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Consumer Electronics (Citi)
Japan

Japanese Consumer Electronics: Global Context Redux

Device explosion: The digital convergence cliff

- Industry Overview

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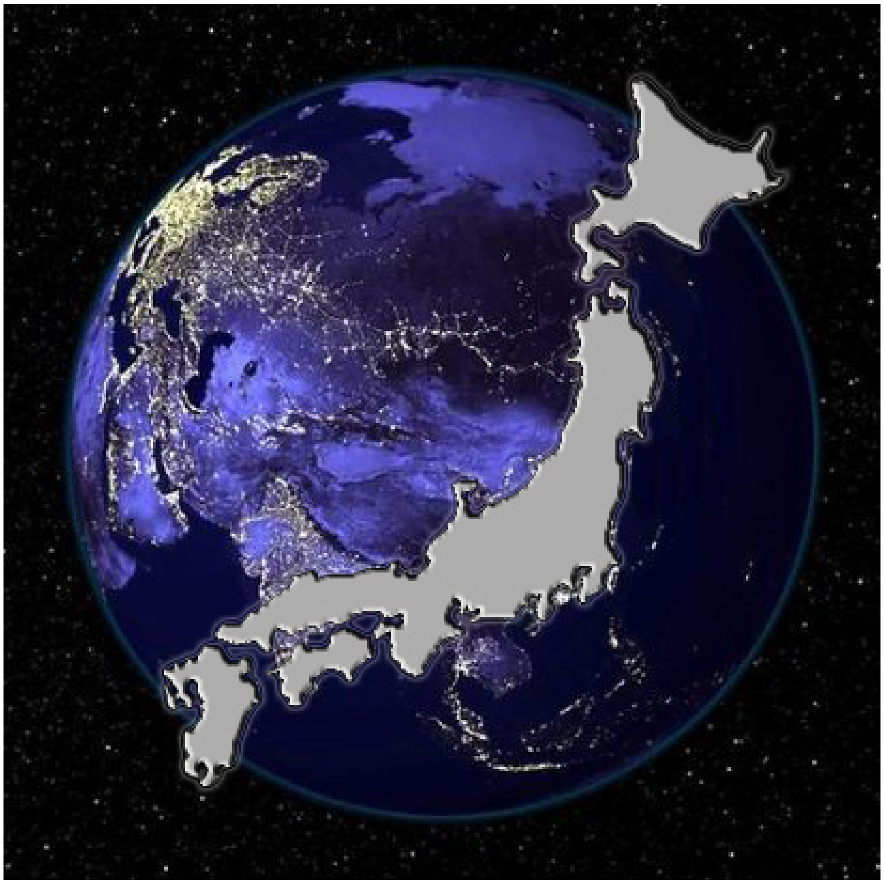
- **Growing concern about shrinking consumer electronics sector** — The industry environment has grown bleaker still in the three months or so that have elapsed since our September 10 report, Japanese Consumer Electronics in a Global Context - A drama of collapse—and revival?. Recent changes in the industry as a whole suggest problems are not confined to Sony and Panasonic but have shown up in the recent numbers from Dell, HP, HTC, and Quanta. We believe even smartphone market value is maturing (see our November 26 report Apple, Inc. (AAPL) - Experiencing Growing Pains but at Near-Term Trough), and is poised to slow sharply. In this report we take a fresh look at the sector as it nears a "digital convergence cliff" and discuss the structural changes Japanese firms need to make.



No more booms for Japanese electronics

Hopes ebb in the last three months of 15-year cycle recurrence

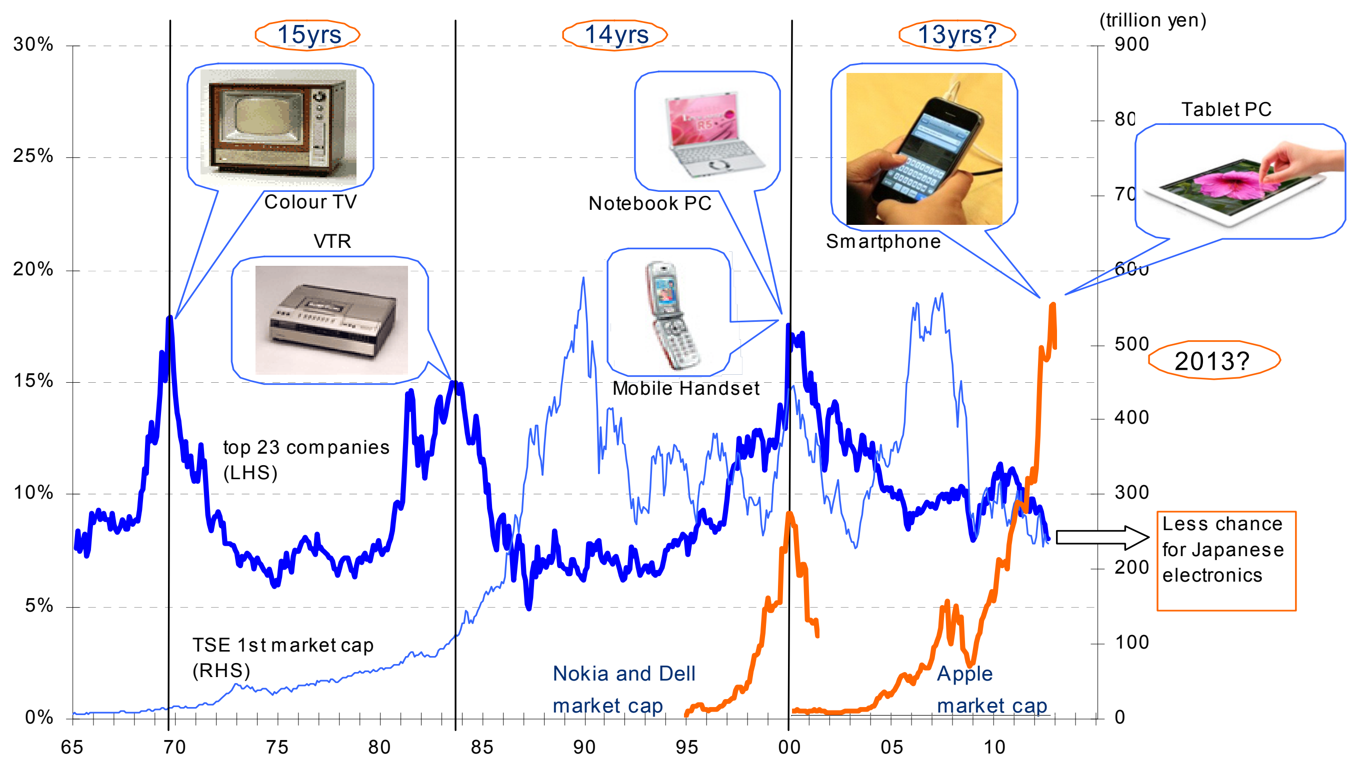
Most may not realize that just over 40 years have passed since CRT color TVs went mainstream, triggering a tech stock boom. The market weighting of Japan's 23 tech majors increased to 17% at that time, becoming a symbol of Japan's rapid economic growth. Since then, tech stocks have risen and fallen in a 14-15 year cycle, with the VHS video player leading them to sunlit uplands in 1985 and mobile phones and notebook PCs doing the same in 2000. However, it now appears that this cycle has been lost to Japanese stocks.

In the flat-screen TV boom, which peaked in 2006, Japanese firms have faced intense competition from Taiwanese and South Korean firms in both panels and TVs, and it was no longer possible for Japanese firms to semi-monopolize the market. They have also fallen by the wayside in the mobile phone market as global competition has intensified and in the chip market as technologies have advanced, and now appear incapable of driving a boom in the domestic stock market.

The expansion of smartphone and tablet PC markets since 2009 has resulted in decisive defeats for Japanese companies. Twelve years on from the last market peak, Apple is driving the tech stock boom. Figure 1 clearly shows the generational changes in this revolving 14/15-year (perhaps only 13 years this time) cycle drama.

Then in the last three months, Japanese firms have seen their position eroded further. Since our previous report, on September 10, through November 28, Panasonic shares have shed 26% (to ¥401 from ¥543), Sharp 19% (to ¥164 from ¥202), and Sony 13% (to ¥803 from ¥921). Over the same period, Apple shares have lost 12%.

Figure 1. Combined market cap of Japan top 23 electronics companies as a percentage of TSE1 market cap

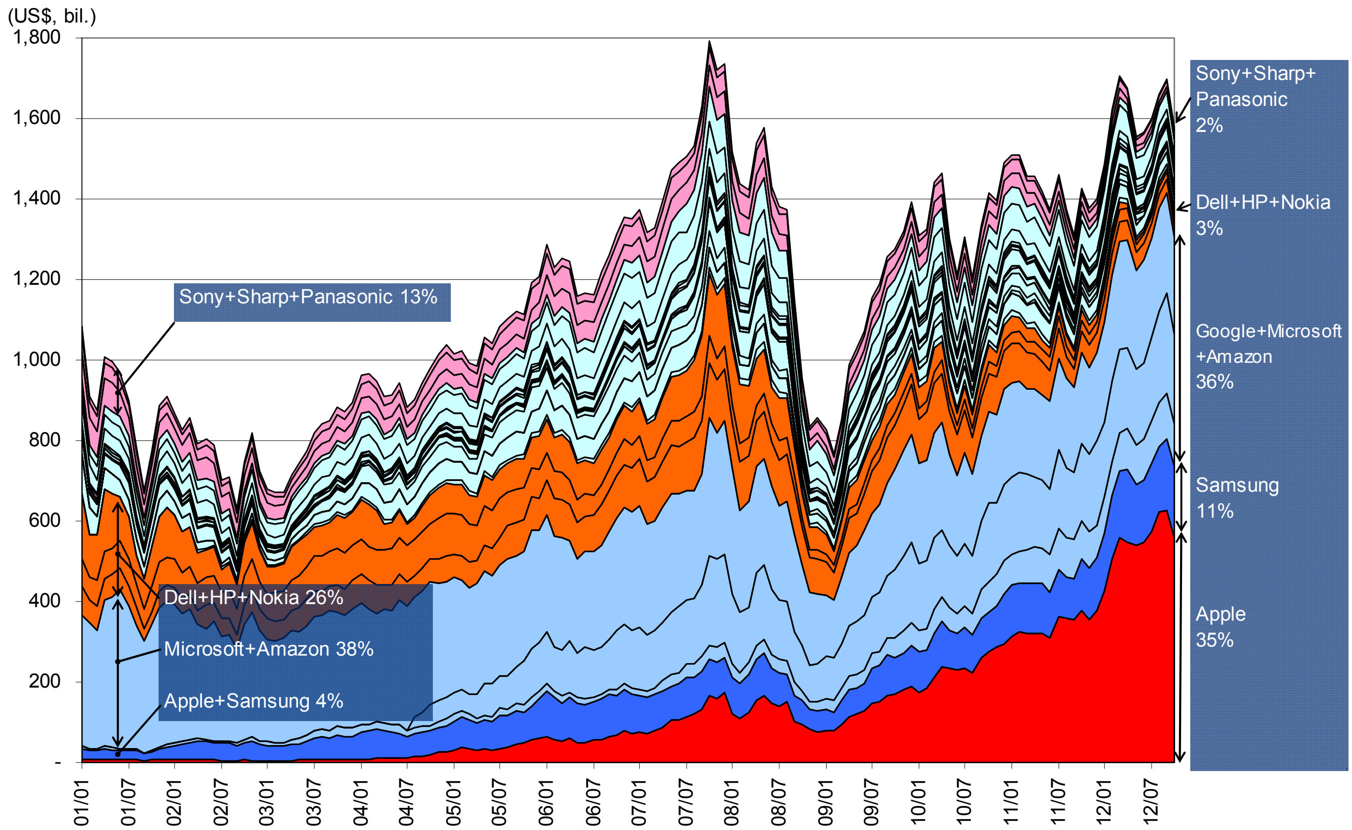


Note: Top 23 companies: Hitachi, Toshiba, Mitsubishi Electric, NEC, Fujitsu, Oki Electric, Panasonic, Sharp, Sony, Sanyo Electric, Nidec, TDK, Rohm, Kyocera, Murata, Fujifilm, Seiko Epson, Nikon, Hoya, Canon, Ricoh, Advantest, and Tokyo Electron. The Nokia and Dell market cap is the combined amount for both companies. The Nokia, Dell, and Apple market caps are for illustrative purposes only and do not match RHS scale, which is the aggregate market cap for the top 23 Japanese companies.
Source: Bloomberg, Citi Research.

Five largest consumer electronics companies account for 82% of the combined market cap of the majors: Apple alone accounts for 35%

As of October 31, Apple had a market cap of $560bn (¥44.8trn), or 35% of the total for major consumer electronics makers (including AV, games, mobile phones, PC hardware and software companies). The top five companies accounted for 82% of the total (Samsung 11%, Google 14%, Microsoft 15%, Amazon 7%), highlighting a trend toward dominance by the elite (Figure 2). Since the 2000 boom, the market cap of major consumer electronics companies has increased 47% to ¥127.6trn ($1.6trn). In the same period, the combined market cap of Panasonic, Sharp, and Sony has plunged 77%, to $30.1bn from $129.5bn, and their weighting has slumped to 2% from 13%.

Figure 2. Market cap trends for major consumer electronics-related companies



Note: We have selected companies that make finished consumer electronics products (or something close) and not included semiconductor and other upstream industries
Note: Survey universe: Apple, Microsoft, Google, Amazon, HP, Dell, Motorola, Philips, Ericsson, Nokia, Samsung, LG, Lenovo, Asus, Acer, Hon Hai, Compal, ZTE, HTC, Canon, Nintendo, Panasonic, Sharp, Sony.
Source: Bloomberg, Citi Research.

80% of ratings on the top five companies are Buy

The overwhelming consensus is that the share prices of the five biggest gainers since 2000 will continue to rise (despite the sharp pullback in Apple's share price over the last two months). The investment view on fallen-star Japanese companies, however, is much less sanguine, and over the last three months more sell ratings have been added. Eighty percent of analyst ratings on the top five companies are Buy. For Japanese companies, the average recommendation has fallen, with the Buy ratio only 14%, while the Sell ratio is 34% (as of November 28).

However, an approach wherein the global consumer electronics market is seen as bi- or tri-polar may no longer be valid in the coming age of multipolarity. B2B products and services could become the main drivers of value creation in medical, infrastructure, and other business fields. Nonetheless, to be clear, the prospect of

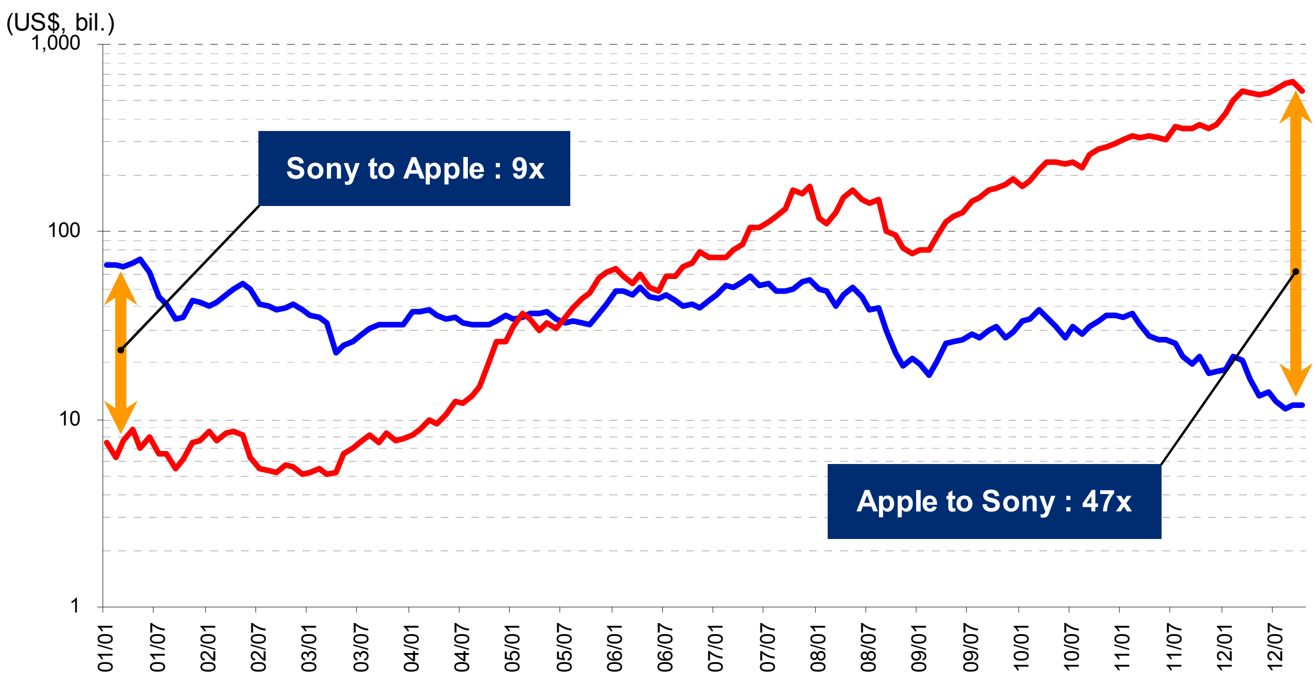
Japanese consumer electronics makers emulating Apple in the current 15-year cycle and expanding their market cap 50x is effectively zero. As things stand, the opportunity for another boom in Japanese electronics stocks appears to be gone.

Figure 3. Sell-side analyst ratings for major tech companies

		AAPL	SEC	GOOG	MSFT	AMZN	Pana	Sharp	Sony	Top 5	JP 3
	55	47	34	29	30	6	-	2	80%	14%	55
	6	-	11	12	13	11	9	11	17%	52%	6
	2	1	-	1	2	3	13	4	2%	34%	2
	63	48	45	42	45	20	22	17	100%	100%	63
	87%	98%	76%	69%	67%	30%	0%	12%	80%	14%	87%

Note: Top 5 is the total for Apple, Samsung, Google, Microsoft, and Amazon; JP3 is the total for Panasonic, Sharp, and Sony (as of November 28).
Source: Bloomberg, Citi Research

Figure 4. Market cap trends for Apple and Sony



Source: Bloomberg, Citi Research.

Analyzing recent smartphone and tablet market changes

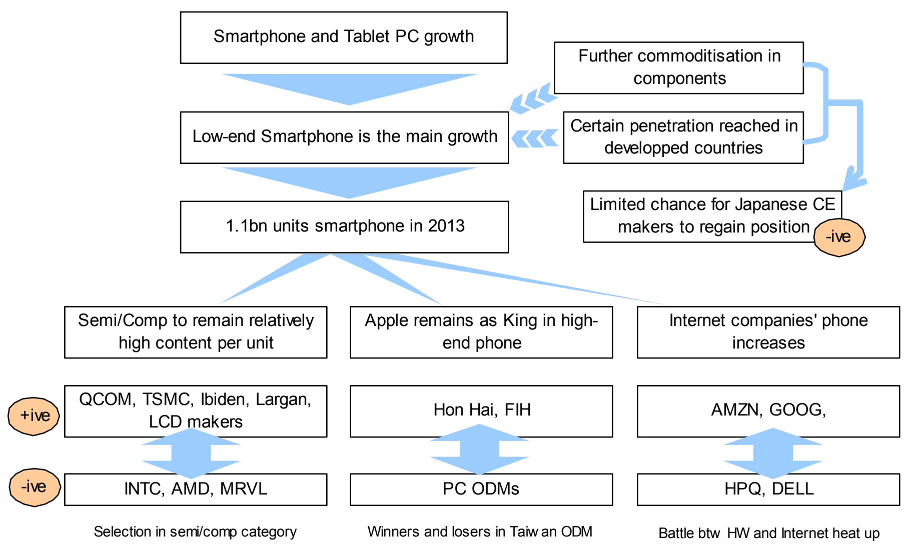
Smartphones a 1.1bn-unit market in 2013

The rapid expansion of smartphone and tablet PC markets continues unabated. In particular, we highlight smartphone volume growth. In 2013, we now estimate smartphones alone will be a 1.1bn-unit market. We believe the strengthening of supply chains for key components (application processors, displays, batteries) and the standardization of handset designs (both hardware and software) will make it easier to reduce costs and that low-price models will propel market expansion.

Reference report:
Kevin Chang 11/2 Device Explosion: Smartphone Shipments to Hit 1.1bn in 2013

On the basis of a 1.1bn-unit smartphone market, we have created a detailed supply chain survival-of-the-fittest map, and we sense that the gulf between the winners and losers has widened over the last three months. First, the Citi global technology team picked winners and losers among companies related to PCs and companies related to smartphones in semiconductor and electronic component categories. This created a map of global winners and losers (Figure 5). In addition, for Taiwan, we forecast earnings for PC ODM makers and EMS companies that manufacture smartphones. And for the US, we assumed tablet PCs and smartphones handled by Internet companies would be competitive in pricing terms and that the growth potential of these Internet companies would outstrip that of traditional PC makers.

Figure 5. Smartphones: A diagram of our market logic



Source: Citi Research.

We are bearish on PC and PC semiconductor and device share prices

Despite strong smartphone and tablet PC market growth, sales at Sharp, Sony, HP, Dell, Nokia, and HTC are declining (with the same true at many others). We remain generally bearish on these stocks. In contrast to smartphones and tablet PCs, while the smartphone and tablet PC markets are expanding, traditional PC and other digital consumer electronics are in decline. We issued Sell recommendations on HP and Dell on October 8. We are bearish on PC, PC chip, and device stocks.

The substitution of smartphones and tablet PCs for old economy products is not only changing the product landscape but also driving a generational change in the corporate landscape. Old economy notebook PCs, which are the domain of such

established names as Intel, Dell, HP, and Seagate, are being replaced by tablet PCs, where the fresher faces of ARM, Samsung, Apple, Qualcomm, and TSMC are the leaders. Our semiconductor analyst Glen Yeung believes that smartphone and tablet PC growth has come largely at the expense of conventional PCs and that this is a secular problem. Our HDD industry analyst Joe Yoo believes the impact of new tablet PCs to be released through end-2012 on conventional PCs (HDD equipped) cannot be ignored.

Reference reports:
Jim Suva 10/8 PC and Enterprise Hardware Initiation: "Bring Your Own Devices" BYOD Trend Grows Bigger To Challenge Traditional PC Growth
Glen Yeung 9/12 Downgrading PC-Related Names: INTC, AMD, MRVL to Neutral
Glen Yeung 10/11 A Secular Change for Chip Stocks - How to Navigate in the 3rd Era of Chip Investing
Joe Yoo 10/12 Its Not Just PCs, Enterprise Now a Concern; Downgrading HDD Stocks to Sell
Wei Chen 11/09 Notebook ODM Oct Sales Wrap - Concern on "Non-Touch" Win8 Notebook Demand

Bullish on smartphone cycle winners

On the other hand, we remain bullish on companies that are riding the wave of smartphone and tablet PC market growth. Apple is likely to remain the core of this group.

The Qualcomm-TSMC semiconductor supply chain looks to be highly competitive. We believe Qualcomm in a strong position in the smartphone and tablet PC industry and that TSMC is likely to see market share growth as miniaturization progresses. We also highlight AUO's low-price high-definition displays and FIH's Apple products as major beneficiaries.

Reference reports:
Roland Shu 11/14 TSMC: Growing Global Dominance on Leading Edge Nodes
Glen Yeung 11/08 QCOM: Device Explosion: Redefining the Product Cycle for a "Product Cycle" Company
Kevin Chang 11/02 Foxconn International Holdings: Upgrade to Buy: Huge Expansion of Addressable Market
Arthur Lai 10/26 AU Optronics: Upgrade to Buy on Healthier 2013 Supply/Demand Environment and Premium Product Offerings

We are bearish on old economy consumer electronics

But smartphone and tablet PC market expansion is having a pronounced adverse impact on many digital consumer electronics products. B2C products like compact digital cameras, video cameras, and portable game consoles that are not general-purpose in nature or driven by corporate demand, are suffering faster and bigger declines than PCs. We are generally bearish on companies in these fields.

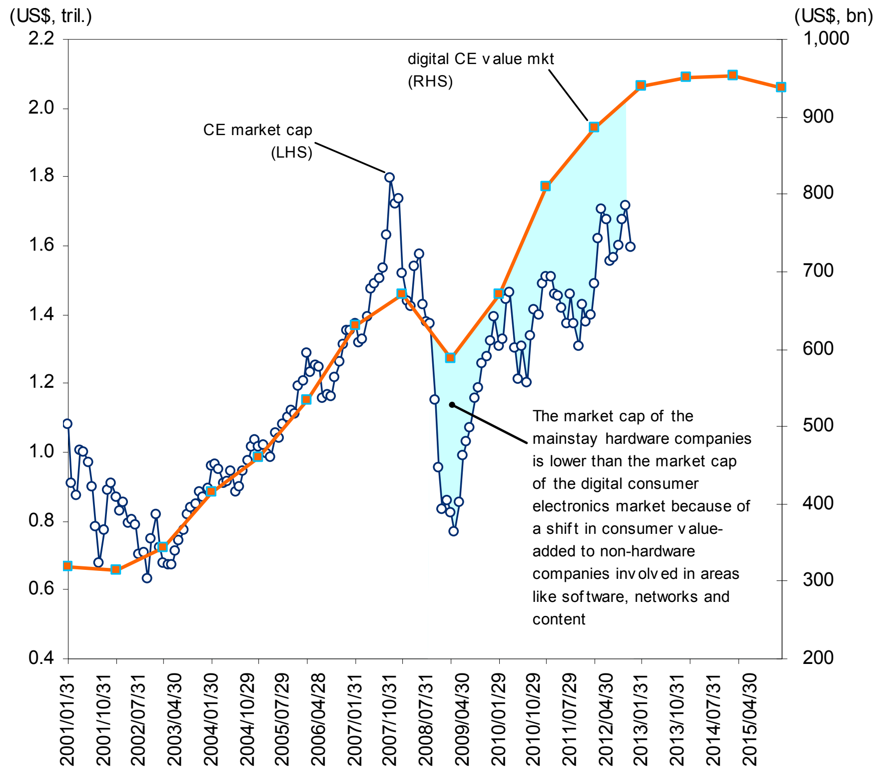
Reference reports:
Kota Ezawa 9/10 Japanese Consumer Electronics in a Global Context - A drama of collapse—and revival?
Kota Ezawa 10/1 Sony (SNE) - Further deterioration likely for "old economy" products
Mark Fielding 1/11 Philips: Sell: Problems Not Going Away
Soichiro Fukuda 7/5 Nintendo (7974) - No dramatic improvement in appeal of Wii U after E3

Software, Internet, content in the ascendency

Figure 6 compares the market caps of the aforementioned major digital consumer electronics-related companies and the size of the market (value) for their products. Before the emergence of smartphones and tablet PCs in 2009, these indexes tracked each other quite closely. Since 2009, however, market caps have trended below market sizes. We believe this is because digital consumer electronics industry value has been driven by companies not included in Figure 6. Digital consumer users were already well acquainted with the companies that filled this gap, a group that includes Facebook, Netflix, DeNA, eBay, and Priceline.com as well as companies that support their platforms, such as Oracle, NetApp, and other Internet infrastructure companies.

The future of these Internet and software companies looks assured as added-value migrates away from hardware. Consumer recognition of their value as well as demand for greater security and speed are a tailwind for software, content, Internet platform, and network infrastructure companies. This trend has been assisted by the rapid growth of cloud computing and social network sites (SNS) since the Lehman collapse. It also explains the gap between the lines shaded in light blue in Figure 6.

Figure 6. Comparison of digital consumer electronics market size and the market caps of major related companies



Note: We have selected companies that make finished consumer electronics products (or something close) and not included semiconductor and other upstream industries. Main digital electronics include mobile phones (including smartphones), PCs (including notebooks, tablets, and desktops), digital cameras, video cameras, game consoles, DVDs, car electronics, and TVs. Survey universe: Apple, Microsoft, Google, Amazon, HP, Dell, Motorola, Philips, Ericsson, Nokia, Samsung, LG, Lenovo, Asus, Acer, Hon Hai, Compal, ZTE, HTC, Canon, Nintendo, Panasonic, Sharp, and Sony.
Source: Company data, Bloomberg, Citi Research.

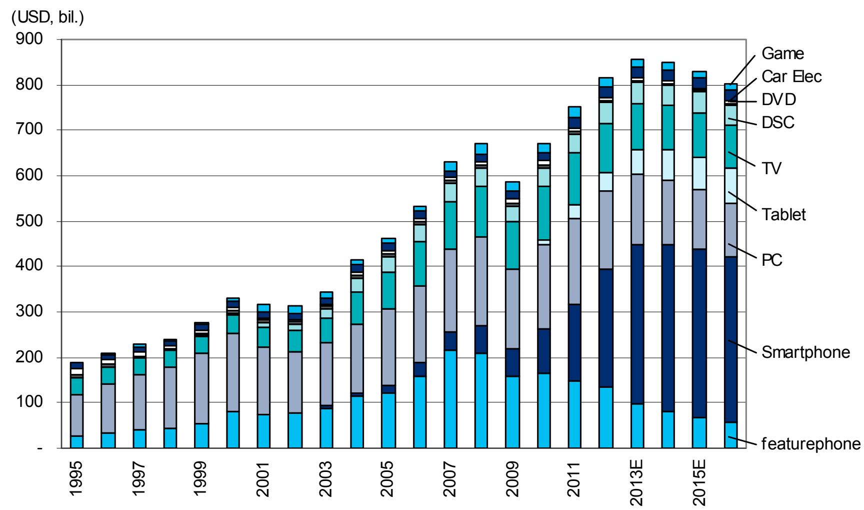
Stagnation likely for the electronics industry

Market growth (value terms) has slowed

The overall consumer electronics market, comprising mobile phones (including smartphones), PCs (including tablet PCs), and AV products (TVs, cameras, etc.,) is stagnating (Figure 7). This may seems strange considering the performance for smartphones and tablet PCs and companies like Apple and Samsung. While smartphone and tablet PC sales are increasing steadily, sales of many other digital products are trending downward. A continued decline in ASP means that the slowdown is more acute for market value than market volume.

Based on current market trends, we believe that in a large percentage of cases, growth products are being purchased as substitutes for old economy products. From this perspective, it is worth noting that current smartphone and tablet PC growth is not unlimited.

Figure 7. Market (value base) of main digital consumer electronics

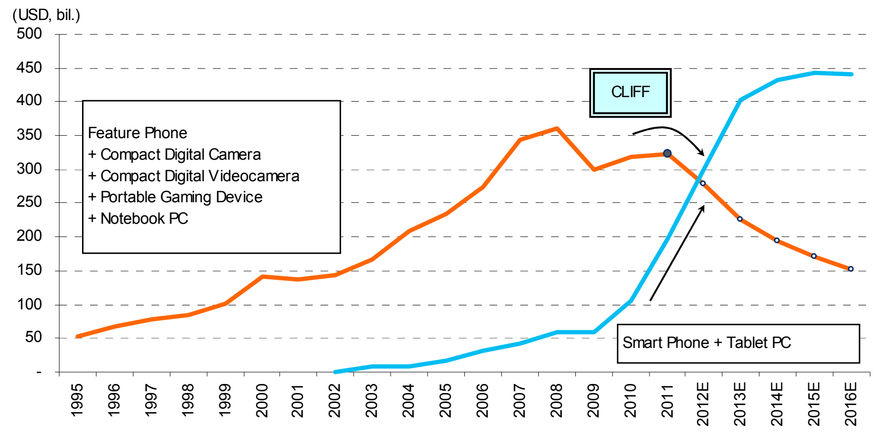


Source: IDC, JEITA, CIPA, DisplaySearch, Citi Research.

Smartphone substitution for other products cannot be ignored

In other words, believe the contraction of traditional digital consumer electronics product markets is a corollary of smartphone and tablet PC market growth (Figure 8). We call this trend reversal for old economy products caused by substitution the "digital convergence cliff".

Figure 8. Shift from old economy to new economy products



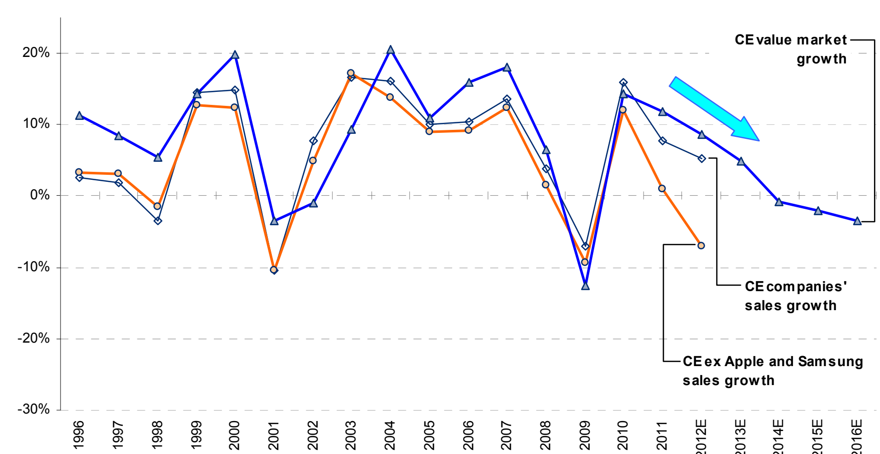
Note: Combined market value of consumer electronics products.
Source: IDC, JEITA, CIPA, DisplaySearch, Citi Research

The phrase “digital convergence” is used to mean many things, and we believe it is appropriate to describe the substitution of smartphones and tablet PCs for old economy products. We can envisage a scenario in which the downward slope for old economy products becomes a cliff.

Phase one of change

We see the decline of old economy products as the first phase of change in the digital consumer electronics market. This is already underway, and it is leading to a rapid slowdown in overall digital consumer electronics market growth (Figure 9).

Figure 9. Market value growth for main consumer electronics products and combined sales growth of major consumer electronics makers

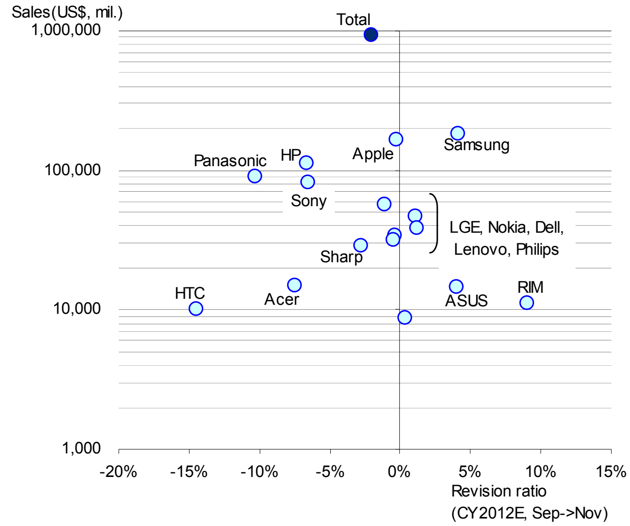


Note: The 2012E sales growth forecast is the Bloomberg consensus for major consumer electronics makers.
Source: Bloomberg, company data, Citi Research.

The slowdown in overall market growth will weigh on the sales growth of major consumer electronics makers. Over the last three months, the revision ratio for CY12 sales has been -1% for 16 major companies, even though there is very little of the year left (Figure 10). The downward revisions have been substantial at

Japanese firms, which are heavily weighted to old economy products and do not have great presences in smartphones and tablets. Looking ahead, we expect these changes of the first phase to continue.

Figure 10. Sales forecasts revisions for major firms for CY12 between September 10 and November 28 and the size of their sales



Source: Bloomberg, Citi Research.

Growth slowdown could end in market contraction

Apple turning point

In the last three months, we have seen big changes not just for the old economy products we detailed in the previous section but also in smartphones and tablet PCs. Even though we think the iPhone 5 is formidable, it was not as warmly welcomed in the initial period after launch as previous iterations of the iPhone. The iPad mini is very easy to use and conjures up a high-end feel but some market watchers have pointed to its lower selling price than previous iPads and to a lack of originality in its small screen, so it has not been universally well received. The popularity of low-priced tablet PCs such as Google's Nexus 7 and Amazon's Kindle Fire HD is also a new phenomenon. More than anything, the last three months have prompted the investment community to think again about the pace of Apple's growth.

Phase two of change: Market contraction

The substitution of smartphones and tablet PCs for old economy products is slowing overall digital electronics market growth, but we believe the next phase of change could be more severe: namely, market contraction. This would be caused ultimately by sluggish growth for smartphones and tablets. This may occur in the digital consumer electronics market, and would mark the second phase of change.

We believe a price downshift will be the main driver of phase two. Like previous transformational products, the diffusion of smartphones has advanced rapidly in developed economies, with market penetration reaching 50% (in Japan the penetration rate is still 20%-30% because Internet-capable feature phones are widely used, but it is increasing rapidly).

Low-price smartphones have already entered a growth phase

Moving forward, we expect smartphone and tablet PC sales to expand in developing economies and in low price segments. This diffusion scenario is the same as that for previous ground-breaking products. The retail price of an iPhone, without subsidies, is $600-$700. The Samsung Galaxy sells for $500-$600. We believe makers will come up with various ideas for mid-range models ($100-$300) and low-end models ($50-$100) and that sales of these will expand rapidly.

We expect low price handsets will primarily be made and sold in China. This is because amid a shift to new generation smartphone semiconductor and electronic component, low-cost manufacturing of smartphones using previous generation components has become possible. The likelihood of a new trend centering on "white box" handsets made in China is increasing. We think low-price models will drive global smartphone sales to 1.1bn units in 2013, an increase of 49% YoY.

Zero hardware gross-margin business model expanding

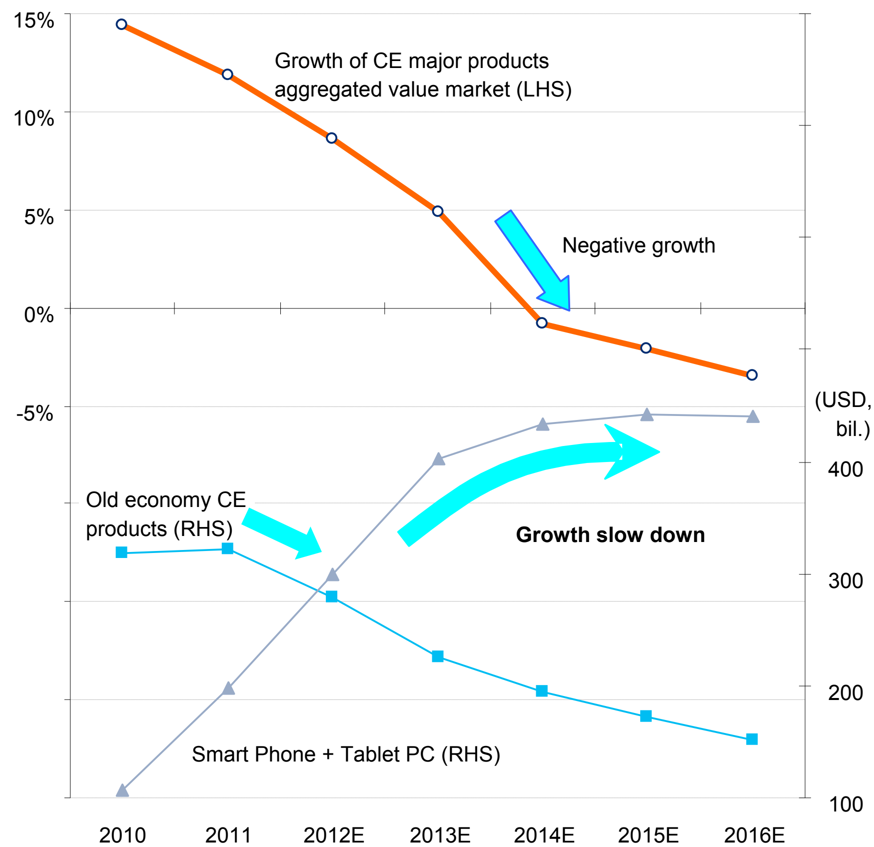
At the same time, we expect another new development, namely internet and software companies like Google, Amazon, and Microsoft becoming more prominent in sophisticated, medium-price smartphones (we believe they are likely to start offering these products before long).

As Internet companies make their profit on software and content, they are willing to sacrifice profit on hardware. This should enable them to keep handset prices low. We believe this impact will mainly be felt by mid- to high-end models (with mid to high-end prices) that cannot sufficiently via through brand or design. As retail price competition intensifies, we think an increasing number of handset makers will be unable to secure a gross profit (i.e., be plunged into loss-making sales)

Smartphones have destroyed other digital products, but even smartphone market value could stall before long

This new growth dynamic should be a strong driver of smartphone market volume, but we cannot foresee market value benefiting to the same extent. In fact, while more detailed analysis and discussion is needed, we believe smartphone market value growth could stall before long. In our opinion, the peaking of rapid smartphone growth driven by substitution for old economy products would lead to contraction of the overall digital consumer electronics market.

Figure 11. Slower growth in smartphones/tablets and negative growth in overall consumer electronics market



Source: Citi Research.

Risks for Apple and Samsung, where growth continues

At this point, we would also like to consider in general terms the risks for Apple and Samsung. Obviously, these two are the leaders of the consumer electronics industry and rivals have much to learn and overcome. On the other hand, the spread of smartphones and tablet PCs has resulted in market saturation for these two giants as well, and we think there lessons to be gleaned from past precedents.

The chokehold on 2G mobile phone business shared by Nokia, Ericsson, and Motorola was broken first by Samsung (then an OEM maker) in 2003 and then further by the proliferation of “white box” phones in China. In the case of flat-screen TVs, Taiwan’s ODM makers unravelled the dominance of the early leaders, while in car navigation systems the walls were breached by portable navigation devices (PNDs) from companies like TomTom and Garmin. In each of these cases, newcomers armed with lower prices were able to triumph as devices spread to emerging nations and lower-income users.

As noted above, the potential for growth in smartphones and tablets is shifting to developing nations and the lower-income (and lower-consumption) user space. Consumer electronics markets normally develop as a downward pyramid with prices declining, and we anticipated that, with growth, the smartphone and tablet PC

markets will also shift toward lower prices. Therefore, it is increasingly likely that low-priced items will appear to challenge the dominant positions held by Apple and Samsung. Furthermore, it is possible that the mixes of original products at Apple and Samsung themselves may shift toward lower prices.

Acknowledging Apple risks

Citi's global tech team acknowledges these Apple risks. While a team of three analysts (Glen Yeung, Walter Pritchard, and Jim Suva) initiated on Apple with a Buy rating in a November 25 note having judged the shares oversold, they also discussed the possibility of slower growth for Apple as smartphones and tablet PCs mature.

We rate Apple highly, as it remains at the core of smartphone market expansion. On the other hand, we think it even more important right now to monitor changes in the industry via maturation.

Reference report:
Glen Yeung 11/25「Apple: Experiencing Growing Pains but Sell-Off Warrants "Buy"」

Pessimistic outlook for negative market growth is something to consider

We have prepared a model assuming negative growth in the overall digital consumer electronics market in 2014 (Figure 12). This model reflects only the personal views of this author, which are not necessarily shared by the Citi Global Tech Team, and represents the pessimistic end of our internal consensus. The contrasting optimistic view holds that 1) growth in smartphones and tablet PCs will continue; 2) overall growth including consumer outlays on software and networking will continue; 3) with the emergence of "white box" companies in regions like China where the gaps are hard to fill, the overall market will actually expand beyond the assumptions of our downbeat model; and 4) the global economy will gradually improve.

However, we think this author's industry model provides some food for thought. At the very least, the possibility of a return to a trend of positive growth in old-economy products (in value terms) appears to fading day by day. Looking back at the trends since the last peak in the 15-year (or maybe 13-year) cycle illustrated in Figure 1, we think It is possible that smartphone/tablet momentum could peak in 2012–13.

Figure 10. Critical volumes, ASPs, and market scale for major digital consumer electronics products

		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012E	2013E	2014E	2015E	2016E
Smartphone	Units(mil.)	16	20	40	80	120	140	170	300	510	740	1,090	1,270	1,400	1,490
	ASP(US$)	468	452	416	382	350	421	349	329	331	349	320	290	265	244
	Value(US$, bil)	**7**	**9**	**17**	**31**	**43**	**59**	**60**	**97**	**168**	**258**	**348**	**367**	**370**	**363**
Feature phone	Units(mil.)	500	650	780	980	1,170	1,170	1,190	1,330	1,430	1,250	1,090	1,040	1,000	900
	ASP(US$)	175	173	156	163	183	180	133	124	116	108	90	77	68	65
	Value(US$, bil)	**88**	**114**	**121**	**160**	**215**	**210**	**158**	**165**	**165**	**136**	**99**	**80**	**69**	**59**
PC	Units(mil.)	151	175	205	227	265	293	305	336	341	329	322	321	321	317
	ASP(US$)	912	870	819	734	681	668	576	553	551	524	486	445	405	374
	Value(US$, bil)	**138**	**152**	**168**	**167**	**180**	**196**	**176**	**186**	**188**	**173**	**156**	**143**	**130**	**118**
Tablet PC	Units(mil.)	-	-	-	-	-	-	-	19	70	117	182	259	350	420
	ASP(US$)	-	-	-	-	-	-	-	459	428	360	300	255	210	185
	Value(US$, bil)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**9**	**30**	**42**	**55**	**66**	**74**	**78**
Flat TV	Units(mil.)	140	184	187	190	200	208	211	248	249	242	237	239	246	250
	ASP(US$)	364	386	429	517	522	539	494	474	463	446	421	407	389	370
	Value(US$, bil)	**51**	**71**	**80**	**98**	**104**	**112**	**104**	**118**	**115**	**108**	**100**	**97**	**96**	**93**
DSC	Units(mil.)	48	74	92	106	131	138	128	145	137	133	131	128	125	121
	ASP(US$)	443	399	369	352	306	291	281	294	309	334	354	365	373	381
	Value(US$, bil)	**21**	**29**	**34**	**37**	**40**	**40**	**36**	**43**	**42**	**44**	**46**	**47**	**47**	**46**
Others	Value(US$, bil)	**38**	**40**	**40**	**42**	**48**	**55**	**53**	**53**	**58**	**55**	**51**	**48**	**46**	**44**
Total	Value(US$, bil)	**256**	**301**	**339**	**374**	**416**	**461**	**428**	**506**	**602**	**680**	**757**	**768**	**762**	**742**
	Value(JPY, tril)	**30**	**33**	**37**	**43**	**48**	**47**	**39**	**44**	**48**	**54**	**61**	**61**	**61**	**59**
Growth	USD	8%	18%	12%	10%	11%	11%	-7%	18%	19%	13%	11%	1%	-1%	-3%
	JPY	4%	10%	12%	16%	12%	-3%	-16%	12%	9%	14%	11%	1%	-1%	-3%

Source: Citi Research, based on data from IDC, JEITA, CIPA, and DisplaySearch.

Failing health of overall digital consumer electronics market

Up to now, the potential for negative growth in the digital consumer electronics market has been argued on the basis of four factors: the erosion of "old-economy" products, the emergence of low-priced smartphones and tablet PCs, the emergence of zero-profit hardware from Internet companies, and the possibility of declining ASPs even at Apple and Samsung. But in fact, alongside these changes, there is another industry shift happening.

This is the atrophy on the fringes of the consumer electronics market. As multiple functions of old-economy products are brought together in smartphones and tablets, consumer interest has become focused almost exclusively on a limited scope of products. Furthermore, as certain apps disseminated via these smartphones and tablets establish a global presence, consumer lifestyles are also becoming more homogenous. It may be a chicken-and-egg scenario, but we sense conditions in the consumer electronics industry are no longer conducive to the many and varied pilot products of the past.

As the boundaries of the market shrink, it becomes harder for consumer electronics makers to take on the risk associated with developing new products and new fields. This may lead to less money being invested in innovative development and the loss of redundant functions (including behind-the-scenes product development) in various divisions, and we think this could be a negative in terms of future prospects for the industry as a whole. We think the potential for new companies or new parties (in the hardware industry) to establish a presence in digital consumer electronics may already be severely inhibited.

How to face the "digital convergence cliff"

Black-hole effect at Sony

Growth in digital consumer electronics is already starting to slow. Since Sony made Ericsson into a wholly owned subsidiary, it has shifted its own tablet PC development team to Sony Mobile (formerly Sony Ericsson), integrating these operations. With this move, the company also unified smartphones and tablet PCs under the Xperia brand, aiming to boost marketing and cost efficiencies (the latest Xperia smartphones offer superior design, device quality, and OS and software running speed, and we would expect significant benefits if the company's world-class marketing muscle is applied).

Sony's sales of old-economy products dropped sharply from early 2012, establishing an earnings downtrend that could not simply be explained away by the temporary effects of economic conditions. Against this backdrop, it became hard to avoid the sense that the company's smartphone and tablet PC businesses were starting to suck in its old-economy operations, with a kind of "black-hole effect" on other digital consumer electronics business.

At present, Sony's development of Vaio notebook PCs and it Vaio & Mobile Business Group production are based about 230km away from Tokyo in Nagano. The company has recently unveiled the Duo 11 slide-design notebook PC, which can be used as a tablet as well. The Duo 11 uses an Intel Core i3/5/7 CPU and runs on Windows 8.

The question is whether Sony's future Windows tablet PCs with Qualcomm CPUs and Android OS (a simple slate-style tablet PC) will be handled by the Vaio or Xperia division. It may come down to naming—is the product better released as a Vaio, or as an "Xperia Tablet"? This gives rise to another point: assuming that Windows tablets become popular as a category, some might wonder if perhaps the PC business should be absorbed into the smartphone business.

Figure 13. Relationship between Sony's core electronics business and smartphones

Source: Citi Research.

Similar possibilities could also exist for PlayStation Vita handheld game consoles, set-top boxes (separate from Bravia LCD TV displays), low-end Cybershot compact digital cameras and Handycam video cameras, and Walkman portable music players. In each of these cases, the use of ARM cores and Android operating systems gives them something in common with Xperia smartphones. When Google chairman Eric Schmidt came to Japan on September 25, he called Sony's use of the Android OS for the Walkman a surprise.

Sony's digital convergence (which may already be happening)

The integration of part of the Sony Tablet team with Sony Mobile and the horizontal planning and management across multiple divisions adopted for the team in charge of developing software and user interface for Sony products shows a trend of consolidation within the company is underway. We feel this kind of consolidation and integration among divisions suggests that economic contraction resulting from digital convergence is already happening at Sony.

Shrinking irreversible for old-economy products

Smartphones and tablet PCs, which are increasingly widespread in developed markets, have changed consumer lifestyles in irreversible ways. Also, we believe the stage is set for greater uptake of smartphones and tablet PCs in developing markets, which are in a transition phase at the moment. Traditional PCs are, in these markets, over-priced and offer too many functions, and it seems that a fair portion of PC users could make more efficient use of smartphones and tablet PCs.

At the same time, expansion for smartphones and tablet PCs means an irreversible decline for old-economy products. If segments are integrated as part of measures taken given the shrinking markets for these products, then company sales are likely to decline (as with the example of Sony).

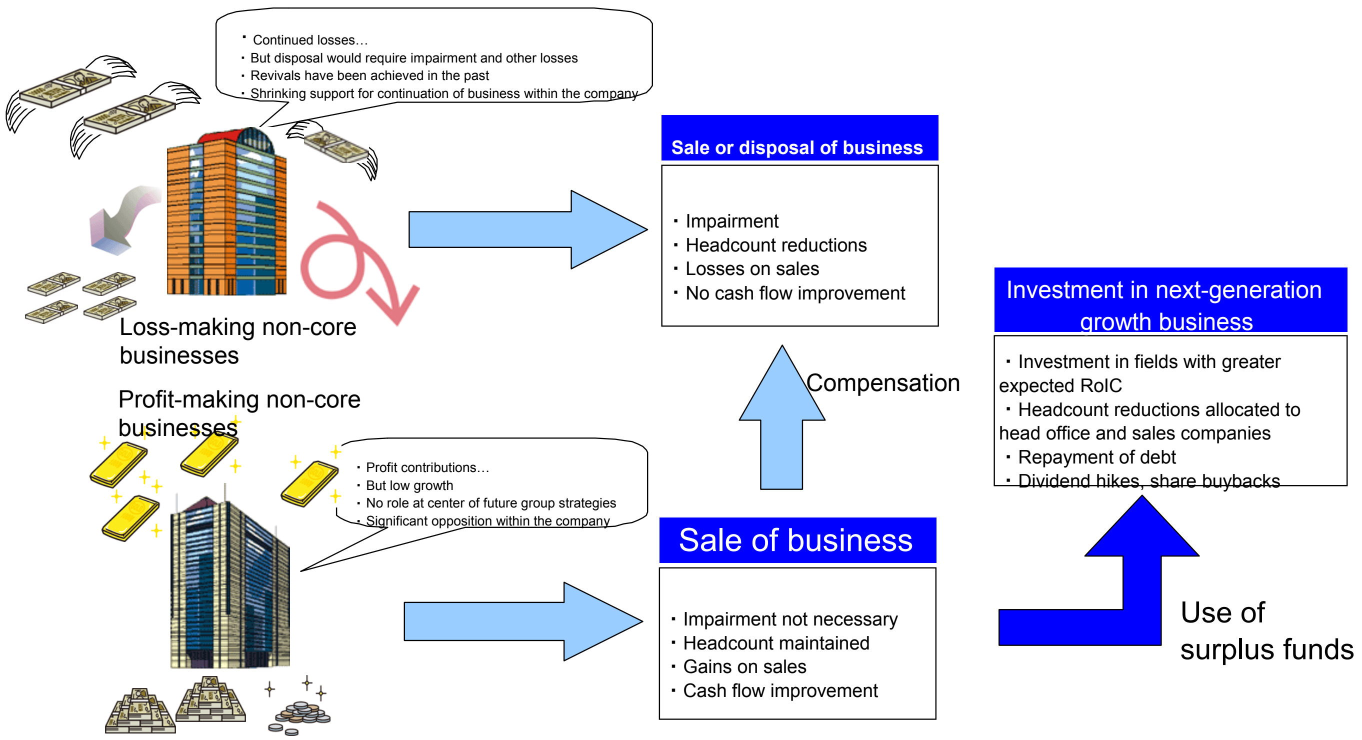
Only way to deal with declining sales is structural reform

In our view, the process of consolidating or eliminating segments as shrinking markets result in lost sales needs to move forward while a firm also generates the next growth business or businesses. However, if management is slow off the mark to make a decision or makes the wrong decision, then older businesses might need to be liquidated before a new growth business is able to bolster profits and cash flow. In this situation, we believe the key is to move forward with structural reform while also ensuring that earnings and the balance sheet do not take too much of a hit via business or asset sales.

May be necessary to sell off money-making non-core businesses

Absent growth businesses or supplements to cash/profits via capital increases, it may be necessary to secure the funds needed to move forward with structural reforms by selling businesses or assets. In this case, sales of money-making businesses would be key in terms of ensuring significant profits or cash. Disposing of money-losing businesses could be offset by selling money-making businesses, limiting balance sheet and cash flow damage.

Figure 14. Structural reform that incorporates the sales of profitable non-core businesses



Source: Citi Research.

What structural reform needs to look like at Japanese firms

Some businesses should be cut loose for strategic reasons, even if profitable

Restructuring is often thought of as the backward-looking exercise of cleaning up loss-making businesses, but this is not the real essence. We believe Japanese electronics companies must take a more strategic approach with an eye on the next growth phase and development. We suggest this should involve the sale of some profitable non-core businesses.

This is a management decision that some companies may have considered or even executed in the past. However, in general they have lacked real commitment. While perhaps a new perception for Japanese companies, we believe the sale of profitable non-core businesses can be a game changer that helps reaffirm the core value of a company.

Two sides to restructuring

Restructuring that involves the disposal of loss-making businesses is a relatively easy decision for management. But often such restructuring is backward-looking, with priority given to disposal costs rather than to how it will affect future development. A new approach is to strategically remove profits with the aim of minimizing the total impact on profit and cash flow. Funds received from business sales can be used to cover the costs of fire-fighting business disposals and to finance the next stage of development.

Management decisions must not wait for consensus

In Japan, a decision to get out of a business is not taken until everyone, from management (top- and business-level), general employees, and indeed conventional social wisdom is on the same page. However, doing this is not fulfilling the traditional role of management. A decision to sell a business that is contributing to group profit for the purpose of raising funds to invest in growth is difficult to imagine. We believe the structural change needed at Japanese companies requires new management decision standards. Even competitive businesses that have been developed in-house should be handed over to new management if they are peripheral to the core group strategy.

Panasonic should sell healthcare business, Sony should sell Handycam

In this vein, we propose that Panasonic sell part of its semiconductor business and its healthcare business in FY3/13 H2. The healthcare business is stable and competitive with an OP margin of 5%-10%, but we cannot see it expanding significantly from its current size, as its product line-up lacks focus and sales power is limited. A sale to a company whose core business is the medical field could be expected not only to generate a large profit for Panasonic but to deliver synergy for the acquirer that could lead to a new growth scenario. It could also help cover the loss on sale and personnel reduction costs on the sales of semiconductor businesses.

In the case of Sony, we believe the Handycam brand video camera business should be sold. While this is one of Sony's biggest earners, the market has already started to contract and growth potential is declining. The digital camera business is encroaching on the domain of the video business and this is causing internal friction. If the proceeds of the sale were used to fund new digital camera business development or smartphone business expansion, it could lead to a growth scenario much larger than the one currently visible. It would also provide money to cover the future write-downs we anticipate in TV and AV fields as well as the cost of personnel cuts in sales and head-office divisions.

Philips turnaround

We highlight Dutch consumer electronics major Philips as a case in point. We do not believe the company necessarily has a strong earnings structure and indeed Citi Research rates the stock Sell. However, structural reforms implemented by Philips

in the past (particularly during the post-IT bubble recovery) have been impressive and we believe that Japanese companies could learn from its example. The biggest difference between Philips and Japanese companies is that the former did decide on whether a business needed to be restructured (removed) solely on the basis of whether it was making profit or loss. The creation of a strategic business portfolio has been driven by the reinvestment of funds acquired through business sales totaling more than €10bn (combined cash flow from the sale of growth subsidiaries and affiliate companies. There have also been valuation losses and impairment losses although we do not include here).

Figure 15. Panasonic, Sharp, and Sony have many non-core businesses

	Non-core businesses	Core businesses	Future businesses
Panasonic	LCD/plasma panels and TVs	Household appliances	Consultation
	Semiconductors	Residential electric infrastructure (former Panasonic Electric Works)	Fuel cells/small-scale power storage systems
	Certain electronic components	Automotive batteries	Home energy management systems
	Certain healthcare products	Solar panels	
	Machinery (factory automation)		
	PanaHome		
Sharp	LCD TVs	Large display panels	Solar systems (engineering)
	Mobile handsets	Smaller LCD panels	Power generation and power sales
	White goods *(not appropriate to sell immediately)*	Solar panels	External sales of large LCDs
	IT equipment (copiers) *(not appropriate to sell immediately)*		
	Semiconductors		
Sony	LCD TVs	Games/Network *(portable games are a non-core business)*	Medical equipment
	Audio	Digital cameras and camcorders *(low-priced products are a non-core business)*	Network business
	DVD/Blu-ray/3D	Smartphones/tablet PCs *(old-style notebooks are a non-core business)*	
	Certain electronic components	Semiconductors	
	Batteries	Recording/broadcasting equipment and near- field communications	

Note: This figure was published in our previous Global Context report on September 10: explanatory notes for white goods and copiers have been added for Sharp, and for games, cameras, and mobile phones for Sony.
Source: Citi Research.

Industry cycle theory

Industries and businesses in their twilight years are best put to bed. If the decision is correct, the earlier it is taken the greater the benefits are likely to be. While timing differences between companies may often look small from a longer-term standpoint, these small differences have resulted in major changes.

The jettisoning of semiconductor businesses by Philips, Siemens, and other European companies in the 2000s is a classic example. In Japan, Hitachi, Mitsubishi Electric, NEC, Sony, and others have followed suit, but Panasonic and Fujitsu have been slow to make a move. Semiconductor divisions have had a

negative impact on earnings at Japanese companies that have been slow to take appropriate steps to remove them.

The restructuring of Western Electric and RCA from the 1970s through the 1990s (business sales, sale of the parent company, etc) and IBM's sale of its PC division in 2005 are symbolic of forward-looking business transformation in the electronics manufacturing industry. The timing and speed of IBM's move stands in stark contrast to NEC's decision to form a PC joint venture with Lenovo in 2011 after its PC division ran into difficulty.

Japan's consumer electronics makers have ridden a 15-16 year hit product cycle. Each time hit products have emerged, it has been reflected in their share prices on the Japanese stock market (Figure 1). The first peak came in the early 1970s as the color TV (CRT) went mainstream and the second in 1984 with the creation of the VTR. But when the third peak arrived in 1999 as notebook PC and mobile phone markets began to take off, the share price effect was not as pronounced. Most companies have transferred CRT businesses and VTR businesses have been concentrated in the hands of a few companies like Funai, which carry out their manufacturing in China.

Thirteen years on from the last peak and mobile phones are being replaced by smartphones and notebook PCs by tablet PCs. Assuming the peak of the current industrial cycle is 2012, we believe Japanese firms need to do something about their old-economy products during the current peak. These old-economy products are compact digital cameras, DVD players, portable game devices, and feature phones. If Japanese firms are able to move forward with structural reform by combining the sale of money-making non-core businesses and exiting the aforementioned old-economy products, we believe balance sheet damage can be minimized and business structures can be transformed.

Appendix A-1

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