Can the Japanese Electronics Industry Drive the Japanese Economy with Digital Consumer Electronics?

By Sato Fumiaki and Izumi Akira

Japanese Consumers, Government and Companies Moving into the Era of Digital Consumer Electronics

Throughout the decade known as the "lost 1990s," Japan continued to suffer from an extended recession after the collapse of its bubble economy. Average wages have fallen by 3% in the last five years, and average household expenditure has fallen by 9% in the same period, according to statistics from the Ministry of Health, Labour and Welfare. Despite these severe economic conditions, Japanese consumers are now steadily increasing their investment in a concept for the new era, known as the "ubiquitous" information network society. The key sector in this new era is "digital consumer electronics." The Japanese government is also promoting IT infrastructure improvements including high-speed networks with the goal of creating the world's leading IT society, and is providing support to increase the ownership and use of digital consumer electronics. Japanese electronics companies, which have fallen behind the U.S. manufacturers in the PC business, are also aiming to recover market share with a new strategy for these appliances. As consumers, the government and companies all pull together in a single direction, the Japanese economy is posed for a major breakthrough with digital consumer electronics.

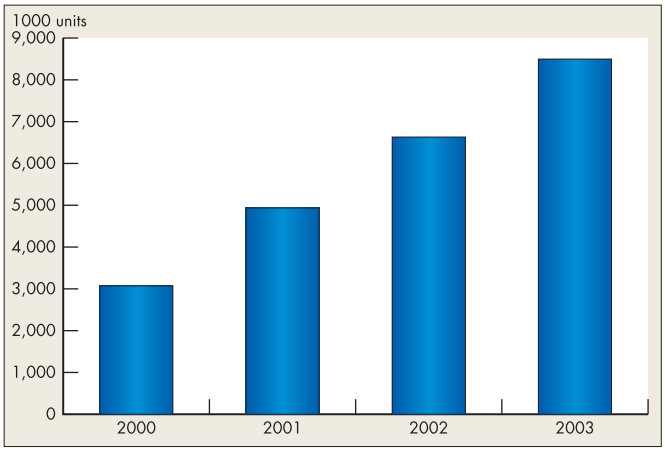
The New "Three Sacred Treasures" Rapid Popularization of Digital Consumer Electronics

Currently, the three most popular types of digital consumer electronics for Japanese consumers, sometimes referred to as the new "three sacred treasures" are flat panel TVs, DVD recorders and digital cameras. The markets for these products are developing in Japan prior to other countries. The number of domestic digital camera shipments in 2003 was 8.44 million, representing an increase of 29% over the previous year. (Fig.1) By March 2004, 52%, or more than one out of every two households nationwide, own a digital camera. The number of domestic liquid crystal (LCD) TV shipments reached 1.53 million, which was an increase of 52% over the previous year. (Fig.2) Shipments of plasma TVs have also increased by nearly 25% to 240,000 units. Shipments of DVD recorders almost tripled compared to the previous year at 1.96 million units. Models with built-in hard disks have been gaining popularity recently. The Athens Olympics in August is expected to boost sales of flat panel TVs and DVD recorders. Japan is also ahead of the rest of the world in the popularization of mobile phones with built-in digital cameras or global positioning systems (GPS), and car navigation systems with built-in hard disk drives. In this way, Japanese consumers are actively demonstrating their intentions to purchase digital consumer electronics, and these are expected to play a major role in boosting the economy.

Japanese Government Indirectly Supporting the Growth of the Digital Consumer Electronics Market

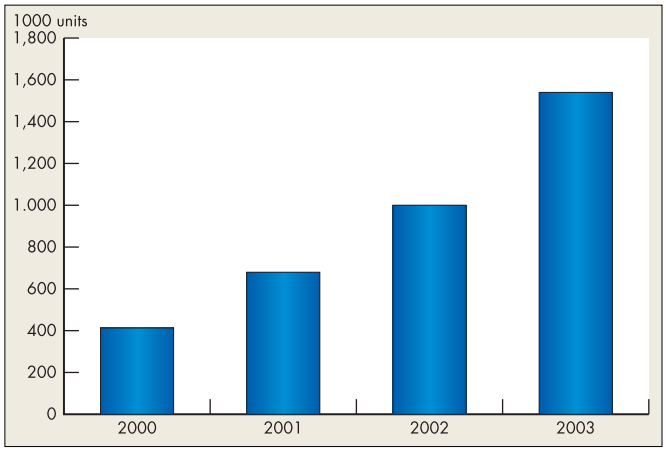
Given the consumer trends explained above, the Japanese government is providing support through IT infrastructure improvement. The Basic IT Law* was established in 2001, and the Japanese government has set out various policies to be a world-leading IT nation by 2005. As a result, the number of broadband

Figure 1 Number of digital camera shipments in Japan



Source: Camera & Imaging Products Association (CIPA)

Figure 2 Number of LCD TV shipments in Japan



Source: Japan Electronics and Information Technology Industries Association (JEITA)

**Note :* Basic Law on the Formation of an Advanced Information and Telecommunications Network Society

Internet subscribers has already jumped to 15 million, which is just behind the United States, and on a par with South Korea. Broadband connection fees in Japan are the lowest level in the world. The per capita Internet usage rate has soared to 60%, which is among the top 10 countries worldwide.

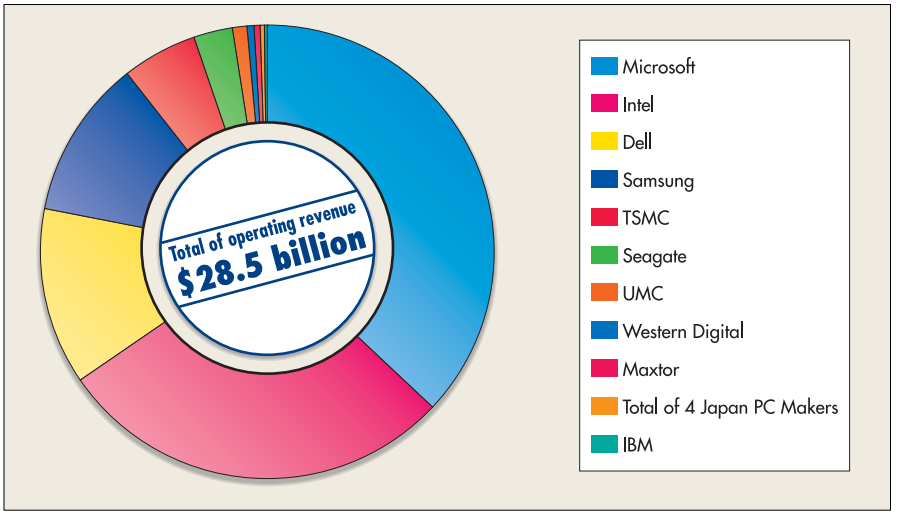
At the end of 2003, terrestrial digital broadcasting began in Tokyo and other large urban centers in Japan. The current plan is to expand this coverage nationwide by 2011, completely phasing out analog broadcasting. The total number of TVs and appliances with built-in terrestrial digital broadcast tuners sold to date is over 1 million units. Preparations are under way to start terrestrial digital broadcasting for mobile devices such as car and cellular phones, which can be tied in with the promotion of new devices and services in the future. In this way, the Japanese government is promoting IT infrastructure improvement as a national strategy. This will serve as the groundwork for Japan to move ahead of the rest of the world in adopting digital consumer electronics.

Japanese Industry is Developing a New Strategy for Digital Consumer Electronics

The Japanese electronics industry suffered a huge failure in the PC market during the 1980s and 1990s, and was not able to achieve leadership in the global PC business. Therefore, the industry is turning to a new strategy to regain its leadership and ensure that the same mistake does not happen with digital consumer electronics.

The failure of Japanese companies in the PC market can be explained by two main factors. The first was that, because of the standardization of the basic PC components, a modular or horizontal business model has been established in the global economy. In addition, foreign companies have cornered the market share of high value-added components such as operating system (OS) and central processing units (CPUs). Figure 3 shows a breakdown of the latest earnings of PC–related manufacturers. It is clear that Microsoft and Intel, with their majority shares of the OS and CPU markets respectively, are securing much higher profits. On the other hand, Japanese companies are mainly engaged in PC assembly, and are posting very marginal profits. Since the current PC architecture is being standardized according to the intentions of "Wintel" (Microsoft Windows and Intel), the profits are heading toward those companies. From the assembly manufacturers' perspective, it is extremely difficult to differentiate one's products, as almost all PCs have the same CPU and OS at the product core. Therefore, allowing an effective U.S. monopoly of these core components has made PCs an unprofitable business for Japanese companies.

Figure 3 Operating income shares for the 14 main PC manufacturers (2003)



Source: Company data and Deutsche Securities Tokyo Office estimates

The second failure of Japanese industry is that they have been easily handled over production technologies of components (such as DRAMs and LCDs) to other Asian companies. Japanese companies had an overwhelming share of the DRAM market in the 1980s and the PC LCD panel market in the 1990s. However, since then the emergent electronics industries in South Korea and Taiwan have increased their shares, and Japanese firms now make up a small share of the market for these two products. One of the reasons for the sudden drop in the market share of Japanese companies is that they transferred the technology to Asian companies in order to secure the necessary volume of parts needed to manufacture Japanese PCs. South Korean and Taiwanese companies, intending to invest actively in general-purpose part manufacturing, have welcomed the technology transfer offers from Japanese companies.

However, over the medium to long-term, this non-strategic technology transfer inflicted a great deal of damage on Japanese companies. After the rapid drop in prices associated with the rise of Asian production supported by technology transfer, many Japanese companies with weaker cost competitiveness had to stop manufacturing general-purpose DRAM and LCD panels for PCs, or at least reduce the scale of their production.

In accordance with the lessons from their defeat in the PC business, Japanese companies are rising to today's challenges with a new strategy for digital consumer electronics. The strategy involves securing added value for themselves by manufacturing core parts and developing technology in-house, keeping technologies inside the company and promoting product differentiation. This is known as the vertical integration business model.

Japanese Companies are leading in the Digital Camera Market through Vertical Integration

Japanese companies have secured a majority of the world's digital camera market by using a vertical integration model. The core parts and technologies for this product include the CCD (charge-coupled device), optical lens, image-processing chip and compact mounting technology. Japanese companies are leading the world in these fields after accumulating massive amounts of the necessary technology and expertise. Sony was the first company in the world to successfully mass produce CCDs, while Canon and other Japanese firms dominate the area of optical lenses, as the global manufacturers of optical cameras. In the area of image processing technology, Japanese industry is utilizing the technology that it has already developed for video cameras and VCRs. Each company already has the necessary technology to make the compact and lightweight devices that Japanese consumers have traditionally preferred. Foreign companies have difficulty in achieving the same level of precision that comes from this combination of unified parts and technology in a digital camera. In fact, even though Asian products are sold at lower prices in Japan, they have not been able to secure a large market share.

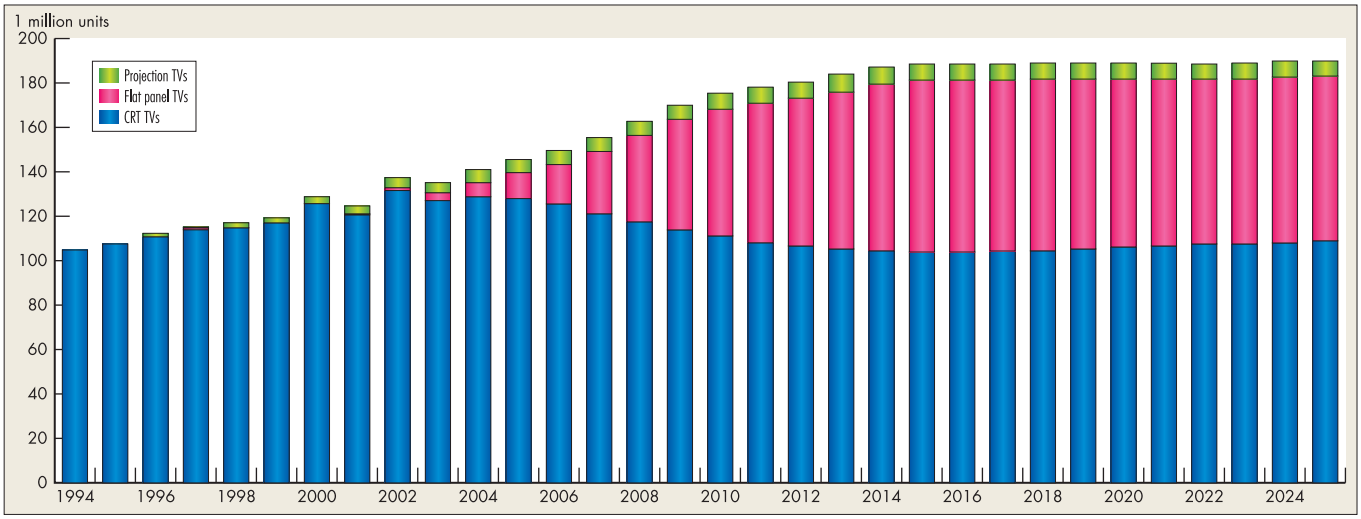
Japanese Companies Pursue Vertical Integration for Flat Panel TVs

Among all the digital consumer electronics, flat panel TVs are expected to develop into a huge global market of ¥10 trillion, or 80 million units per year, within the next decade. (Fig. 4) Some Japanese companies are taking measures for vertical integration in this market as well. Sharp is following the vertical integration model with a new comprehensive plant in Kameyama, Mie Prefecture, which produces from LCD panels to TVs. The company is adhering to strict technology management and preventing any production technologies from leaving the company. The company does not have any tie-ups with Asian companies in LCD panel production technology. Sharp, recognizing the bitter experience of Japanese companies in PC LCD panel production, is developing LCD TVs with capital investment and technical strength that cannot be outdone by other Asian companies. As a result, Sharp has secured the top share of the LCD TV market.

The vertical integration business model is also being pursued by Japanese companies producing plasma TVs. The color plasma display, which was first successfully made into a practical application in Japan, is now a market largely controlled by three Japanese companies, Matsushita Electric, Pioneer and Fujitsu Hitachi Plasma Display. All of these manufacturers are making large investments in domestic production facilities, and producing the core panel components internally. They are trying to increase added value by utilizing their own color imaging technologies.

Japanese companies are also starting to put energy into securing intellectual assets in order to prevent unlawful usage of their superior technology. In April 2004, Fujitsu, which has the basic patents on plasma TV panels, took action to stop panels made by Samsung being imported into Japan, claiming that they use Fujitsu's basic patent. The company also took Samsung to court in Japan and the United States for patent infringement. Although the two companies resolved the lawsuit within a couple of months, Fujitsu showed the world its intent to use its intellectual properties

Figure 4 Global TV market forecast (unit basis)



Source: Japan Electronics and Information Technologies Association (JEITA) results and Deutsche Securities Tokyo Office estimates for data up to 2002. Deutsche Securities Tokyo Office forecasts for subsequent data

Photo : AQUOS / SHARP

Photo : CAMEDIA / OLYMPUS

Photo : DIGA / MATSUSHITA Panasonic

The new "three sacred treasures" – Flat panel TV, DVD recorder and Digital camera

strategically in the future. Following the incident, Sharp filed a similar lawsuit and an injunction to stop importation of LCD TVs in June. These LCD TVs made in Taiwan allegedly infringed the patents held by Sharp. It is expected that Japanese companies will continue to take this approach to patent infringement in order to protect the superiority of their digital consumer electronics.

Signs of LCD TV Business Trending towards a Modular Model

On the other hand, as in the PC market, there is a trend towards a modular model for LCD TV production. Many Japanese companies other than Sharp are moving to procure most of their liquid crystal TV panels from Asian companies. The reason for this is a hesitation to make a large investment in a manufacturing facility for LCD panels which are expected to drop in price. Asian companies that are searching for new demand because of the declining prices of PC monitor panels are willing to provide TV panels to Japanese companies. Dell, the world's largest manufacturer of PCs, has started selling LCD TVs based on the modular business model, by procuring major parts from Asian companies.

The adoption of modular or vertical integration will have a very large impact on the success of Japanese companies in the field of digital consumer electronics. If a modular model becomes the mainstream for the LCD TV business, price competition will intensify, and due to the difficulty in differentiating products, the added value of assembly companies will decrease, making it harder to increase profits. If vertical integration becomes the predominant model, Japanese companies will be able to secure the lead, as added value is accumulated within the assembly manufacturers.

Aside from Sharp, many Japanese companies do not appear to be pursuing a vertical integration model for the large LCD TV business. On the other hand, the LCD TV industry may soon switch to the modular model as several large LCD panel plants in Asia are starting production next year. If this happens, it will be difficult for Japanese companies to make large profits, as was the case with PC production. In order for Japanese companies to establish leadership in LCD TV production as one of the strategic digital consumer electronics, they will need to take steps to ensure the success of the vertical integration model.

Can the Digital Consumer Electronics Drive the Japanese Economy? : the Next One to Two Years will be the Key

As seen already, Japanese consumers play a major role on the demand side by demonstrating the will to purchase digital consumer electronics. Meanwhile, the Japanese government provides support through its IT promotion policies. Whether digital consumer electronics can play a major role in driving the Japanese economy will depend on whether Japanese companies can create a business model for securing substantial profits based on vertical integration. However, Japanese companies do not have much time to spare, as overseas manufacturers are already ramping up their efforts. The measures taken in the next one or two years will be crucial for the success of Japanese industry. JS

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