

Episode 7

Impact of Oil Shock

Many of the readers may still have the memory of the oil shock in some way that occurred as a result of the outbreak of the war in the Middle East in the autumn of 1973. For example, rumors spread that “toilet paper is gone from the market”, and the long queues were formed at supermarkets. It was one of the social phenomena in Japan accompanying the oil shock.

The impact of oil shock was spread to all industries, and Japan’s GDP (Gross Domestic Product) declined to negative growth for the first time after the World War II.

A strong blow was also applied to the semiconductor industry, and my semiconductor life rolled down from the summit to the bottom of the valley.

At this point, the powerful towing vehicle of the semiconductor industry in Japan was a calculator industry where Sharp introduced the world’s first product in 1964. Let me tell you how intense that momentum was.

In the “50-Year History of the Electronic Industry”, edited by Electronics Industry Association of Japan, production statistics of the calculator is posted since 1965. In the first year the total production in Japan was 5,000 units and revenue was 1.8 billion yen. After that, it expanded year by year and the pace was literally exponential momentum. In 1970, the shipment exceeded the milestone of 1 million units, reaching 1.42 million, and in 1974 it reached 15 million units, with revenue reaching 180 billion yen, thus growing into a big industry. In short, the market size of 1974 became 100 times as large as that of 1965. This situation is shown in Fig. 7.1. We can see that the calculator industry made a great leap forward in the first decade since its inception.

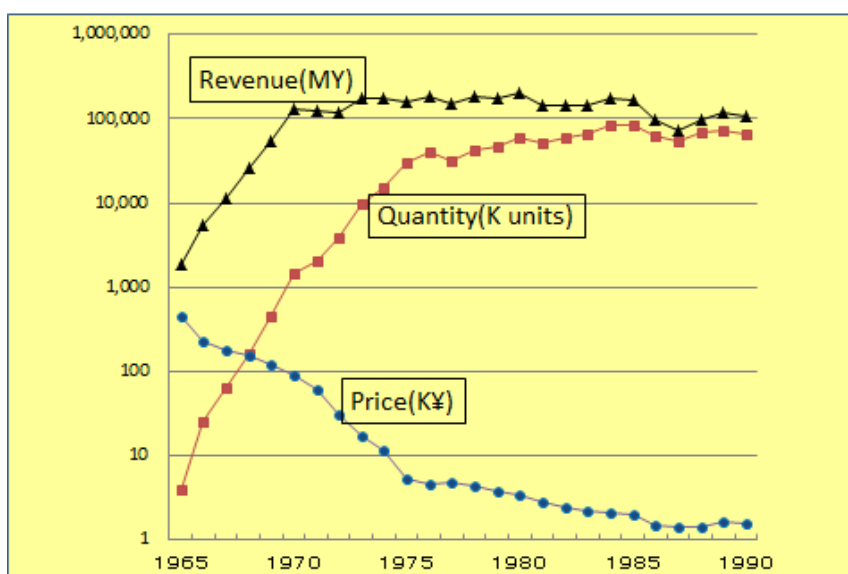


Fig. 7.1 Trends of electronic calculator production

Hitachi’s Semiconductor Division succeeded in the domestic manufacturing of LSIs in 1970, and rapidly increased the production volume under the leadership of top executives. In the latter half of 1972, Hitachi secured a market share of 65% in Japan. Although many competing manufacturers came out, Hitachi still kept 50% of market share in 1973.

In the background that we could secure such high market share, there were enthusiastic efforts of sales and manufacturing groups along with the executive management policy, but the establishment of “LSI CAD system” preceding competitors deserves special mention.

At that time, large number of calculator makers entered the market (often referred to as many as 65 companies at the peak), and each company requested the development of custom designed LSIs. The CAD system of Hitachi Semiconductor Division became the strongest weapon to satisfy these demands.

As the appreciation of the great success of the calculator LSI business, we received the Ichimura Prize under the title of “CAD System for Calculator LSI” in 1973.

This award was established in 1963 in commemoration of Dark-blue Ribbon Medal to Kiyoshi Ichimura, the head of the Richo-San'ai Group, and is awarded to the groups or individuals who contributed to the advancement of science and technology, and to the development of industry in Japan.

I was named as one of the winners together with Minoru Nagata and Seiji Kubo of Central Research Laboratories, as shown in the photo below at the winning ceremony. It was my great satisfaction that Hitachi's LSI business achieved a great leap by preceding competitors in the development of new technology, and it was the best time for me as well.



Photo 7.1 Award ceremony of Ichimura Prize in 1973
From left, Seiji Kubo, the author, and Minoru Nagata

However, the good time of calculator business did not last long after this. As you can see in Fig. 7.1, even though the number of units increased, sales volume flattened with some ripples due to sharp decline of price. It was the beginning of the intense competition among calculator makers, which was generally called the “calculator war”. The cycle of model changes was shortened due to the excessive competition, and the unit price of LSI dropped sharply. And the LSI product lifecycle became shorter and shorter. There were some ominous signs for calculator LSIs which had been the most important growth engine for Hitachi's Semiconductor Division.

The oil shock came suddenly at the very moment when the momentum of the main product began to be lost. The fourth Middle East war was the trigger which broke out on October 6, 1973. Hitachi's Semiconductor Division was hit by double punches of “calculator war” and “oil shock”.

Due to the oil shock attacks, the global semiconductor market was also severely damaged. While growing in the astounding rate of more than 50% in 1973, the growth rate slowed to 10% in the following year, like a sudden brake. And in 1975 it was (-) 20%, the steep decline which the semiconductor industry never experienced before.

The performance of Hitachi's Semiconductor Division also deteriorated rapidly and it finally fell in deficit. From the view point of bureaucratic headquarters, such kind of poor performance in the semiconductor sector was really an abnormal situation which could not be overlooked. Intense pressure was applied to the division from the headquarters. According to the intention of headquarters, major changes took place both for organization and personnel affairs in the unprecedented scale. It was a major "restructuring" as we call it today.

At that time, the Semiconductor Division had four factories, namely Musashi, Kofu, Komoro and Takasaki, and there were four factory managers. In Hitachi's system at the time, the factory was like an independent castle of a nation, as in the feudal age, with a full set of operation units under the organization, and the factory manager was like a castle owner. Surprisingly, two factories among them, Kofu and Komoro, were downgraded to branch factories under Musashi Factory. There was a feeling that such downgrading to a branch factory was like "dispossession of territory" in the feudal age.

Along with this restructuring, many executives in the semiconductor field received some kinds of bashing such as dismissal or downgrading.

In 1975, a senior executive (temporarily call him Mr. A) arrived from the heavy electric machinery sector to assume the position of GM of Semiconductor Division, in order to rebuild the semiconductor business.

Since this time, the management system of Hitachi's semiconductors rapidly shifted to the heavy electric machinery style. The first thing Mr. A did at the time of taking office was the basic organizational change: to return the organization of "business division profit center" system, which was more market oriented, to "factory profit center" system, which was more manufacturing oriented. The latter was the traditional system of Hitachi.

As was mentioned in the Episode 5, the Semiconductor Division at that time had adopted a "business division profit center" organization, as an exception to a traditional "factory profit center" organization since November 1969.

Mr. A's argument was that the greatest factor in the current deficit in the semiconductor business is due to the "business division profit center" organization peculiar to the semiconductor sector, and he disliked it. Based on his idea, Semiconductor Division was reorganized in December 1976, and my Product Development Dept., which had belonged to the Semiconductor Division, was included in the Musashi Factory organization.

And in these changes, I was not an exception, and I myself was dismissed from the Product Development Dept. Manager. The newly appointed job title was the Deputy Chief Engineer. Until then my department was the largest one with over 200 engineers under my supervision, but now I had only a few subordinates, and the gap was so big.

The Deputy Chief Engineer is a technical professional, and it is a different position from the managerial position. In Hitachi's common sense at the time, after the changeover from the managerial position to the technical professional position, it was unlikely that there would be any way to return to management side. For me, it was the first real set back since joining the company, and I felt almost like I fell down to the bottom of the valley. I thought that this would be more likely my last position in the company.

I could not have the prospects for my future career, and I was suffering from the mental agony day and night. One of those days, I remembered my seniors' words which had been given to me seven years before when I got an unusual promotion to the youngest Dept. Manager in 1969. He told me, "Remember that the nail which sticks up gets hammered down". Although I had not fully understood the real implication of his words at that time, now I felt that it became the reality, and I realized that I was "hammered down".

Meanwhile, in the field of semiconductors around the world, a major change was occurring in the tidal current.

The market of calculators was hit by frequent model changes and price erosion due to the intense "calculator war". There was ominous sign of collapse of the market, indicating the limitation of custom LSI business.

In contrast, the fields which centered on standard products such as memories and microprocessors were gaining momentum. In these segments, the United States was overwhelmingly leading, supported mainly by emerging forces such as Intel. I strongly recognized that there would be something more to learn in the United States.

Because I felt that we would not get any future prospect if we stayed in domestic Japan as in the past, I made a proposal to the executives to establish a design operation base in the Silicon Valley in US. Fortunately, the executives gave me "go ahead" instruction. And I myself moved the center of activities to the United States and began preparation for the establishment of a design company. Initially it was a start with a few people, including Fumimaro Kawakatsu and Takuo Tsuiki in the small office named HICAL, coined from the combination of Hitachi and California. This was the predecessor of the successful design company HMSI (Hitachi Micro-Systems International) in the later time.

Time does not stop, but it flies like an arrow in the semiconductor world. In the summer of 1977, about six months after starting such activities in the US, an unexpected development came out to the semiconductor sector of Hitachi as well as to me.

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