21,297	25,556
Other current assets	7,315	11,423	18,783	27,469	32,297
Fixed assets	**72,886**	**84,298**	**93,803**	**98,672**	**105,761**
Investment assets	11,375	12,428	14,015	14,559	14,665
Equity in affiliated companies	8,335	9,204	8,785	9,225	9,225
Tangible assets	52,965	62,044	68,485	71,536	77,021
Intangible assets	2,779	3,355	3,730	3,714	3,702
Other long-term assets	5,767	6,471	7,573	8,863	10,373
Total assets	**134,289**	**155,800**	**181,072**	**215,905**	**254,241**
Current liabilities	**39,945**	**44,319**	**46,933**	**49,178**	**48,624**
Accounts payable	9,149	10,277	9,489	9,964	9,864
Short-term debt	8,430	9,654	8,444	10,133	12,159
Other current liabilities	22,366	24,389	29,000	29,082	26,601
Long-term liabilities	**4,995**	**10,168**	**12,658**	**12,072**	**14,627**
Bond & long-term debt	1,124	4,840	5,351	2,870	2,870
Other long-term liabilities	3,871	5,328	7,308	9,202	11,757
Total liabilities	**44,940**	**54,487**	**59,591**	**61,250**	**63,251**
Capital stock	898	898	898	898	898
Capital surplus	4,404	4,404	4,404	4,404	4,404
Retained earnings	85,015	97,623	119,986	152,210	187,487
Other	(4,726)	(5,834)	(8,193)	(8,193)	(8,193)
Total equity	**89,349**	**101,314**	**121,480**	**154,656**	**190,991**
Net debt	(11,705)	(12,231)	(22,553)	(39,889)	(61,937)
Book value per share (KRW)	553,192	623,901	752,552	966,573	1,200,831

Financial ratios

Year-end Dec 31	2010	2011	2012	2013E	2014E
Growth (%)					
Sales	11.2	6.7	21.9	15.5	13.3
Operating profit	43.6	(5.9)	85.7	41.7	14.4
Pre-tax profit	53.8	(11.1)	74.0	42.9	11.0
Net profit	57.8	(14.8)	73.3	44.2	11.2
Operating net profit*	63.3	(15.1)	78.3	42.6	11.2
EBITDA	28.8	(0.1)	47.4	39.4	9.1
Adjusted EPS**	63.3	(15.1)	78.3	42.6	11.2
Ratios					
ROE (%)	19.9	14.4	21.4	24.9	22.1
ROA (%)	12.8	9.5	14.2	17.3	16.3
ROIC (%)	15.5	12.4	19.1	21.4	19.8
Net debt to equity (%)	(13.1)	(12.1)	(18.6)	(25.8)	(32.4)
Interest coverage (x)	33.3	26.6	49.5	68.2	74.4
Receivables turnover (days)	42.7	45.4	41.5	43.1	45.9
Payables turnover (days)	20.5	21.5	17.9	15.3	13.7
Inventory turnover (days)	27.6	32.2	30.4	30.7	32.5
Valuations (x)					
P/E	8.8	11.6	9.2	7.6	6.9
P/B	1.5	1.4	2.0	1.5	1.2
EV/EBITDA	4.8	5.3	5.0	3.3	2.7
EV/EBIT	6.2	7.8	7.3	4.7	3.8
Dividend yield (common, %)	0.7	0.4	0.5	0.5	0.7

Company Update

LG Electronics (066570)

On board the smartphone express

WHAT'S THE STORY?

Event: We believe IT convergence and hardware evolution will spark a second round of smartphone market growth, and TV-PC integration, feature phone replacement, and technology advances will prove key to growth at handset makers going forward.

Impact: LG Electronics (LGE) is now showing its potential in smartphones. We expect its sales-based market share to expand to 7-8% by 2015 from 4% in 2012, and believe synergies among its diversified set products and the capabilities of affiliates (such as LG Display, LG Innotek, and LG Chemical) put it in a strong position to prosper in an era of IT convergence and hardware evolution.

Action: LGE remains one of our top picks in the tech sphere. We maintain BUY on the stock with a KRW130,000 target price, expecting its operating profits to surge in 2013 and 2014 on a strong performance in smartphones.

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Research Associate
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AT A GLANCE

SELL | HOLD | **BUY**

Target price	**KRW130,000 (53%)**
Current price	**KRW85,100**
Bloomberg code	**066570 KS**
Market cap	KRW15.2t/USD13.6b
Shares (float)	163,647,814 (63.6%)
52-week high/low	KRW90,400/KRW56,100
Average daily trading value (60-day)	KRW 86.18b/USD 77.11m

One-year performance	1M	6M	12M
LG Electronics (%)	+11.3	+21.6	+14.4
Vs Kospi (%pts)	+11.9	+20.5	+15.8

KEY CHANGES

(KRW)	New	Old	Diff (%)
Recommendation	BUY	BUY	
Target price	130,000	130,000	0.0%
2013E EPS	8,688	8,066	+7.7%
2014E EPS	14,407	13,292	+8.4%

SAMSUNG vs THE STREET

No of I/B/E/S estimates	27
Target price vs I/B/E/S mean	15.9%
Estimates up/down (4 weeks)	*18/0*
1-year-fwd EPS vs I/B/E/S mean	45.3%
Estimates up/down (4 weeks)	*7/16*
I/B/E/S recommendation	BUY

THE QUICK VIEW

Market share: We expect LG Electronics (LGE) to ship 55m smartphones in 2013 and 79m in 2014—up a whopping 108% and 44%, respectively—as feature phone users in emerging markets (particularly China) switch to lower-end smartphones. LGE's strengths lie in its strategy of covering both high- and lower-end products, technology and mass production strength in its supply chain, and a regionally diverse global sales network. In other words, the firm's business structure facilitates shipment growth and operating leverage that should lead to margin growth for smartphones (as it did with feature phones over 2007-2009). We expect the firm's handset margin to improve to 9-10% by 2015, and while this would fall short of its 2009 peak of 15%, we view as overblown concerns that its high sales exposure to lower-end smartphones (60% in 1Q13) will erode its profitability.

Synergies: We believe IT convergence and hardware evolution will spark a second round of smartphone market growth. In this respect, we find LGE's business and affiliate structures attractive—the company should benefit from strong brand recognition as a top-tier player in the home appliance market (including TVs), and its R&D experience in smart ecosystems in recent years should help it minimize costs and maximize marketability when integrating set products. Synergies should also be found in affiliates producing smartphone parts and materials—*ie*, panels at LG Display, camera modules and substrates at LG Innotek, and batteries at LG Chem.

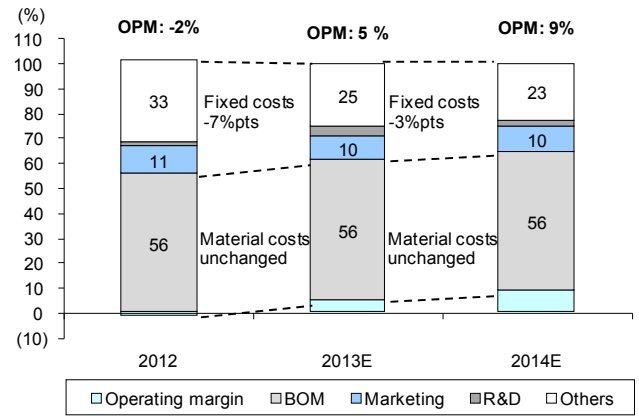
Forecasts and valuation: We expect LGE's growing market share to lead to a fundamentals improvement, making a respective KRW58t and KRW1.9t in sales and operating profit in 2013 and KRW66t and KRW3.2t in 2014. Some view its TV and home appliance businesses as a risk, but we believe these units offer an opportunity if they are integrated with smartphones. Our target price of KRW130,000 is based on a 2013 P/E multiple of 15x that does not factor in this possibility, suggesting the potential for even greater upside as the industry paradigm changes.

SUMMARY FINANCIAL DATA

	2012	2013E	2014E	2015E
Revenue (KRWb)	50,960.0	57,897.9	66,135.4	71,799.8
Net profit (adj) (KRWb)	90.8	1,571.0	2,605.3	3,156.7
EPS (adj) (KRW)	365.7	8,687.8	14,407.2	17,456.6
EPS (adj) growth (%)	RB	2,275.8	65.8	21.2
EBITDA margin (%)	4.0	6.3	7.4	7.9
ROE (%)	0.7	11.6	16.8	17.3
P/E (adj) (x)	246.1	9.8	5.9	4.9
P/B (x)	1.4	1.2	1.0	0.8
EV/EBITDA (x)	9.6	4.7	3.2	2.7
Dividend yield (%)	0.2	0.2	0.2	0.2

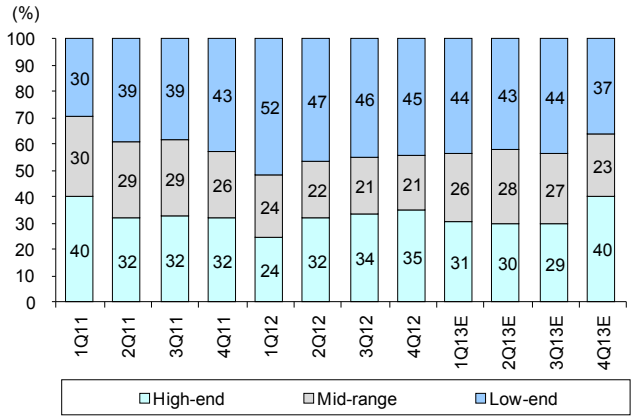
Source: Company data, Samsung Securities estimates

Chart 1. LGE's handset sales



Source: Samsung Securities estimates

Chart 2. LGE's smartphone mix, by price range



Note: * Over USD300, ** USD200-300, *** below USD200
Source: Samsung Securities estimates

Table 1. Smartphone market share, by companies

		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13E	3Q13E	4Q13E	1Q14E	2Q14E	3Q14E	4Q14E	2012	2013E	2014E
Shipments	**Firm**	**154.4**	**157.8**	**170.1**	**207.6**	**199.4**	**214.2**	**229.4**	**278.6**	**251.9**	**273.2**	**294.1**	**354.6**	**689.9**	**921.6**	**1,173.8**
(Mil units)	(% y-y)	41.4	32.4	41.8	32.2	29.2	35.7	34.9	34.2	26.3	27.5	28.2	27.3	40.7	33.6	27.4
	SEC	44.0	49.0	56.9	63.3	69.7	86.6	89.1	101.6	96.1	119.6	123.0	140.9	213.2	347.0	479.5
	Apple	35.1	26.0	26.9	47.8	37.4	27.3	28.4	49.3	40.2	29.2	30.4	52.6	135.8	142.4	152.4
	LGE	4.9	5.8	7.0	8.6	10.3	13.0	14.3	17.0	15.5	18.0	20.0	25.0	26.3	54.6	78.5
	Huawei	5.4	7.0	8.2	11.0	10.0	12.3	13.0	14.5	12.0	14.8	15.6	17.4	31.6	49.8	59.8
	Sony	0.5	4.9	6.4	8.5	7.0	8.5	10.0	12.0	8.8	11.1	13.5	15.6	20.3	37.5	48.9
	ZTE	5.8	7.4	8.8	8.7	8.5	9.0	9.5	11.0	9.4	9.9	10.5	12.1	30.7	38.0	41.8
	Nokia	4.6	5.8	6.0	7.5	6.5	7.5	7.8	9.8	7.8	9.0	9.4	11.7	23.9	31.6	37.9
	Lenovo	11.9	10.2	6.3	6.6	6.1	6.4	7.4	8.5	8.0	9.0	10.0	11.0	35.0	28.5	38.0
	HTC	6.6	9.2	7.7	7.1	5.3	6.3	7.1	7.7	5.7	6.8	7.6	8.2	30.6	26.5	28.3
	Blackberry	11.7	7.8	7.4	6.7	6.0	6.5	6.3	6.6	5.4	5.9	5.8	6.1	33.6	25.4	23.1
	Motorola	5.1	4.9	4.6	5.0	3.3	3.4	3.5	4.0	3.8	3.9	4.0	4.6	19.6	14.2	16.3
Market share	SEC	28.5	31.0	33.5	30.5	35.0	40.4	38.8	36.5	38.1	43.8	41.8	39.7	30.9	37.6	40.8
(%)	Apple	22.7	16.5	15.8	23.0	18.8	12.7	12.4	17.7	16.0	10.7	10.3	14.8	19.7	15.5	13.0
	LGE	3.2	3.7	4.1	4.1	5.2	6.1	6.2	6.1	6.2	6.6	6.8	7.0	3.8	5.9	6.7
	Huawei	3.5	4.4	4.8	5.3	5.0	5.7	5.7	5.2	4.8	5.4	5.3	4.9	4.6	5.4	5.1
	Sony	0.3	3.1	3.8	4.1	3.5	4.0	4.4	4.3	3.5	4.0	4.6	4.4	2.9	4.1	4.2
	ZTE	3.8	4.7	5.2	4.2	4.3	4.2	4.1	3.9	3.7	3.6	3.6	3.4	4.5	4.1	3.6
	Nokia	3.0	3.7	3.5	3.6	3.3	3.5	3.4	3.5	3.1	3.3	3.2	3.3	3.5	3.4	3.2
	Lenovo	7.7	6.5	3.7	3.2	3.1	3.0	3.2	3.1	3.2	3.3	3.4	3.1	5.1	3.1	3.2
	HTC	4.3	5.8	4.5	3.4	2.7	3.0	3.1	2.8	2.3	2.5	2.6	2.3	4.4	2.9	2.4
	Blackberry	7.6	4.9	4.4	3.2	3.0	3.0	2.7	2.4	2.1	2.1	2.0	1.7	4.9	2.8	2.0
	Motorola	3.3	3.1	2.7	2.4	1.7	1.6	1.5	1.4	1.5	1.4	1.4	1.3	2.8	1.5	1.4

Note: Excluding gray market
Source: Samsung Securities estimate

Income statement

Year-end Dec 31 (KRWb)	2010	2011	2012E	2013E	2014E
Sales	**54,257**	**50,960**	**57,898**	**66,135**	**71,800**
COGS	42,058	38,653	43,212	48,439	52,197
Gross profit	**12,199**	**12,307**	**14,686**	**17,696**	**19,603**
(Gross margin, %)	22	24	25	27	27
SG&A expenses	11,820	11,171	12,746	14,499	15,761
Operating profit	**379**	**1,136**	**1,940**	**3,198**	**3,841**
(Operating margin, %)	1	2	3	5	5
Net interest income	-228	-228	-186	-126	-83
Net forex-related gains	1,444	1,040	-52	0	0
Net equity-method gains	-329	46	53	56	0
Other	-1,665	-1,470	115	-26	-0
Pre tax profit	**-399**	**524**	**1,870**	**3,102**	**3,758**
Taxes	33	433	299	496	601
(Effective tax ratio, %)	-8	83	16	16	16
Net profit	**-433**	**91**	**1,571**	**2,605**	**3,157**
(Net margin, %)	-1	0	3	4	4
Operating net profit	**-460**	**66**	**1,571**	**2,605**	**3,157**
(Operating net margin, %)	-1	0	3	4	4
EBITDA	1,031	2,064	3,667	4,919	5,702
(EBITDA margin, %)	2	4	6	7	8
EPS(consolidated) (KRW)	-2,611	502	8,688	14,407	17,457
Adjusted EPS (KRW)**	-2,776	366	8,688	14,407	17,457
DPS (common, KRW)	200	200	200	200	200
DPS (preferred, KRW)	250	250	250	250	250
Dividend payout ratio(%)	(7.9)	55.2	2.3	1.4	1.2

Cash flow statement

Year-end Dec 31 (KRWb)	2010	2011	2012E	2013E	2014E
Cash flow from operations	**1,730**	**1,751**	**3,580**	**4,227**	**3,818**
Net profit	-433	91	1,571	2,605	3,157
Depreciation & amortization	1,202	1,312	1,612	1,691	1,861
Net forex-translation losses	0	0	52	0	0
Net equity-method losses	329	-46	-86	-96	0
Gross cash flow	**3,300**	**3,953**	**3,122**	**2,977**	**5,057**
(-)Change in working capital	-1,060	-1,494	361	-125	-1,282
Other	-359	-494	0	0	0
Cash flow from investments	**-2,452**	**-1,350**	**-2,016**	**-2,571**	**-2,857**
Capex	-1,752	-1,330	-1,281	-1,865	-1,845
Free cash flow	**-22**	**422**	**2,300**	**2,363**	**1,974**
Change in investment assets	-131	113	125	128	26
(Dividend***)					
Other	-569	-134	-860	-835	-1,039
Cash flow from financing	**1,161**	**-856**	**-1,102**	**-1,152**	**-180**
Change in debt	228	-806	-725	-432	501
Change in equity	975	9	0	0	0
Dividends	-43	-59	-37	-37	-37
Other	0	-0	-339	-683	-645
Chg in cash	**401**	**-513**	**463**	**504**	**780**
Cash at beginning of year	1,944	2,345	1,832	2,295	2,799
Cash at end of year	2,345	1,832	2,295	2,799	3,579

Note: * Excluding one off items
** Fully diluted, excluding one-off items
*** From companies subject to equity-method valuation
Source: Company data, Samsung Securities estimates

Balance sheet

Year-end Dec 31 (KRWb)	2010	2011	2012E	2013E	2014E
Current assets	**15,783**	**14,554**	**15,694**	**17,454**	**19,260**
Cash & equivalents	2,345	1,832	2,295	2,799	3,579
Accounts receivable	6,753	6,519	6,744	7,397	7,970
Inventories	4,947	4,599	4,829	5,361	5,655
Other current assets	1,738	1,604	1,825	1,897	2,055
Fixed assets	**16,875**	**16,903**	**17,120**	**18,025**	**18,864**
Investment assets	6,035	5,803	5,764	5,733	5,707
(Equity in affiliated companies)	5,603	5,477	5,477	5,477	5,477
Tangible assets	7,290	7,518	7,707	8,396	8,974
Intangible assets	1,036	1,077	1,019	1,135	1,284
Other long-term assets	2,514	2,505	2,630	2,761	2,899
Total assets	**32,658**	**31,457**	**32,814**	**35,479**	**38,123**
Current liabilities	**14,215**	**12,816**	**12,806**	**13,363**	**13,381**
Accounts payable	5,487	5,195	5,737	6,482	5,964
Short-term debt	1,673	1,162	1,027	901	1,236
Other current liabilities	7,054	6,459	6,043	5,979	6,181
Long-term liabilities	**5,296**	**5,937**	**5,634**	**5,391**	**4,975**
Bond & long-term debt	4,257	4,426	3,835	3,264	2,723
Other long-term liabilities	1,038	1,512	1,799	2,128	2,251
Total liabilities	**19,510**	**18,753**	**18,440**	**18,754**	**18,356**
Owners of parent equity	12,894	12,454	14,124	16,474	19,517
Capital surplus	2,862	2,862	2,862	2,862	2,862
Retained earnings	9,500	9,408	10,942	13,510	16,630
Other	-371	-719	-584	-802	-879
Total equity	**13,148**	**12,704**	**14,374**	**16,724**	**19,767**
Net debt	4,940	4,531	2,886	1,580	757
Book value per share (KRW)	65,855	63,182	72,781	85,186	101,260

Financial ratios

Year-end Dec 31	2010	2011	2012E	2013E	2014E
Growth (%)					
Sales	(2.7)	(6.1)	13.6	14.2	8.6
Operating profit	329.9	199.7	70.8	64.8	20.1
Pre tax profit	BR	RB	256.9	65.8	21.2
Net profit	BR	RB	1,629.8	65.8	21.2
Operating net profit*	BR	RB	2,275.8	65.8	21.2
EBITDA	(45.1)	(52.1)	77.7	34.1	15.9
Adjusted EPS**	BR	RB	2,276	66	21
Ratios(%)					
ROE	(3.3)	0.7	11.6	16.8	17.3
Financial ratios	(1.3)	0.3	4.9	7.6	8.6
ROIC	2.3	1.1	9.4	14.7	15.7
Net debt to equity	37.6	35.7	20.1	9.4	3.8
Interest coverage (x)	(0.5)	2.3	7.5	14.2	18.4
Receivables turnover days	46.3	47.5	41.8	39.0	39.1
Payables turnover days	38.0	38.3	34.5	33.7	31.6
Inventory turnover days	36.4	34.2	29.7	28.1	28.0
Valuations(x)					
P/E	(31.1)	246.1	10.4	6.2	5.2
P/B	1.3	1.4	1.2	1.1	0.9
EV/EBITDA	17.8	9.6	4.9	3.4	2.8
EV/EBIT	(107.4)	26.2	8.8	5.2	4.2
Dividend yield(Common, %)	0.2	0.2	0.2	0.2	0.2

Company Update

Soulbrain (036830 KS)

Key display evolution player

WHAT'S THE STORY?

Event: The trend toward higher definition (*eg*, UHD) and larger displays should increase the usage of oxide-TFT panels.

Impact: Widespread adoption of oxide-TFT patterning done with semiconductor etchants, and given its competitiveness in the latter, Soulbrain stands to gain from oxide-TFT panel market growth.

Action: We reiterate Soulbrain at BUY with a 12-month target price of KRW60,000 on expectations of it enjoying further top-line growth and share-price momentum, as clients: 1) expand lines; and 2) are forecast to enjoy healthy shipment growth for semiconductors, displays, and rechargeable batteries.

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AT A GLANCE

★ ★ ★
SELL | HOLD | BUY

Target price	**KRW60,000 (33.5%)**
Current price	**KRW44,950**

Bloomberg code			**036830 KS**
Market cap			KRW728.5b/USD658.0m
Shares (float)			16,206,744 (51.7%)
52-week high/low			KRW50,400/KRW26,200
Average daily trading value (60-day)			KRW3.10b/ USD2.80m
One-year performance	1M	6M	12M
Soulbrain (%)	+4.4	+4.5	+44.8
Vs Kosdaq (%pts)	+2.0	-10.3	+26.1

KEY CHANGES

(KRW)	New	Old	Diff (%)
Recommendation	BUY★★★	BUY★★★	-
Target price	60,000	60,000	0.0%-
2013E EPS	5,715	5,715	0.0%-
2014E EPS	6,423	6,423	0.0%-

SAMSUNG vs THE STREET

No of I/B/E/S estimates	17
Target price vs I/B/E/S mean	4.3%
Estimates up/down (4 weeks)	*0/0*
1-year-fwd EPS vs I/B/E/S mean	10.6%
Estimates up/down (4 weeks)	*1/1*
I/B/E/S recommendation	Buy

THE QUICK VIEW

Critical electronic materials supplier as display technology evolves: Soulbrain provides etchants, indispensable in display manufacturing, but also chemicals needed to migrate semiconductor technology and electrolytes essential to making rechargeable batteries. Given its clients' market share in the global semiconductor, display, and rechargeable battery markets, we are bullish about Soulbrain which supplies various materials crucial to producing next-generation displays.

Likely beneficiary of oxide-TFT panel market growth: The trend toward higher definition (eg, UHD) and larger displays should increase the usage of oxide-TFT panels, and subsequently boost demand for semiconductor etchant utilized in oxide-TFT patterning. Given its competitiveness in such etchants, we would expect Soulbrain to benefit from oxide-TFT panel market growth.

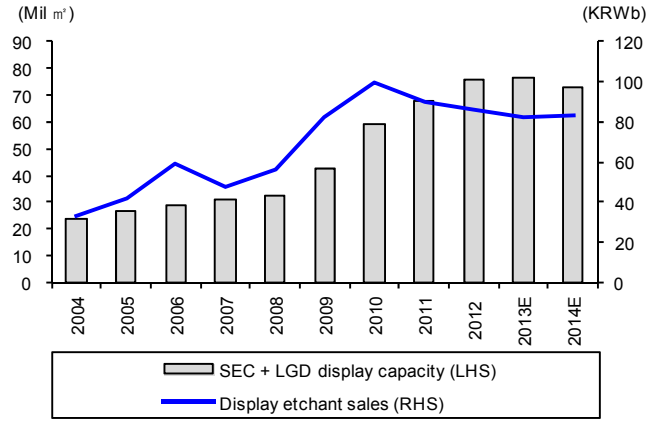
Still attractive: We reiterate Soulbrain at BUY with a 12-month target price of KRW60,000 and forecast its full-year sales and operating profit hitting a respective KRW680.3b and KRW117.7b. With clients expanding lines and expected to see healthy shipment growth for semiconductors, displays, and rechargeable batteries, we would expect the firm to continue enjoying solid top-line growth and share-price momentum. The stock is trading at just 7.9x 2013 P/E, which appears undervalued vis-à-vis the 13.3x average of its industry peers.

SUMMARY FINANCIAL DATA

	2012	2013E	2014E	2015E
Revenue (KRWb)	585.2	680.3	771.0	838.1
Net profit (adj) (KRWb)	61.1	92.6	104.1	113.4
EPS (adj) (KRW)	4,536	5,715	6,423	6,995
EPS (adj) growth (%)	95.5	26.0	12.4	8.9
EBITDA margin (%)	18.6	23.0	20.9	19.7
ROE (%)	21.8	24.9	22.4	20.0
P/E (adj) (x)	9.9	7.9	7.0	6.4
P/B (x)	2.2	1.8	1.4	1.2
EV/EBITDA (x)	7.1	4.7	4.3	3.5
Dividend yield (%)	0.8	0.8	0.8	0.8

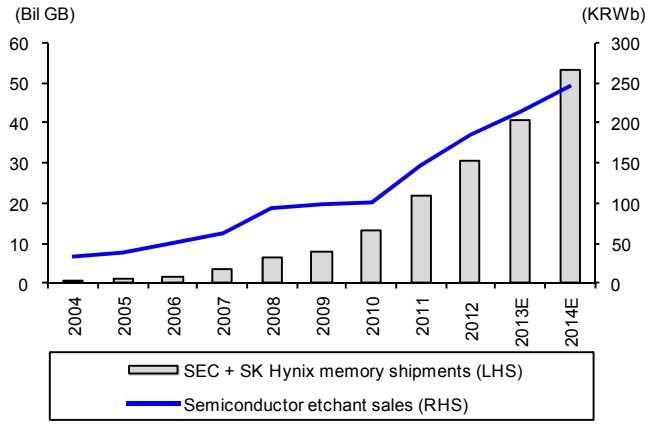
Source: Company data, Samsung Securities estimates

Chart 1. Display capacity vs Soulbrain's display etchant sales



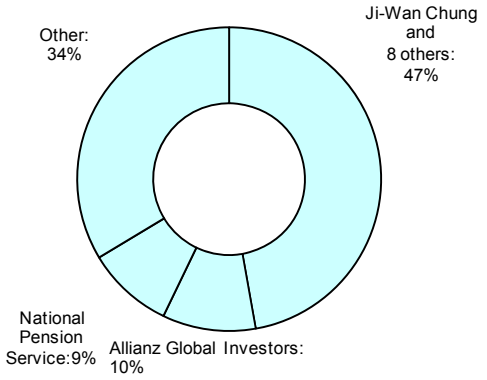
Source: Company data, Samsung Securities estimates

Chart 2. Memory shipments vs Soulbrain's semiconductor etchant sales



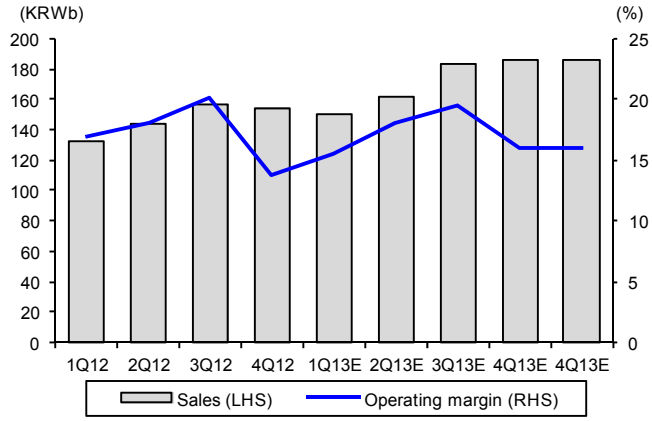
Source: Company data, Samsung Securities estimates

Chart 3. Shareholder structure



Source: Company data

Chart 4. Annual sales and operating margin trend



Source: Company data, Samsung Securities estimates

Table 1. Results and forecasts

(KRWb)	1Q12	2Q12	3Q12	4Q12	1Q13E	2Q13E	3Q13E	4Q13E	2012	2013E	2014E
Sales	131.7	143.3	156.0	154.3	150.3	161.6	182.8	185.7	585.2	680.3	771.0
Display materials	19.2	21.1	23.4	22.1	20.5	20.1	21.1	20.7	85.7	82.5	83.6
Etchant	18.4	21.7	28.3	30.1	28.0	30.8	35.4	35.0	98.5	129.1	142.8
Thin glass	7.3	9.9	9.9	10.5	10.3	10.8	11.9	12.1	37.6	45.2	50.8
Organic materials	44.9	52.6	61.7	62.7	58.8	61.7	68.4	67.9	221.8	256.8	277.2
Semiconductor materials	9.0	9.3	8.1	6.7	6.7	6.9	7.2	7.3	33.1	28.0	31.4
CVD	43.2	45.6	50.3	46.2	45.8	50.4	57.9	59.1	185.4	213.1	246.5
Etchant	4.7	4.5	4.9	5.8	5.8	6.4	7.4	7.5	19.8	27.1	31.2
Slurry	56.9	59.3	63.4	58.7	58.3	63.7	72.4	73.9	238.2	268.3	309.1
Electronic materials	13.3	13.0	12.6	11.5	11.1	13.4	17.4	19.1	50.4	61.0	86.0
Electrolytes	9.6	9.5	9.4	7.2	7.1	7.2	7.3	7.4	35.8	28.9	29.7
ND-magnets	6.8	8.9	9.0	14.2	14.9	15.7	17.3	17.4	39.0	65.3	69.0
Other	29.8	31.4	31.0	32.9	33.2	36.2	41.9	43.9	125.2	155.2	184.7
Operating profit	22.3	25.7	31.3	21.2	23.3	29.1	35.6	29.7	100.5	117.7	131.1
Operating margin (%)	16.9	18.0	20.1	13.7	15.5	18.0	19.5	16.0	17.2	17.3	17.0
Sales portions (%)											
Display materials	34	37	40	41	39	38	37	37	38	38	36
Semiconductor materials	43	41	41	38	39	39	40	40	41	39	40
Electronic materials	23	22	20	21	22	22	23	24	21	23	24

Source: Company data, Samsung Securities estimates

Income statement

Year-end Dec 31 (KRWb)	2011	2012	2013E	2014E	2015E
Sales	**458**	**585**	**680**	**771**	**838**
Cost of goods sold	355	447	519	591	642
Gross profit	**103**	**138**	**161**	**180**	**196**
Gross margin (%)	22.5	23.5	23.7	23.4	23.4
SG&A expenses	37	37	43	49	53
Operating profit	**66**	**100**	**118**	**131**	**143**
Operating margin (%)	14.3	17.2	17.3	17.0	17.0
Net interest income	(6)	(4)	(1)	1	5
Net forex-related gains	(0)	(2)	0	0	0
Net equity-method gains	0	0	4	4	0
Other	(31)	(12)	(2)	(3)	(0)
Pre-tax profit	**29**	**82**	**119**	**133**	**148**
Taxes	12	21	26	29	34
Effective tax rate (%)	40.2	25.7	22.0	22.0	23.2
Net profit	**17**	**61**	**93**	**104**	**113**
Net margin (%)	3.7	10.4	13.6	13.5	13.5
Operating net profit*	**34**	**72**	**93**	**104**	**113**
Operating net margin (%)	7.4	12.4	13.6	13.5	13.5
EBITDA	50	109	157	161	165
EBITDA margin (%)	11.0	18.6	23.0	20.9	19.7
Reported EPS (KRW)	1,168	3,835	5,715	6,423	6,995
Adjusted EPS (KRW)**	2,320	4,536	5,715	6,423	6,995
DPS (common, KRW)	350	375	375	375	375
DPS (preferred, KRW)	0	0	0	0	0
Dividend payout ratio (%)	29.6	9.8	6.5	5.8	5.3

Cash flow statement

Year-end Dec 31 (KRWb)	2011	2012	2013E	2014E	2015E
Cash flow from operations	**26**	**110**	**107**	**110**	**120**
Net profit	17	61	93	104	113
Depreciation & amortization	16	23	37	29	22
Net forex-translation income	(0)	0	0	0	0
Net equity-method income	0	0	(10)	(10)	0
Gross cash flow	**82**	**125**	**122**	**119**	**133**
(-) Change in working capital	(44)	3	(15)	(14)	(10)
Interest received (paid)	(2)	(3)	0	6	(2)
Other	(11)	(16)	(0)	0	0
Cash flow from investments	**(109)**	**(56)**	**(45)**	**(51)**	**(7)**
Capex	(87)	(45)	(50)	(55)	0
Free cash flow	**(61)**	**66**	**57**	**55**	**120**
Change in investment assets	(19)	(8)	7	7	(4)
Other	(3)	(3)	(3)	(3)	(2)
Cash flow from financing	**92**	**(40)**	**(35)**	**(7)**	**5**
Change in debt	97	(35)	(8)	0	6
Change in equity	0	0	0	0	0
Dividends	(4)	(5)	(6)	(6)	(6)
Other	0	(0)	(21)	(1)	6
Change in cash	**10**	**14**	**27**	**53**	**119**
Cash at beginning of year	6	16	31	58	110
Cash at end of year	16	31	58	110	229

Note: * Excluding one off items
** Fully diluted, excluding one-off items
Source: Company data, Samsung Securities estimates

Balance sheet

Year-end Dec 31 (KRWb)	2011	2012	2013E	2014E	2015E
Current assets	**146**	**148**	**195**	**266**	**398**
Cash & equivalents	16	31	58	110	229
Accounts receivable	62	68	80	90	98
Inventories	59	41	48	54	59
Other current assets	8	9	10	11	12
Fixed assets	**289**	**310**	**327**	**358**	**341**
Investment assets	97	93	95	99	103
Equity in affiliated companies	89	80	80	80	80
Tangible assets	182	206	219	246	224
Intangible assets	4	4	5	6	7
Other long-term assets	7	7	7	7	7
Total assets	**435**	**458**	**521**	**623**	**739**
Current liabilities	**148**	**121**	**98**	**101**	**110**
Accounts payable	25	20	23	27	29
Short-term debt	99	65	65	65	70
Other current liabilities	24	37	10	10	11
Long-term liabilities	**53**	**8**	**8**	**8**	**9**
Bond & long-term debt	48	5	5	5	5
Other long-term liabilities	5	4	4	4	4
Total liabilities	**201**	**129**	**106**	**110**	**118**
Capital stock	7	8	8	8	8
Capital surplus	33	70	70	70	70
Retained earnings	198	254	341	439	546
Other	(4)	(4)	(4)	(3)	(3)
Non-controlling interests' equity	0	0	0	0	0
Total equity	**234**	**328**	**415**	**514**	**621**
Net debt	131	46	11	(41)	(155)
Book value per share (KRW)	15,846	20,211	25,557	31,622	38,268

Financial ratios

Year-end Dec 31	2011	2012	2013E	2014E	2015E
Growth (%)					
Sales	31.4	27.8	16.2	13.3	8.7
Operating profit	33.1	53.4	17.2	11.4	8.7
Pre-tax profit	(32.1)	186.4	44.4	12.4	10.6
Net profit	(48.0)	256.3	51.6	12.4	8.9
Operating net profit*	3.3	112.1	28.1	12.4	8.9
EBITDA	(11.8)	90.8	44.0	2.7	2.3
Adjusted EPS**	3	95	26	12	9
Ratios					
ROE (%)	7.7	21.8	24.9	22.4	20.0
ROA (%)	4.5	13.7	18.9	18.2	16.6
ROIC (%)	10.7	19.9	21.5	19.9	17.6
Net debt to equity (%)	56.1	14.1	2.7	(8.0)	(24.9)
Interest coverage (x)	5.7	16.8	35.9	42.0	43.4
Receivables turnover (days)	40.2	40.6	39.6	40.2	41.0
Payables turnover (days)	18.8	14.1	11.7	11.8	12.1
Inventory turnover (days)	34.3	31.1	23.7	24.1	24.6
Valuations (x)					
P/E	17.6	9.9	7.9	7.0	6.4
P/B	2.6	2.2	1.8	1.4	1.2
EV/EBITDA	14.6	7.1	4.7	4.3	3.5
EV/EBIT	21.3	9.0	6.2	5.2	4.0
Dividend yield (common, %)	0.8	0.8	0.8	0.8	0.8

Company Update

MDS Technology (086960 KS)

Devising solutions that lay the groundwork for mobile ecosystems

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WHAT'S THE STORY?

Event: Smartphones and tablet PCs are fundamentally altering mobile ecosystems—providing an opportunity for MDS Technology (MDST), which specializes in operating systems, applications, development tools and other embedded software indispensable to IT integration.

Impact: Consumers now actively participate in information production and distribution within mobile services. MDST should be one of the biggest beneficiaries of this evolution, given its experience in machine-to-machine business, mirror-link solutions that connect in-vehicle displays and smartphones, and automotive electronic parts.

Action: We reiterate BUY on MDST with a KRW17,000 target price.

THE QUICK VIEW

Embedded software indispensable to IT integration: Mobile services, once telco-dominated, have evolved, with advanced platforms allowing consumers to actively participate in producing and distributing information. With a wealth of experience in OS platform development and services, MDS Tech (MDST) is now focusing on: 1) machine-to-machine, or M2M, business; 2) MirrorLink solutions that connect in-vehicle displays and smartphones; and 3) automotive electronic parts. We expect it to benefit significantly from changes in the mobile IT ecosystem.

MDST offers base-platform technology services for telco M2M projects that should further the creation of smart businesses in field management (*eg*, container/vehicle control, and facility/port management) and asset management. We expect it to begin booking R&D gains from 2H (the firm has set 2013 guidance at KRW2b).

Meanwhile, MirrorLink applications are rapidly penetrating the smartphone market through N-screen services that enable content to be shared across a set of mobile devices. MDST offers solutions (through the NeoLink brand) that link mobile devices and auto infotainment systems. While commercializing the solutions in navigation products will take time, the firm should benefit from the mass production of automotive HUDs, with royalty income becoming visible in 2H.

Focus on technological power, not short-term earnings: MDST should benefit from the growing importance of embedded software within the trend of IT integration, given its businesses in mobile security, mobile computing, automotive electronic parts, and defense/aerospace localization. The nature of its projects makes for volatile short-term earnings; we recommend focusing more on the firm's fundamentals—*ie*, its technological strength. We maintain BUY on the stock with a 12-month target price of KRW17,000.

AT A GLANCE

SELL | HOLD | **BUY**

Target price	**KRW17,000 (+15.6%)**
Current price	**KRW14,650**
Bloomberg code	**086960 KS**
Market cap	KRW127.4b/USD111.7m
Shares (float)	8,693,471 (58.6%)
52-week high/low	KRW16,900/KRW11,250
Average daily trading value (60-day)	KRW 1.85b/ USD 1.63m

One-year performance	1M	6M	12M
MDS Technology (%)	-12.7	-23.5	-0.4
Vs Kosdaq (%pts)	-10.1	-21.8	-5.4

KEY CHANGES

(KRW)	New	Old	Diff
Recommendation	BUY	BUY	
Target price	17,000	17,000	0.0%
2013E EPS	1,138	1,138	0.0%
2014E EPS	1,320	1,320	0.0%

SAMSUNG vs THE STREET

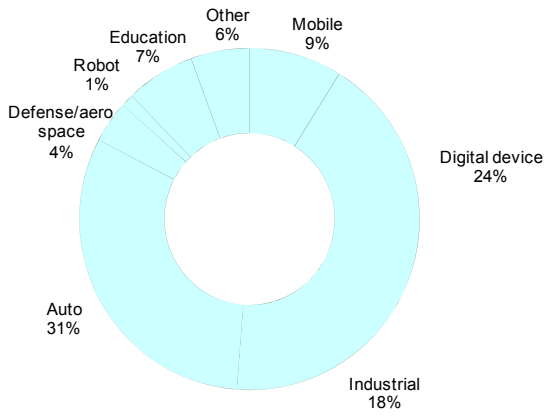
No of I/B/E/S estimates	2
Target price vs I/B/E/S mean	0%
Estimates up/down (4 weeks)	*0/0*
1-year-fwd EPS vs I/B/E/S mean	-5%
Estimates up/down (4 weeks)	*0/0*
I/B/E/S recommendation	BUY

SUMMARY FINANCIAL DATA

	2012	2013E	2014E
Revenue (KRWb)	63.5	73.0	84.0
Net profit (adj) (KRWb)	9.4	9.9	11.5
EPS (adj) (KRW)	1,097	1,138	1,320
EPS (adj) growth (%)	13.6	3.8	16.0
EBITDA margin (%)	16.6	15.7	15.3
ROE (%)	14.9	13.6	14.2
P/E (adj) (x)	13.4	12.9	11.1
P/B (x)	2.1	1.9	1.6
EV/EBITDA (x)	6.5	6.8	5.3
Dividend yield (%)	1.8	1.8	1.8

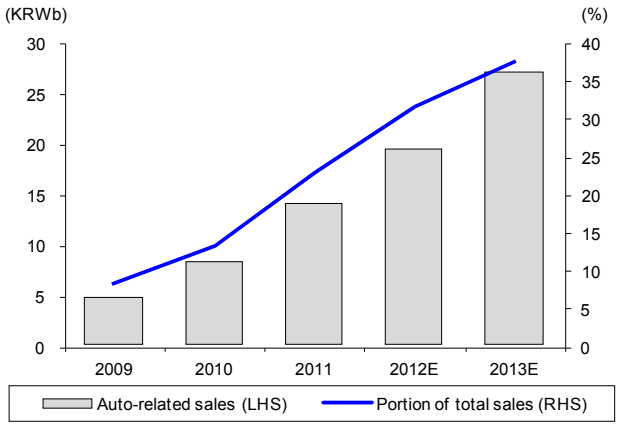
Note: K-IFRS parent basis;Source: Company data, Samsung Securities estimates

Chart 1. Sales breakdown, by industry



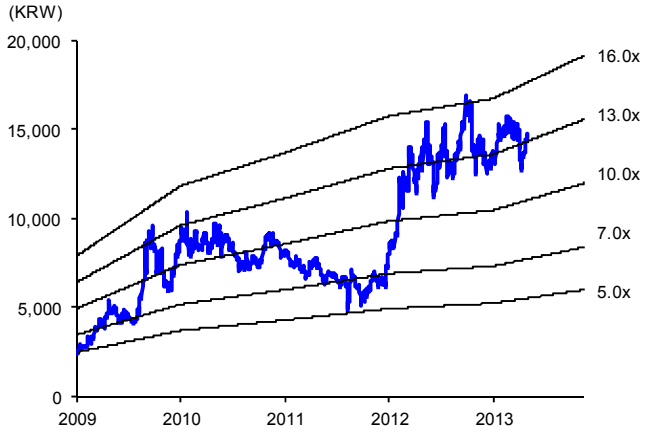
Source: Company data, Samsung Securities estimates

Chart 2. Auto-related sales and portion of total



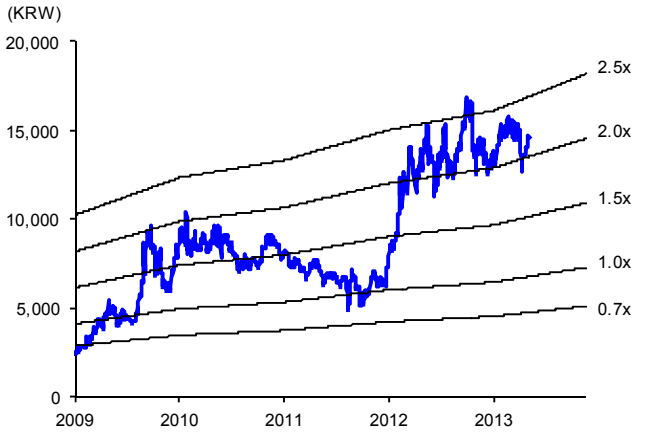
Source: Company data, Samsung Securities estimates

Chart 3. Rolling P/E band



Note: K-IFRS parent basis
Source: Samsung Securities estimates

Chart 4. Rolling P/B band



Note: K-IFRS parent basis
Source: Samsung Securities estimates

Chart 5. M2M image (smart distribution)

Source: M2M

Chart 6. MirrorLink solution

Source: MirrorLink

Income statement

Year-end Dec 31 (KRWb)	2011	2012	2013E	2014E
Sales	**61.1**	**63.5**	**73.0**	**84.0**
Cost of goods sold	38.8	39.7	45.7	52.5
Gross profit	**22.2**	**23.8**	**27.3**	**31.5**
Gross margin (%)	36.4	37.4	37.4	37.4
SG&A expenses	14.4	15.7	18.2	20.5
Operating profit	**7.8**	**8.1**	**9.2**	**10.9**
Operating margin (%)	12.7	12.8	12.6	13.0
Net interest income	1.4	1.6	2.0	2.3
Net forex-related gains	0.0	0.0	0.0	0.0
Net equity-method gains	0.0	0.0	0.0	0.0
Other	2.0	1.4	1.1	0.9
Pre-tax profit	**11.2**	**11.2**	**12.2**	14.1
Taxes	2.3	1.8	2.3	2.6
Effective tax rate (%)	20.9	15.8	19.1	18.6
Net profit	**8.8**	**9.4**	**9.9**	**11.5**
Net margin (%)	14.5	14.8	13.5	13.7
Operating net profit*	**8.4**	**9.5**	**9.9**	**11.5**
Operating net margin (%)	13.7	15.0	13.5	13.7
EBITDA	10.7	10.5	11.4	12.9
EBITDA margin (%)	17.5	16.6	15.7	15.3
Reported EPS (KRW)	1,017	1,082	1,138	1,320
Adjusted EPS (KRW)**	965	1,097	1,138	1,320
DPS (common, KRW)	290	270	270	270
DPS (preferred, KRW)	-	-	-	-
Dividend payout ratio (%)	26.9	25.0	23.7	20.5

Cash flow statement

Year-end Dec 31 (KRWb)	2011	2012	2013E	2014E
Cash flow from operations	**4.6**	**5.9**	**6.0**	**7.1**
Net profit	8.8	9.4	9.9	11.5
Depreciation & amortization	0.9	1.0	1.2	1.1
Net forex-translation income	(0.1)	0.0	0.0	0.0
Net equity-method income	0.0	0.0	0.0	0.0
Gross cash flow	**7.9**	**7.8**	**8.8**	**6.4**
(-) Change in working capital	(3.2)	(2.9)	(2.0)	(2.3)
Other	n/a	(1.3)	(0.0)	0.0
Cash flow from investments	**(1.5)**	**(12.6)**	**(6.2)**	**(7.1)**
Capex	(0.6)	(6.1)	0.0	0.0
Free cash flow	**4.0**	**(0.3)**	**6.0**	**7.1**
Change in investment assets	(0.4)	(10.4)	0.1	0.1
Dividends***				
Other	(0.5)	3.9	(6.3)	(7.2)
Cash flow from financing	**(1.5)**	**6.8**	**2.5**	**3.3**
Change in debt	(0.2)	(0.1)	0.1	0.1
Change in equity	0.0	0.1	0.0	0.0
Dividends	(1.5)	(2.9)	(2.3)	(2.3)
Other	0.2	9.8	4.8	5.6
Change in cash	**1.6**	**0.0**	**2.4**	**3.4**
Cash at beginning of year	4.0	5.6	5.6	8.0
Cash at end of year	5.6	5.6	8.0	11.4

Note: K-IFRS parent basis; * Excluding one off items
** Fully diluted, excluding one-off items
*** From companies subject to equity-method valuation
Source: Company data, Samsung Securities estimates

Balance sheet

Year-end Dec 31 (KRWb)	2011	2012	2013E	2014E
Current assets	**51.1**	**64.2**	**75.2**	**88.5**
Cash & equivalents	5.6	5.6	7.8	11.0
Accounts receivable	15.9	17.7	20.4	23.4
Inventories	1.7	1.8	2.0	2.3
Other current assets	27.9	39.1	45.0	51.7
Fixed assets	**20.7**	**20.3**	**19.4**	**18.6**
Investment assets	6.2	1.7	1.6	1.5
Equity in affiliated companies	1.4	1.1	1.1	1.1
Tangible assets	6.0	8.5	7.7	7.1
Intangible assets	8.0	7.8	7.8	7.8
Other long-term assets	0.5	2.4	2.3	2.3
Total assets	**71.8**	**84.5**	**94.5**	**107.1**
Current liabilities	**12.7**	**12.3**	**13.8**	**15.7**
Accounts payable	7.0	6.2	7.1	8.2
Short-term debt	0.0	0.0	0.0	0.0
Other current liabilities	5.7	6.1	6.7	7.5
Long-term liabilities	**2.0**	**3.2**	**4.4**	**6.1**
Bond & long-term debt	0.0	0.0	0.1	0.1
Other long-term liabilities	2.0	3.2	4.3	6.0
Total liabilities	**14.7**	**15.5**	**18.2**	**21.8**
Capital stock	4.8	4.8	4.8	4.8
Capital surplus	18.7	21.1	21.1	21.1
Retained earnings	36.5	42.6	50.1	59.2
Other	(2.9)	0.5	0.5	0.5
Total equity	**57.1**	**68.9**	**76.5**	**85.6**
Net debt	(30.6)	(42.2)	(49.8)	(59.3)
Book value per share (KRW)	6,006	7,039	7,908	8,958

Financial ratios

Year-end Dec 31	2011	2012	2013E	2014E
Growth (%)				
Sales	(1.7)	4.0	15.0	15.0
Operating profit	(4.9)	4.2	13.2	18.8
Pre-tax profit	13.9	0.1	9.4	15.4
Net profit	13.2	6.5	5.2	16.0
Operating net profit*	10.3	13.8	3.8	16.0
EBITDA	(5.5)	10.9	8.8	12.5
Adjusted EPS**	14.2	13.6	3.8	16.0
Ratios				
ROE (%)	16.0	14.9	13.6	14.2
ROA (%)	13.0	12.0	11.1	11.4
ROIC (%)	10.8	9.9	9.7	10.4
Net debt to equity (%)	(53.6)	(61.3)	(65.2)	(69.3)
Interest coverage (x)	265.4	2,720.3	2,921.4	1,117.7
Receivables turnover (days)	78.4	96.7	95.1	95.1
Payables turnover (days)	32.5	37.9	33.1	33.1
Inventory turnover (days)	10.8	9.8	9.5	9.5
Valuations (x)				
P/E	7.0	13.4	12.9	11.1
P/B	1.1	2.1	1.9	1.6
EV/EBITDA	2.6	6.5	6.8	5.3
EV/EBIT	2.9	7.1	7.6	5.8
Dividend yield (common, %)	2.0	1.8	1.8	1.8

Company Update

NHN (035420)

Mobile-driven revival impending

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WHAT'S THE STORY?

Event: NHN has responded nimbly to rapid changes in the mobile business environment—which have been brought about by smartphone penetration growth–thanks to its LINE, Hangame, and Naver operations.

Impact: We believe the firm will soon rerate and keep it as our sector top pick, on expectations of: 1) its earnings being lifted by LINE's mobile content sales; 2) Han Game's sales rising on LINE's brisk expansion amid a changing mobile game market environment; and 3) it benefiting on domestic big data market growth—thanks to its outstanding search service and enormous data resources.

Action: We maintain the stock at BUY with a KRW400,000 target.

AT A GLANCE

SELL | HOLD | **BUY**

Target price	**KRW400,000 (33.3%)**
Current price	**KRW300,000**
Bloomberg code	**035420 KS**
Market cap	KRW14.4t/USD13.1b
Shares (float)	48,127,704 (81.2%)
52-week high/low	KRW304,500/KRW216,500
Average daily trading value (60-day)	KRW60.60b/ USD55.01m

One-year performance	1M	6M	12M
NHN (%)	4.4	20.5	20.0
Vs Kospi (%pts)	5.8	18.5	22.1

KEY CHANGES

(KRW)	New	Old	Diff
Recommendation	BUY	BUY	
Target price	400,000	400,000	0.0%
2013E EPS	12,543	12,543	0.0%
2014E EPS	15,553	15,553	0.0%
2015E EPS	18,767	18,767	0.0%

SAMSUNG vs THE STREET

No of I/B/E/S estimates	43
Target price vs I/B/E/S mean	+27%
Estimates up/down (4 weeks)	*0/0*
1-year-fwd EPS vs I/B/E/S mean	-8%
Estimates up/down (4 weeks)	*5/2*
I/B/E/S recommendation	BUY

THE QUICK VIEW

LINE to bring growth opportunities...: LINE, which is NHN's mobile instant messenger (MIM), boasts 150m subscribers worldwide (6m in Korea), with an additional 3m-4m signing up weekly, and is the most downloaded app in Japan, Thailand, and Taiwan. As of early April, 10m Spaniards—or 35% of that nation's smartphone users—had downloaded the service, with no end in sight, given: 1) its advantages—*eg*, emoticons, free voice calls, game linkups; and 2) possible user defections from Android-based WhatsApp following its switch to a subscription model. Moreover, LINE is making swift gains in Latin America, while we forecast it exceeding 200m global subscribers this year amid rapid penetration of low-priced smartphones in emerging markets.

...and evolve into a mobile content platform: NHN is transforming LINE from a MIM into a mobile content platform following the respective Jun and Nov 2012 launches of Official Accounts and LINE Pop—the former is a marketing tool for sending messages, coupons, and promotions directly to the service's users, while the latter's mobile game center provides various content (*eg*, horoscope, community sites) and added LINE Comics on Apr 8. LINE should continue to do well thanks to the firm's strategy of securing diverse revenue streams in order to provide free messaging. The mobile content platform transition has proceeded most rapidly in Japan (due to the high number of subscribers there), and should occur gradually elsewhere once the service attract enough users.

Big data synergies: As Korea's number-one portal with over 70% of domestic search traffic, Naver collects myriad queries and page views daily. The company utilizes big data internally to improve search-service quality, but it could be used for shopping, advertising, and market trend analyses. Naver also provides cloud services via N-Drive, so it is poised to benefit if the domestic big data market blossoms.

SUMMARY FINANCIAL DATA

	2012	2013E	2014E	2015E
Revenue (KRWb)	2,389.3	3,001.0	3,504.0	4,037.9
Net profit (adj) (KRWb)	544.4	608.5	753.3	904.2
EPS (adj) (KRW)	10,912	12,543	15,553	18,767
EPS (adj) growth (%)	17.7	14.9	24.0	20.7
EBITDA margin (%)	33.8	31.5	31.7	31.9
ROE (%)	31.3	27.8	26.7	25.0
P/E (adj) (x)	27.5	23.9	19.3	16.0
P/B (x)	7.4	5.5	4.2	3.2
EV/EBITDA (x)	16.9	14.1	11.7	9.7
Dividend yield (%)	0.2	0.3	0.3	0.3

Source: Company data, Samsung Securities estimates

Still our top pick: We keep NHN as our sector top pick at BUY with a 12-month target price of KRW400,000, on expectations of it soon rerating, from: 1) its earnings being boosted by LINE; 2) sales at Han Game rising on LINE's brisk expansion amid mobile game market environment changes; and 3) it benefiting greatly on domestic big data market growth, thanks to its outstanding search service and massive data resources.

Table 1. NHN: Sum-of-the-parts valuation

(KRW)		Pre-spinoff value per share	Value of business (KRWb)	Post-spinoff value per share
LINE	Value relative to Facebook (A)*	194,915		
	DCF valuation (B)**	146,072		
	Average (C)=(A+B)/2	170,494	8,205	244,962
Portal	20x 2014 P/E (D)	182,820	8,799	262,673
Naver (LINE + portal)	**(E)=(C+D)**	**353,314**	**17,004**	**507,635**
Hangame	18x 2014 P/E (F)	**45,752**	**2,202**	**150,501**
Total	(E+F)	**399,066**	**19,206**	

Note: * Assumes LINE has 370m users by end-2014 (22% of Facebook's) and a value per user of USD23 (discounted 50% to Facebook's USD46 to reflect profitability differences); calculation based on 2014 figures when LINE's profitability is forecast to improve dramatically
** Assumes perpetual growth of 1%, WACC of 5.2%, and a risk-free rate of 2.8%
Source: Samsung Securities

Table 2. LINE: User estimates

	2011	2012	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
Users (mil)	11.0	94.0	230.3	368.5	486.4	569.1	640.2	691.4	719.1	740.7	755.5	770.6	786.0
Chg (% y-y)		754.5	145.0	60.0	32.0	17.0	12.5	8.0	4.0	3.0	2.0	2.0	2.0
Users in Japan (mil)	5.0	40.0	73.7	102.4	124.0	128.0	129.3	130.0	130.2	131.1	132.2	132.5	132.8
Portion of total users (%)	45.0	42.5	32.0	27.8	25.5	22.5	20.2	18.8	18.1	17.7	17.5	17.2	16.9
Chg (% y-y)		707.1	84.5	39.0	21.1	3.2	1.0	0.5	0.1	0.7	0.8	0.3	0.2

Table 3. LINE: Annual forecasts

(KRWb)	2012	2013E	2014E	2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E
Sales	63.4	510.1	838.2	1,132.8	1,328.5	1,492.2	1,610.0	1,673.6	1,723.3	1,757.5	1,792.3	1,827.7
Sticker	36.4	263.5	425.8	562.1	657.6	739.8	799.0	831.0	855.9	873.0	890.5	908.3
Channel	25.7	231.6	388.4	539.1	633.8	710.7	765.9	795.7	819.1	835.3	851.6	868.2
Games	24.5	225.0	340.2	471.5	551.7	620.6	670.3	697.1	718.0	732.4	747.0	762.0
Coupons	0.1	0.6	2.1	5.0	7.8	7.9	7.9	7.9	8.0	8.1	8.1	8.1
Shopping	0.4	3.0	4.2	5.0	7.8	7.9	7.9	7.9	8.0	8.1	8.1	8.1
Fortune telling	0.4	1.5	2.1	2.5	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7
Music	0.2	1.5	2.1	2.5	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7
Official account	1.3	15.0	24.0	31.7	37.1	41.7	45.0	46.8	48.2	49.2	50.2	51.2
Operating expenses	80.2	479.5	712.5	872.3	983.1	1,081.8	1,135.0	1,154.8	1,171.8	1,186.3	1,200.8	1,215.4
Operating profit	(16.9)	30.6	125.7	260.5	345.4	410.3	474.9	518.8	551.4	571.2	591.4	612.3
Operating margin (%)	(21.0)	6.0	15.0	23.0	26.0	27.5	29.5	31.0	32.0	32.5	33.0	33.5
Tax rate (%)	0.0	20.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Net profit	(16.9)	24.5	75.4	156.3	207.2	246.2	285.0	311.3	330.9	342.7	354.9	367.4

Source: Samsung Securities estimates

Table 4. LINE: Valuation

(KRWb)	
WACC (%)	4.2
Terminal growth (%)	1.0
Terminal value	8,779
NPV of FCFF	1,212
PV of terminal value	5,818
Fair value	**7,030**
Shares ('000)*	48,128
Fair value per share (KRW)	**146,072**

Note: Based on pre-spinoff shares
Source: Samsung Securities estimates

Income statement

Year-end Dec 31 (KRWb)	2011	2012	2013E	2014E	2015E
Sales	**2,121**	**2,389**	**3,001**	**3,504**	**4,038**
Search ads	1,082	1,206	1,325	1,450	1,598
Display ads	299	347	372	412	443
Online game	641	608	616	606	631
Other	100	228	688	1,036	1,366
COGS	0	0	0	0	0
SG&A expenses	1,461	1,687	2,180	2,489	2,834
Operating profit**	**660**	**702**	**821**	**1,015**	**1,204**
Net interest income	22	31	39	51	68
Net forex-related gains	0	(1)	0	0	0
Net equity-method gains	0	0	0	0	0
Other	(50)	0	(38)	(48)	(50)
Pre-tax profit	**632**	**732**	**822**	**1,018**	**1,222**
Taxes	180	187	214	265	318
Income from continuing operations	452	544	608	753	904
Income from discontinued operations	0	0	0	0	0
Net profit	**452**	**544**	**608**	**753**	**904**
Attrib to parent shareholders	450	546	610	756	907
Attrib to minority interest	2	(2)	(2)	(2)	(3)
Total comprehensive profit	**438**	**452**	**592**	**742**	**893**
Attrib to parent company	436	454	594	745	896
Attrib to minority interest	2	(2)	(2)	(3)	(3)
EBITDA	699	808	946	1,109	1,287
Adjusted EPS (KRW)*	9,273	10,912	12,543	15,553	18,767

Cash flow

Year-end Dec 31 (KRWb)	2011	2012	2013E	2014E	2015E
Cash flow from operations	**418**	**596**	**743**	**860**	**980**
Net profit	452	544	608	753	904
Depreciation & amortization	88	107	163	142	133
Net forex-translation losses (gains)	4	(35)	0	0	0
Net equity-method losses (gains)	(1)	(2)	0	0	0
Gross cash flow	**738**	**833**	**789**	**525**	**1,051**
(-) Change in working capital	(169)	(95)	(28)	(33)	(39)
Interest received (paid)	18	27	(18)	368	(32)
Dividends received (paid)	2	3	0	0	0
Other	(171)	(172)	(0)	(0)	0
Cash flow from investments	**(318)**	**(690)**	**(506)**	**(666)**	**(742)**
Capex	(121)	(277)	(198)	(244)	(226)
Free cash flow	297	318	545	616	754
Change in investment assets	(77)	(37)	(120)	(175)	(144)
Other	(120)	(376)	(188)	(247)	(372)
Cash flow from financing	**(189)**	**24**	**(150)**	**(12)**	**6**
Change in debt	(7)	151	(133)	0	0
Change in equity	0	0	0	0	0
Dividends	0	(24)	(27)	(30)	(36)
Other	(182)	(103)	9	18	42
Chg in cash	**(89)**	**(71)**	**86**	**182**	**244**
Cash at beginning of year	555	466	395	482	663
Cash at end of year	466	395	482	663	908

Note: K-IFRS consolidated figures from 2011
* Fully diluted, excluding one-off items;
**Includes other operating net profit
Source: Company data, Samsung Securities estimates

Balance sheet

Year-end Dec 31 (KRWb)	2011	2012	2013E	2014E	2015E
Current assets	**1,431**	**1,739**	**2,010**	**2,437**	**3,055**
Cash & equivalents	466	395	482	663	908
Accounts receivable	223	242	279	320	368
Inventories	0	0	0	0	0
Other current assets	742	1,101	1,249	1,453	1,779
Fixed assets	**942**	**1,188**	**1,383**	**1,703**	**1,986**
Investment assets	300	376	496	671	815
Equity in affiliated companies	99	123	142	163	179
Tangible assets	384	566	619	741	855
Intangible assets	139	122	135	151	168
Other long-term assets	119	125	132	140	148
Total assets	**2,373**	**2,927**	**3,393**	**4,140**	**5,041**
Current liabilities	**533**	**645**	**538**	**565**	**593**
Accounts payable	0	0	0	0	0
Short-term debt	25	3	3	3	3
Other current liabilities	508	643	535	562	590
Long-term liabilities	**262**	**378**	**386**	**394**	**403**
Bond & long-term debt	147	195	195	195	195
Other long-term liabilities	115	184	191	200	209
Total liabilities	**795**	**1,024**	**924**	**960**	**997**
Parent shareholder equity	**1,578**	**1,896**	**2,463**	**3,177**	**4,044**
Capital stock	24	24	24	24	24
Capital surplus	195	196	196	196	196
Retained earnings	2,171	2,668	3,251	3,976	4,855
Other	(813)	(991)	(1,008)	(1,019)	(1,031)
Minority interest equity	**0**	**7**	**5**	**3**	**0**
Total equity	**1,578**	**1,904**	**2,469**	**3,180**	**4,044**
Net debt	(618)	(762)	(1,091)	(1,434)	(1,958)
Book value per share (KRW)	32,721	40,771	54,236	71,658	93,561

Financial ratios

Year-end Dec 31	2011	2012	2013E	2014E	2015E
Growth (%)					
Sales	19.7	12.6	25.6	16.8	15.2
Operating profit	5.7	6.3	16.9	23.6	18.6
Net profit	(1.8)	20.4	11.8	23.8	20.0
Operating net profit*	(6.3)	18.0	14.9	24.0	20.7
EBITDA	(2.5)	10.6	17.1	17.2	16.0
Adjusted EPS*	(6.3)	17.7	14.9	24.0	20.7
Ratios (%)					
Operating margin	31.1	29.4	27.4	29.0	29.8
Net margin	21.3	22.8	20.3	21.5	22.4
EBITDA margin	32.9	33.8	31.5	31.7	31.9
ROE	30.7	31.3	27.8	26.7	25.0
ROA	20.8	20.5	19.3	20.0	19.7
ROIC	29.9	27.4	24.6	23.6	22.0
Net debt to equity	(39.2)	(40.0)	(44.2)	(45.1)	(48.4)
Interest coverage (x)	52.0	75.1	87.6	144.5	172.4
Receivables turnover days	32.9	35.5	31.7	31.2	31.1
Valuations (x)					
P/E	32.4	27.5	23.9	19.3	16.0
P/B	6.3	7.4	5.5	4.2	3.2
EV/EBITDA	13.4	16.9	14.1	11.7	9.7
EV/EBIT	15.3	19.5	17.0	13.4	10.8
Dividend yield (common, %)	0.2	0.2	0.3	0.3	0.3

Company Update

SBS (034120 KS)

Content is king

WHAT'S THE STORY?

Event: Content demand should continue to rise as access increases with rising smartphone and LTE penetration, N-screen platforms are launched, and Korean dramas gain global presence.

Impact We estimate that SBS's copyright sales will increase from KRW106b in 2012 to KRW192b in 2015, a CAGR of 16%.

Action: We reiterate BUY on SBS with a target price of KRW62,000 (based on 19x 2013 P/E).

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AT A GLANCE

SELL | HOLD | **BUY**

Target price	**KRW62,000 (24%)**
Current price	**KRW50,000**

Bloomberg code			**034120 KS**
Market cap			KRW870.6b/USD762.2m
Shares (float)			18,252,582 (65.3%)
52-week high/low			KRW48,200/KRW31,650
Average daily trading value (60-day)			KRW3.11b/ USD2.79m
One-year performance	1M	6M	12M
SBS (%)	+1.5	+14.3	+47.8
Vs Kospi (%pts)	+3.6	+14.9	+51.0

KEY CHANGES

(KRW)	New	Old	Diff
Recommendation	BUY	BUY	
Target price	62,000	62,000	0%
2012E EPS	1,583	1,583	0%
2013E EPS	3,276	3,323	-1%
2014E EPS	3,915	3,951	-1%

SAMSUNG vs THE STREET

No of I/B/E/S estimates	14
Target price vs I/B/E/S mean	10%
Estimates up/down (4 weeks)	*3/0*
1-year-fwd EPS vs I/B/E/S mean	3%
Estimates up/down (4 weeks)	*1/8*
I/B/E/S recommendation	Buy

THE QUICK VIEW

Copyright sales to grow structurally: We expect copyright sales at Korean media firms to continue rising as: 1) content demand grows in an increasingly vibrant mobile environment; 2) N-screen platforms and other businesses create new sources of revenue; and 3) Korean pop culture spreads. We estimate that SBS's copyright sales will increase from KRW106b in 2012 to KRW192b in 2015, a CAGR of 16%.

Content demand to grow with smart device and LTE penetration: At end-February, there were 34m smartphone and 19m LTE subscribers in Korea, making up a respective 63% and 35% of handset users. Real-time TV viewership at home has steadily fallen, while watching TV content through varied mobile devices is on the rise.

N-screen platform a new profit source: We believe N-screen platforms will serve as a new source of profit for SBS and other media firms. SBS's Pooq has 33 channels (including terrestrial stations KBS, MBC, SBS, and EBS) and about 1m paid subscribers, and we estimate that a 100,000 rise in fee-based subscribers would increase SBS's annual operating profit by KRW1.2b.

Korean dramas gaining presence abroad: China's online streaming market grew 200% in 2012 to CNY12.6b, and we estimate that it will expand to CNY21.2b in 2014 as: 1) 67% of traditional TV viewers convert amid growing smartphone and tablet PC penetration; and 2) new operators—such as Youku, Tudou, Sohu, and Baidu—continue to build a presence, with advertisers perceiving that the online platform has improved and copyright regulations likely to tighten. Korean content has been massively distributed in China, and monetization is gaining momentum—*eg*, Youku and Sohu recently signed content-distribution contracts with Korean broadcasters. With the online streaming and smartphone markets market likely to grow together, we believe Korean dramas will continue to gain presence in China.

SUMMARY FINANCIAL DATA

	2011	2012	2013E	2014E
Revenue (KRWb)	721	757	763	879
Net profit (adj) (KRWb)	58	29	60	72
EPS (adj) (KRW)	3,170	1,583	3,276	3,915
EPS (adj) growth (%)	8,382.3	(50.1)	107.0	19.5
EBITDA margin (%)	14.7	8.9	13.3	13.1
ROE (%)	11.8	5.6	10.4	11.4
P/E (adj) (x)	15. 8	31.6	15.3	12.8
P/B (x)	1.7	1.7	1.5	1.4
EV/EBITDA (x)	7.8	12.1	8.0	6.5
Dividend yield (%)	0.0	1.7	1.3	1.5

Source: Company data, Samsung Securities estimates

Table 1. Pooq channels

Company	Channels
KBS	KBS1, KBS2, KBS Drama, KBS Joy, KBS Prime, KBS World
MBC	MBC, MBC Drama, MBC Every, MBC Life, MBC Music, MBC FM, MBC FM4U
SBS	SBS, SBS CNBC, SBS E, SBS Golf, SBS Plus, SBS Love FM, SBS Power FM
EBS	EBS, EBS+1, EBS+2, EBS English, EBS Infants
Yonhap	News Y
Pooq	Pooq Drama1, Pooq Drama2, Pooq Music, Pooq Quiz, Pooq Surprise, Pooq Talk, Pooq Travel

Source: Pooq

Table 2.Pooq price table

(KRW)	30-days	Monthly plan	Monthly plan (with event **)
On-Air	3,900	2,900	2,900
Replay*	9,900	8,900	4,900
On-Air + Replay***	11,900	9,900	5,900

Note: *Download is KRW1,000/usage; **Event ends on Dec 31, 2013; ***New subscribers get one month free
Source: Pooq

Table 3. SBS: Impact on sales and operating profits of 100,000 fee-based Pooq subscribers

(KRWb)		Note
Pooq: Paying subscribers (persons, A)	100,000	
ARPU (KRW, B)	5,900	
Pooq: Annual sales (A x B)	7.1	
SBS: Annual sales (A x B x 33%)	2.4	
SBS: Operating profit	1.2	
On-air	0.5	Takes 25% of sales, 20% of platform commissions
VOD	0.7	Takes 75% of sales, 20% of platform commissions, 50% from revenue sharing with SBSCH

Source: Samsung Securities estimates

Table 4. Pooq subscribers and contribution

Subscribers	Sales contribution (%)	Operating profit contribution (%)
100,000	0.3	1.6
200,000	0.6	3.2
300,000	0.9	4.8
400,000	1.2	6.4
500,000	1.5	8.0
600,000	1.9	9.7

Source: SBS, Samsung Securities estimate

Income statement

Year-end Dec 31 (KRWb)	2011	2012	2013E	2014E	2015E
Sales	**721**	**757**	**763**	**879**	**831**
Cost of goods sold	480	567	533	615	552
Gross profit	**241**	**190**	**230**	**265**	**279**
Gross margin (%)	33.4	25.1	30.1	30.1	33.6
SG&A expenses	158	149	156	177	171
Operating profit	**83**	**41**	**73**	**88**	**108**
Operating margin (%)	11.5	5.4	9.6	10.0	13.0
Net interest income	2	1	4	6	11
Net forex-related gains	0	4	0	0	0
Net equity-method gains	1	(1)	(1)	(1)	(5)
Other	0	0	0	0	0
Pre-tax profit	**77**	**41**	**78**	**94**	**114**
Taxes	19	12	18	23	23
Income from continuing operations	77	41	78	94	114
Net profit	**58**	**29**	**60**	**72**	**87**
Net margin (%)	8.1	3.8	7.8	8.1	10.5
Attributable to parents	**58**	**29**	**60**	**72**	**87**
EBITDA	106	67	101	115	134
EBITDA margin (%)	14.7	8.9	13.3	13.1	16.1
Reported EPS (KRW)	3,180	1,583	3,276	3,915	4,753
Adjusted EPS (KRW)**	3,170	1,583	3,276	3,915	4,753
DPS (common, KRW)	800	600	700	900	1,000
DPS (preferred, KRW)	0	0	0	0	0
Dividend payout ratio (%)	25.2	37.9	21.4	23.0	21.0

Cash flow

Year-end Dec 31 (KRWb)	2011	2012	2013E	2014E	2015E
Cash flow from operations	**81**	**50**	**97**	**103**	**125**
Net profit	58	29	60	72	87
Depreciation & amortization	23	27	28	27	26
Net forex-translation income	0	(1)	0	0	0
Net equity-method income	(1)	1	1	1	0
Gross cash flow	**104**	**65**	**97**	**108**	**123**
(-) Change in working capital	85	59	(0)	(6)	1
Other	(84)	(65)	11	12	12
Cash flow from investments	**(102)**	**30**	**(25)**	**(23)**	**(24)**
Capex	(47)	(34)	(25)	(23)	(24)
Free cash flow	**34**	**16**	**72**	**80**	**101**
Change in investment assets	(62)	11	0	0	0
Other	0	0	0	0	0
Cash flow from financing	**(56)**	**64**	**0**	**0**	**0**
Change in debt	20	(20)	(66)	(16)	(18)
Change in equity	(30)	15	(54)	0	0
Dividends	0	0	0	0	0
Other	(15)	(11)	(13)	(16)	(18)
Change in cash	**65**	**(24)**	**0**	**0**	**0**
Cash at beginning of year	(1)	60	6	64	83
Cash at end of year	31	30	90	95	159

Note: K-IFRS parent-based figures
* Excludes one off items
** Fully diluted, excludes one-off items, includes net equity-method gains
Source: Company data, Samsung Securities estimates

Balance sheet

Year-end Dec 31 (KRWb)	2011	2012	2013E	2014E	2015E
Current assets	**442**	**377**	**382**	**476**	**546**
Cash & equivalents	30	90	95	159	242
Accounts receivable	191	166	167	193	182
Inventories	2	2	2	2	2
Other current assets	218	119	118	122	120
Fixed assets	**407**	**448**	**441**	**434**	**428**
Investment assets	24	34	40	45	49
Equity in affiliated companies	19	29	31	33	35
Tangible assets	340	347	344	340	339
Intangible assets	5	5	6	7	9
Other long-term assets	38	61	51	41	31
Total assets	**849**	**825**	**824**	**910**	**974**
Current liabilities	**296**	**212**	**209**	**234**	**223**
Accounts payable	57	48	48	55	52
Short-term debt	59	54	50	50	50
Other current liabilities	181	111	111	128	121
Long-term liabilities	**19**	**64**	**17**	**20**	**24**
Bond & long-term debt	0	50	0	0	0
Other long-term liabilities	19	14	17	20	24
Total liabilities	**316**	**276**	**226**	**254**	**247**
Owners of parent equity	533	549	598	657	727
Capital stock	91	91	91	91	91
Capital surplus	58	58	58	58	58
Retained earnings	384	400	449	507	578
Other	0	0	0	0	0
Minority interest	0	0	0	0	0
Total equity	**533**	**549**	**598**	**657**	**727**
Net debt	(129)	(71)	(130)	(194)	(277)
Book value per share (KRW)	29,220	30,079	32,755	35,970	39,824

Financial ratios

Year-end Dec 31	2011	2012	2013E	2014E	2015E
Growth (%)					
Sales	5.6	11.0	0.7	15.3	(5.6)
Operating profit	n/a	(50.8)	80.2	20.4	22.4
Pre-tax profit	1,618.2	(46.8)	89.7	21.1	21.4
Net profit	1,446.7	(50.2)	107.0	19.5	21.4
Operating net profit*	8,382.3	(50.1)	107.0	19.5	21.4
EBITDA	455.8	(36.3)	50.5	13.7	16.1
Adjusted EPS**	8,382.3	(50.1)	107.0	19.5	21.4
Ratios					
ROE (%)	11.8	5.6	10.4	11.4	12.5
ROA (%)	6.8	3.5	7.3	7.8	8.9
ROIC (%)	17.0	7.6	12.9	15.7	19.6
Net debt to equity (%)	nc	nc	nc	nc	nc
Interest coverage (x)	nm	nm	nm	nm	nm
Receivables turnover (days)	97	80	80	80	80
Payables turnover (days)	29	23	23	23	23
Inventory turnover (days)	2	1	1	1	1
Valuations (x)					
P/E	15.8	31.6	15.3	12.8	10.5
P/B	1.7	1.7	1.5	1.4	1.3
EV/EBITDA	7.8	12.1	8.0	6.5	5.1
EV/EBIT	9.5	20.7	10.7	8.1	5.9
Dividend yield (common, %)	0.0	1.6	1.2	1.4	1.8

■ Compliance Notice

- As of May 3, 2013, Samsung Securities shared group affiliation with Samsung Electronics and Samsung SDI.
- As of May 3, 2013, Samsung Securities had issued equity-linked warrants with shares in SK Hynix and LG Chem as underlying assets.
- As of May 3, 2013, Samsung Securities' holdings of shares and debt instruments convertible into shares of each company covered in this report would not, if such debt instruments were converted, exceed 1% of each company's outstanding shares.
- As of May 3, 2013, the covering analyst(s) did not own any shares, or debt instruments convertible into shares, of any company covered in this report.
- This material has not been distributed to institutional investors or other third parties prior to its publication.
- This report has been prepared without any undue external influence or interference, and accurately reflects the views of the analyst(s) covering the company or companies herein.
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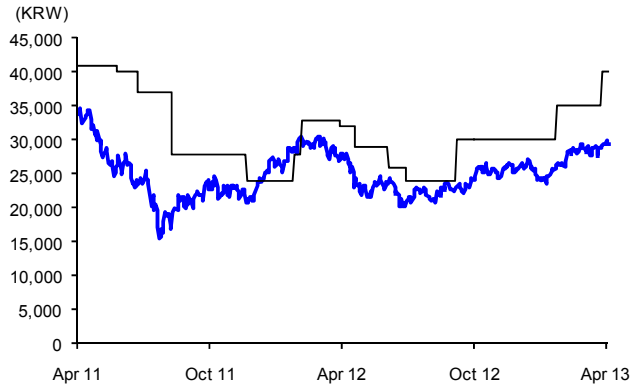
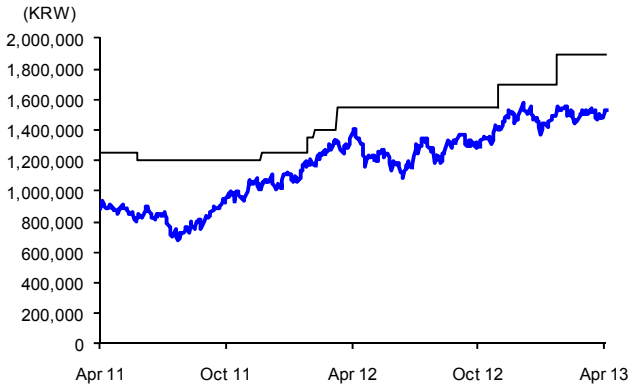
■ Target price changes in past two years

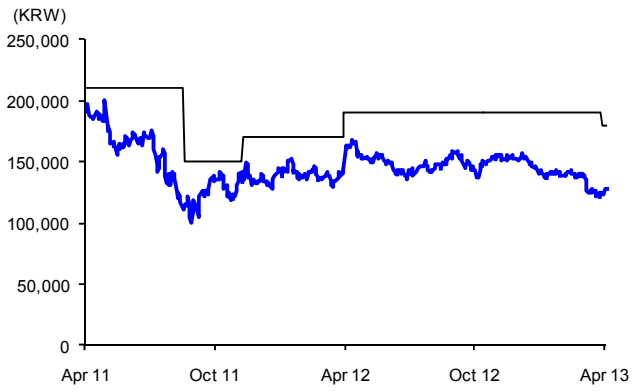
SK Hynix



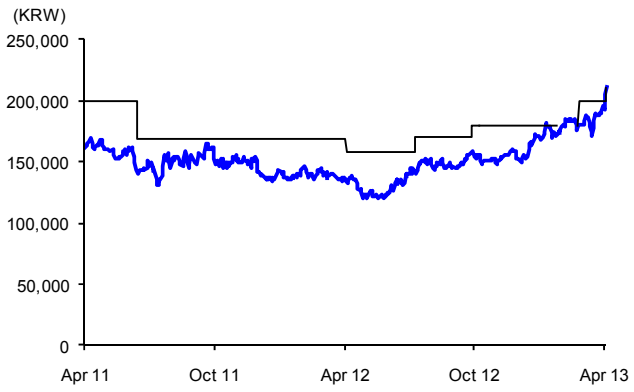
Samsung Electronics



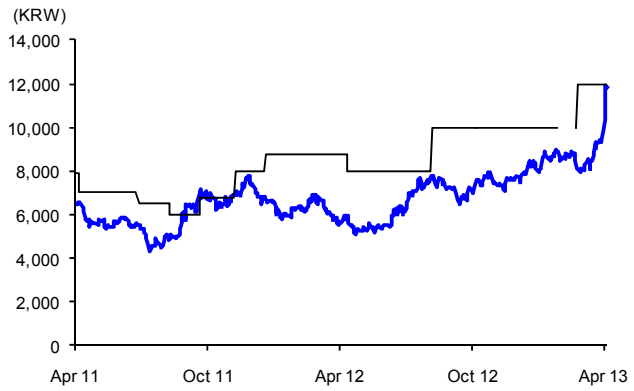
Samsung SDI



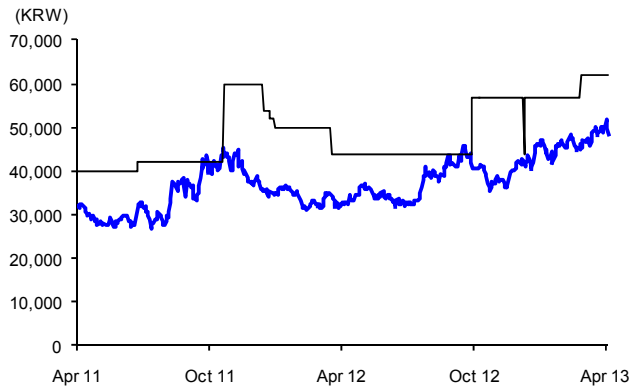
SK Telecom



LG Uplus

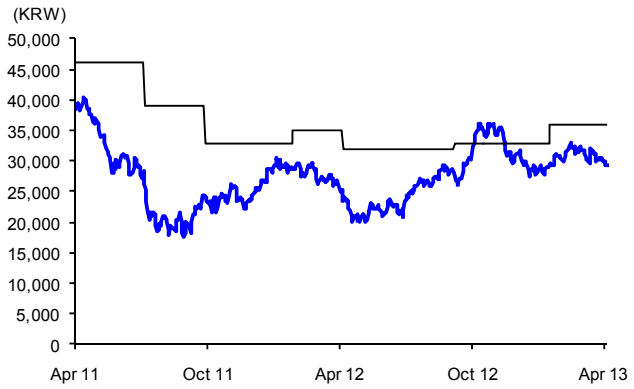


SBS

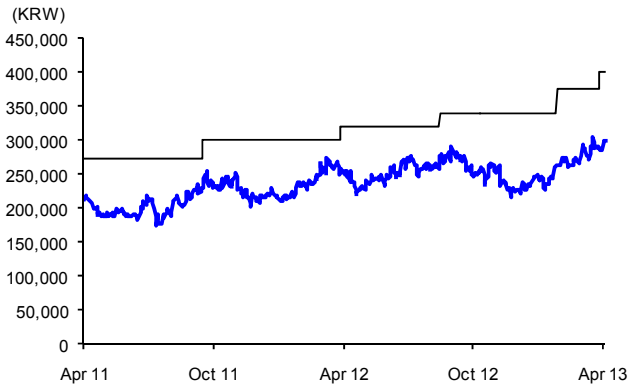


■ Target price changes in past two years

LG Display

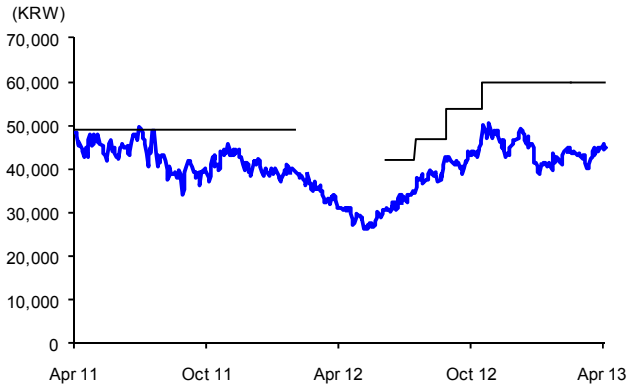


NHN



KGINICIS

Soulbrain



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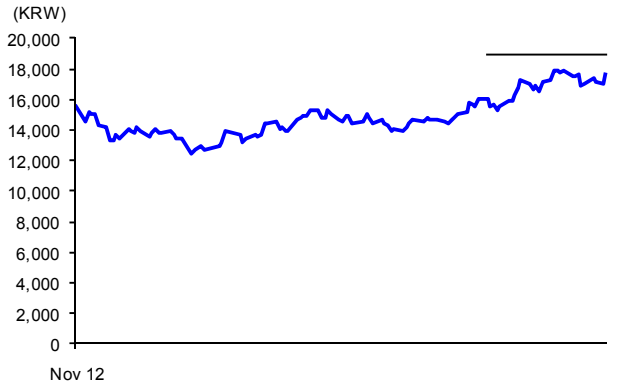

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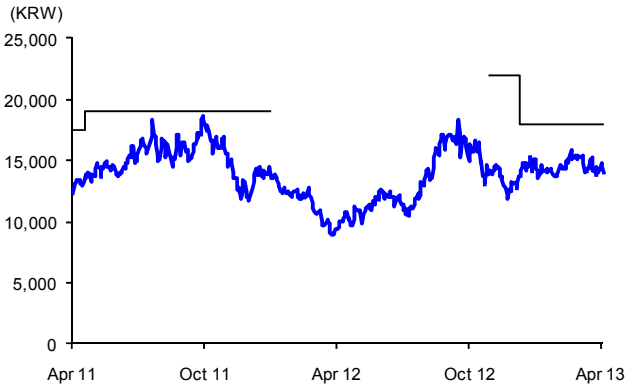
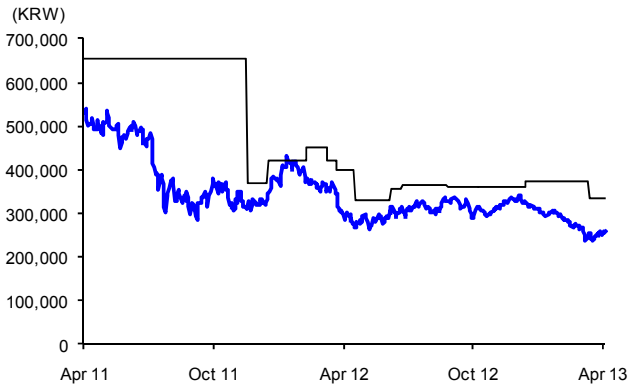


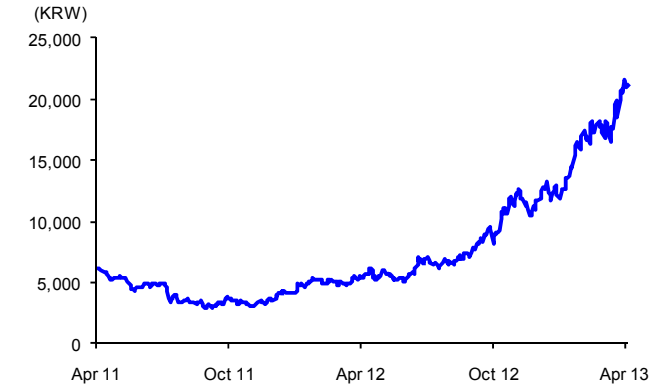
■ Target price changes in past two years

KGMobilians Co., Ltd.

LG Chem



Amotech



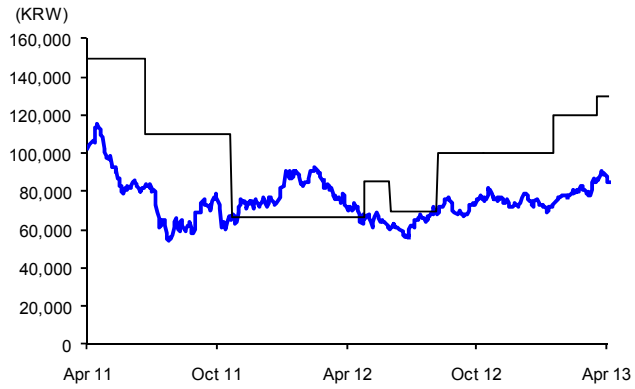
KCP

Danal

Uju Electronics

■ Target price changes in past two years

LG Electronics

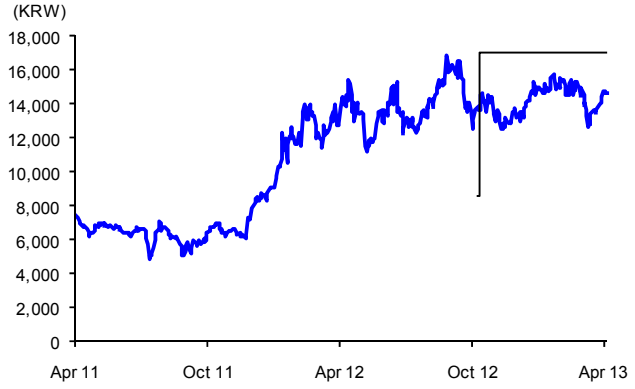


Com2us

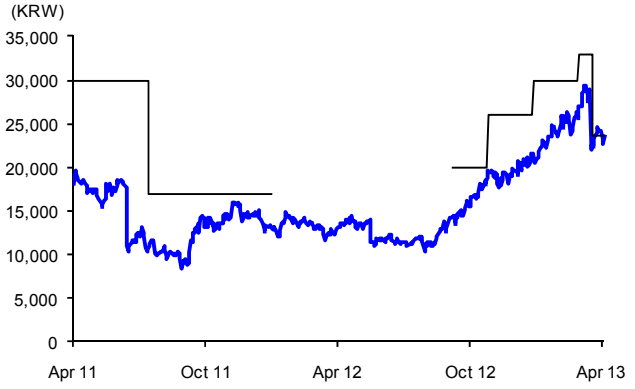
EMW

InnoChips Technology

MDS Technology



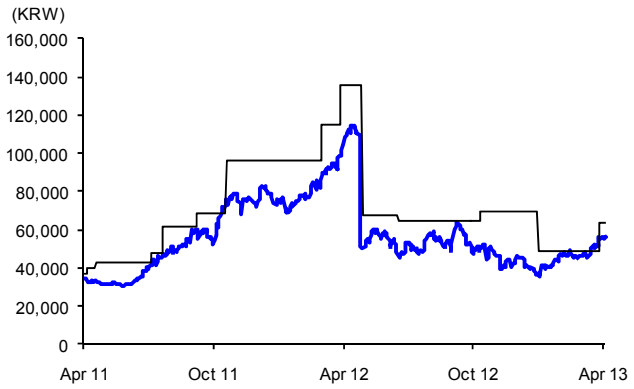
Partron



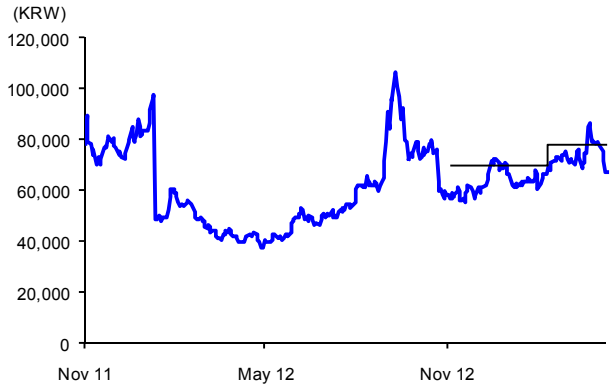
■ Target price changes in past two years

RFsemi Technologies,Inc.

WeMade Entertainment

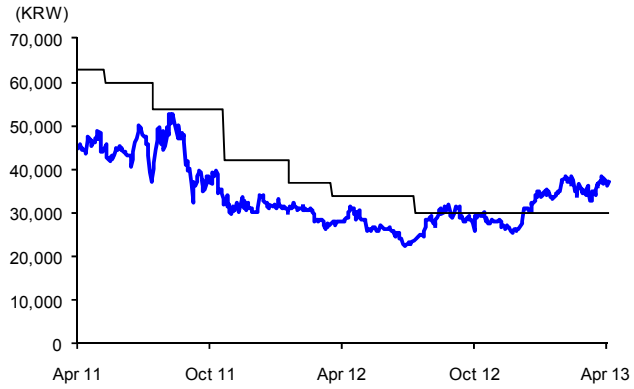


YG Entertainment



WiSol

CJ E&M



■ Rating changes in past two years

SK Hynix												
Date	2011/5/11	6/22	7/22	9/8	12/19	2012/2/24	3/4	4/26	5/17	7/1	7/27	10/4
Recommendation	BUY	BUY	BUY	BUY	HOLD	HOLD	HOLD	HOLD	HOLD	HOLD	HOLD	BUY
Target price (KRW)	41,000	40,000	37,000	28,000	24,000	28,000	33,000	32,000	29,000	26,000	24,000	30,000
Date	2013/2/20	2/22	3/18	4/24								
Recommendation	BUY	BUY	BUY	BUY								
Target price (KRW)	35,000	30,000	35,000	40,000								
Samsung Electronics												
Date	2011/5/11	6/22	9/8	12/19	2012/2/24	3/4	4/9	11/27	2013/2/20			
Recommendation	BUY★★★	BUY★★★	BUY★★★	BUY	BUY	BUY	BUY	BUY	BUY			
Target price (KRW)	1,250,000	1,200,000	1,050,000	1,250,000	1,350,000	1,400,000	1,550,000	1,700,000	1,900,000			
Samsung SDI												
Date	2011/5/11	9/15	12/8	2012/4/29	2013/4/26							
Recommendation	BUY	BUY	BUY	BUY	BUY							
Target price (KRW)	210,000	150,000	170,000	190,000	180,000							
SK Telecom												
Date	2011/5/6	7/11	2012/5/3	8/3	10/26	2013/3/22	5/2					
Recommendation	BUY	HOLD	HOLD	BUY	BUY	BUY	BUY					
Target price (KRW)	200,000	169,000	158,000	170,000	180,000	200,000	210,000					
LG Uplus												
Date	2011/5/4	7/22	9/8	10/19	12/6	2012/1/17	3/22	3/28	5/10	8/31	2013/3/22	
Recommendation	HOLD	HOLD	HOLD	HOLD	BUY	BUY	HOLD	BUY	BUY	BUY	BUY	
Target price (KRW)	7,000	6,500	6,000	6,800	8,000	8,800	12,000	8,800	8,000	10,000	12,000	
SBS												
Date	2011/6/9	7/21	11/16	2012/1/11	1/20	1/27	4/16	2013/1/8	3/26			
Recommendation	BUY	BUY	BUY★★★	BUY★★★	BUY	BUY	BUY	BUY	BUY			
Target price (KRW)	40,000	42,000	60,000	54,000	52,000	50,000	44,000	57,000	62,000			
LG Display												
Date	2011/5/9	7/6	10/25	2012/2/24	5/3	10/4	2013/2/20					
Recommendation	BUY★★★	BUY	BUY★★★	BUY	BUY	HOLD	BUY					
Target price (KRW)	46,000	39,000	33,000	35,000	32,000	33,000	36,000					
NHN												
Date	2011/5/9	10/13	2012/4/25	9/12	2013/2/25	4/24						
Recommendation	BUY	BUY	BUY	BUY	BUY	BUY						
Target price (KRW)	273,000	300,000	320,000	340,000	375,000	400,000						
KGINICIS												
Date												
Recommendation												
Target price (KRW)												
Soulbrain												
Date	2011/5/11	8/11	2012/7/2	8/13	9/25	11/13						
Recommendation	BUY★★★	BUY	BUY★★★	BUY★★★	BUY★★★	BUY★★★						
Target price (KRW)	49,000	49,000	42,000	47,000	54,000	60,000						
CJ HelloVision												
Date	2013/3/22											
Recommendation	BUY											
Target price (KRW)	19,000											
SBS Contents Hub												
Date	2011/5/17	2012/11/26	2013/1/8									
Recommendation	BUY	BUY★★★	BUY									
Target price (KRW)	19,000	22,000	18,000									
KGMobilians Co., Ltd.												
Date												
Recommendation												
Target price (KRW)												

■ Rating changes in past two years

LG Chem												
Date	2011/5/6	12/13	2012/1/13	3/8	4/7	4/19	5/15	5/16	5/24	7/4	7/18	9/25
Recommendation	BUY	BUY	BUY	BUY	BUY	BUY	BUY	BUY	BUY	BUY	BUY	BUY
Target price (KRW)	654,000	370,000	420,000	450,000	420,000	400,000	330,000	400,000	330,000	355,000	365,000	360,000
Date	2013/1/10	4/9										
Recommendation	BUY	BUY										
Target price (KRW)	375,000	335,000										
Amotech												
Date												
Recommendation												
Target price (KRW)												
KCP												
Date												
Recommendation												
Target price (KRW)												
Danal												
Date												
Recommendation												
Target price (KRW)												
Uju Electronics												
Date												
Recommendation												
Target price (KRW)												
LG Electronics												
Date	2011/5/13	7/7	10/25	11/3	2012/5/24	6/29	9/5	2013/2/20	4/14			
Recommendation	BUY	BUY	BUY	HOLD	BUY	HOLD	BUY	BUY	BUY			
Target price (KRW)	150,000	110,000	90,000	67,000	85,000	70,000	100,000	120,000	130,000			
Com2us												
Date	2012/11/12	2013/1/28	4/24									
Recommendation	BUY	BUY	BUY									
Target price (KRW)	90,000	60,000	72,000									
EMW												
Date												
Recommendation												
Target price (KRW)												
InnoChips Technology												
Date												
Recommendation												
Target price (KRW)												
MDS Technology												
Date	2012/11/9											
Recommendation	BUY											
Target price (KRW)	17,000											
Partron												
Date	2011/5/20	8/4	2012/10/4	11/27	2013/1/24	3/28	4/17					
Recommendation	BUY★★★	BUY★★★	BUY★★★	BUY★★★	BUY★★★	BUY★★★	BUY★★★					
Target price (KRW)	30,000	17,000	20,000	26,000	30,000	33,000	23,600					
RFsemi												
Date												
Recommendation												
Target price (KRW)												
WeMade Entertainment												
Date	2011/5/16	8/2	8/18	10/4	11/15	2012/3/29	4/25	5/25	7/16	10/8	11/7	2013/1/28
Recommendation	BUY	BUY	BUY	BUY	BUY	BUY	BUY	BUY	BUY	BUY	BUY	BUY
Target price (KRW)	43,000	48,000	62,000	69,000	96,000	115,000	136,000	68,000	65,000	74,000	70,000	49,000
Date	4/24											
Recommendation	BUY											
Target price (KRW)	64,000											

■ Rating changes in past two years

YG Entertainment		
Date	2012/11/26	2013/3/5
Recommendation	BUY	BUY
Target price (KRW)	70,000	78,000

WiSol		
Date		
Recommendation		
Target price (KRW)		

CJ E&M							
Date	2011/5/12	6/7	8/12	11/16	2012/2/15	4/16	8/9
Recommendation	BUY	BUY	BUY	HOLD	HOLD	HOLD	HOLD
Target price (KRW)	63,000	60,000	54,000	42,000	37,000	34,000	30,000

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BUY★★★	Expected to increase in value by 30% or more within 12 months and is highly attractive within sector
BUY	Expected to increase in value by 10% or more within 12 months
HOLD	Expected to increase/decrease in value by less than 10% within 12 months
SELL	Expected to decrease in value by 10% or more within 12 months
SELL★★★	Expected to decrease in value by 30% or more within 12 months

Industry

OVERWEIGHT	Expected to outperform market by 5% or more within 12 months
NEUTRAL	Expected to outperform/underperform market by less than 5% within 12 months
UNDERWEIGHT	Expected to underperform market by 5% or more within 12 months

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