Japanese companies trim spending on research

- Recession halts five years of rapid growth
- Capital expenditures suffer sharpest cuts

Tokyo

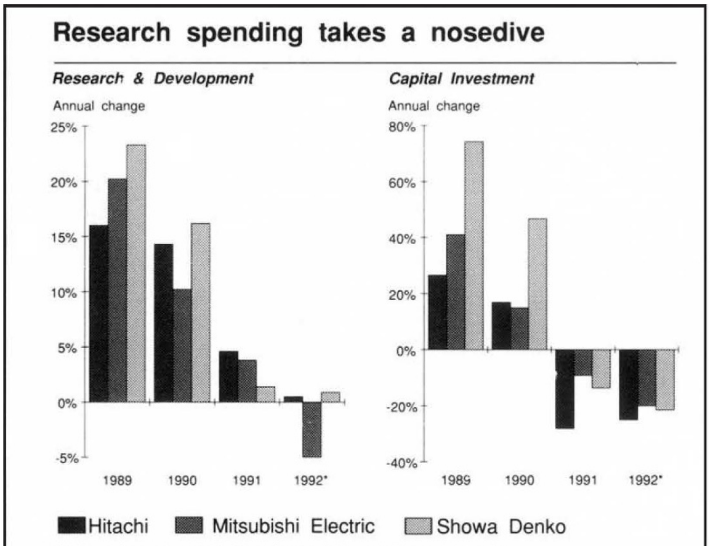
MAJOR industries in Japan have begun to freeze, or even to reduce, what they spend on research and development (R&D). The cutbacks suggest that the global recession that has so dominated Western economies has begun to reach Asian shores as well.

News that a five-year spending spree has come to an end is expected later this month when companies reveal their spending plans for the fiscal year that begins 1 April. It will be a shock to those who think of Japanese industry as an unstoppable juggernaut. Industry has been the driving force in Japan's rise to the top in the share of its gross national product — now about 3 per cent — devoted to R&D. In recent weeks there have even been reports that Japanese industry is spending more on R&D, in absolute terms, than the United States. But Japan's position at number one, even if real, may not last long.

A survey of five of Japan's major electronics companies — Hitachi, Toshiba, Fujitsu, Sony and NEC — shows them holding R&D spending in 1992 to current levels. The Nihon Keizai Shimbun, Japan's leading financial newspaper, reported last week that the research budget for a sixth industrial giant, Mitsubishi Electric, may even fall below its 1991 level of ¥190,000 million ($1,460 million).

These six electronic companies alone spent over ¥1.7 billion ($13,000 million) in 1991 and account for well over 15 per cent of all Japanese industrial spending on R&D. Their decision to hold down spending is expected to have a profound effect on overall outlays for industrial R&D.

The same is true of the automobile industry where, for example, Nissan is expected to keep R&D expenditures close to the 1991 level of ¥250,000 million ($1,920 million). And growth in the chemical and biotechnology industries, which in the West has been fairly resistant to the recession, is also expected to be very small, at most one or two per cent.



*1992 numbers are estimates based on preliminary company information

Because companies must still contend with rising personnel costs and the effects of inflation, a flat budget means less money for research equipment and facilities. Capital investment in production facilities, including those for the final stages of development of products, is being severely trimmed. Most of the major electronics companies, for example, expect to make reductions of 20 to 30 per cent over last year. And 1991 levels showed little or negative growth compared with the boom years of 1988, 1989 and 1990.

The decision to hold down spending is a response to plummeting sales brought about by the recession in the United States and Europe and by rapidly declining growth in the Japanese domestic market as well. In the past few weeks, many companies have revealed that their profits for 1991 will be much lower than expected; the parent company of the Sony group, for example, has gone into the red for the first time in decades.

The cutbacks will be felt most keenly by researchers in the semiconductor industry who are close to the production line. That is particularly true for spending on capital items. The outlook, says a research manager in the microelectronics section of one major electronics company, "gets worse and worse every day". At the same time, the manager says, the "crazy competition to produce next-generation computer chips will continue".

The situation is a little brighter in the basic research laboratories opened by electronics companies during the boom years of the late 1980s. "It's a difficult situation", says the head of one such laboratory, "but I do not think the reduced level of funding will pull back our research. We will just have to use our brains rather than more money."

Despite curtailed spending, most companies plan to continue their vigorous recruitment of scientists. Japanese industry is expecting a severe shortage of trained engineers and scientists towards the end of this decade as birthrates decline and higher-paying jobs in finance deplete the available pool of talent.

In the face of these cutbacks, government officials remain optimistic about the health of Japan's economy. Officials at the Economic Planning Agency, who monitor the economy, say Japan is not in recession but rather that growth is just "decelerating" to a more stable rate. Even so, it is expected that public works expenditures for fiscal year 1992 will be brought forward to stimulate growth and that the official discount rate will be further reduced. In the meantime, the budget is stalled in the Diet because of yet another financial scandal involving politicians.

David Swinbanks

TPA ruling shakes up biotech industry

IN biotechnology, a looming recession is not the only factor holding down Japanese research and development spending. A legal victory late last year by the US company Genentech in its patent fight over the heart-treatment drug tissue plasmogen activator (TPA) (*Nature* **354**, 4; 1991) has forced many Japanese companies to pull back their investments.

The case has taught Japanese companies that you have to be a front-runner to succeed, says Mitsuru Miyata, editor of *Nikkei Biotechnology*, a newsletter that closely monitors the Japanese industry. He says that many companies that leapt into biotechnology research in the 1980s thought that they could just "follow the pack". Now, he says, they realize it is "no good to be third or fourth".

The declining investment in biotechnology in Japan stands in stark contrast to the situation in the United States, where investment last year soared to a record $30,000 million. But Miyata expects the Japanese companies that remain after the shakeout will be better able to compete globally. **D.S.**