

## **Diverging Paths for IT Industries in Taiwan and Korea**

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The 1980s were the glory days of the information technology (IT) industry in Korea and Taiwan. Riding the crest of the PC revolution, both countries' IT industries grew from virtually nothing to become multi-billion dollar industries. Korea's computer hardware production topped US\$3 billion in 1989, with production of PCs reaching US\$1.7 billion. By 1991, Taiwan ranked seventh in the world in computer production and third in exports.

The 1990s have been a different story. Brutal price competition in the PC industry squeezed the Taiwanese and Korean industries while their own costs were being driven up by rising wages. In this new harsh environment, Korea's industry wilted. Korean PC production dropped by almost 40% in 1992 alone, to just US\$834 million, while exports declined by over 50%. Taiwan, however, continued to flourish. Hardware production reached US\$7.8 billion in 1992 as PC production reached US\$2.1 billion. In 1993, Taiwanese companies produced 24% of the world's portable computers, or 861,000 units.

Why have Korea's computer makers struggled unsuccessfully in the 1990s while Taiwan's have continued to thrive? Three reasons stand out:

First is Korea's rigid industry structure versus Taiwan's highly flexible one. Korea's electronics industry is dominated by the large chaebol, including Samsung, Goldstar, Daewoo and Hyundai. Their ability to make huge capital investments has enabled them to become major producers of consumer electronics and commodity memory chips. However, they are poorly suited to compete in the fast-changing IT industry. The chaebol have highly centralized, bureaucratic decision-making processes, making them slow to respond to changing and unpredictable market conditions.

Taiwan's industry, by contrast, consists of hundreds of small and medium sized enterprises (SMEs), most of which specialize in a few product areas. They are highly flexible and entrepreneurial, have low fixed costs, and are able to respond quickly to new market opportunities and to adopt new technologies. These companies can take an engineering concept to volume production in just 90 days, the fastest in the world. They have also been able to move quickly into leading edge products where growth is fastest and margins highest. An example of the value placed on flexibility and entrepreneurial skills is Acer's plan to break itself up into 21 public companies by the 21st century. Such a radical corporate shakeup would be unthinkable for the Korean chaebol.

Second is government policy. The Korean government has favored the large, vertically integrated chaebol, thereby reinforcing its industry structure, whereas the Taiwanese government's flexible policy has fostered innovation, entrepreneurship and change among its SMEs. The Korean government has long favored the chaebol with cheap credit,

government contracts and participation in major R&D projects. Recent efforts by the government to convince the chaebol to spin off some affiliates and concentrate on a few core industries have been resisted or ignored. Korean policy is still focused on catching up to Japan and the U.S. in a broad range of technologies, rather than concentrating the country's limited R&D resources on a few key areas. Policymakers continue to show little concern for the importance of software and services.

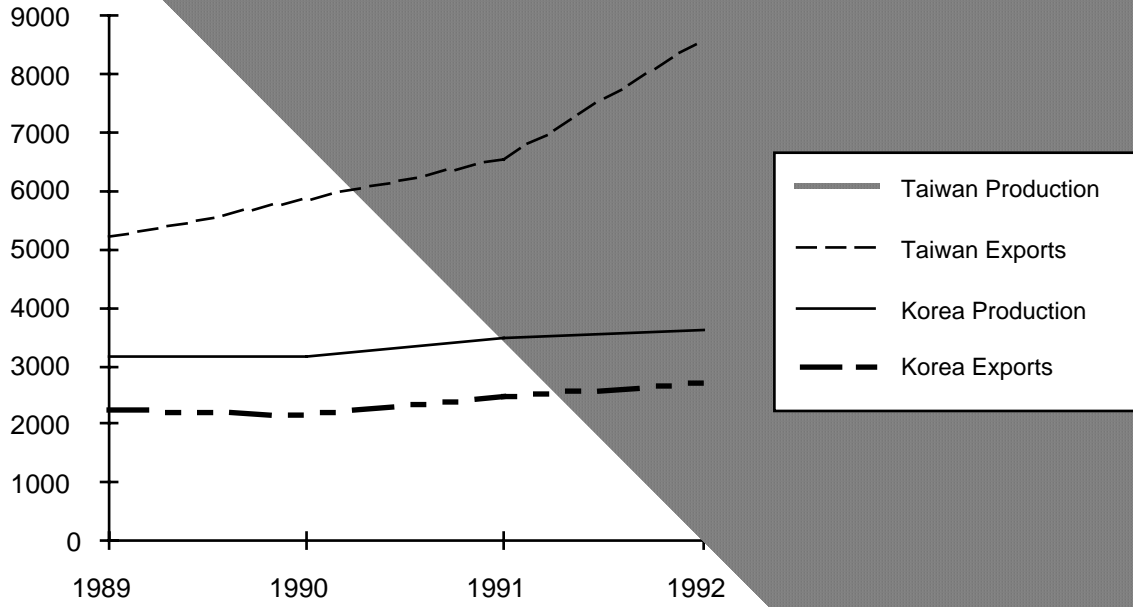
Taiwan's government, by comparison, encouraged SMEs to move into computer production. It supported them by conducting R&D and transferring technology to the private sector, conducting market research, training professionals, and providing tax incentives and loans. In response to criticism that it is monopolizing resources and competing with the private sector, the government is now considering privatizing some of its activities and giving more R&D opportunities to the private sector. It is also shifting its policy focus to promotion of software and services, computer use, and creation of a national information infrastructure.

The market orientation and flexibility of Taiwan's policies stand in sharp contrast to the nationalistic technology-driven policies of the Korean government. Also, Taiwan's policies have been coordinated under the Ministry of Economic Affairs, while Korean policymaking has suffered from inter-ministerial battles and duplication of effort.

Third is the limited linkage of Korea's computer industry with the global production system versus Taiwan's deep and broad linkages with multinational corporations and global markets. Taiwan's computer industry is closely linked to the global production and distribution chains of the leading multinationals, while Korea's industry has more limited ties. Taiwan's industry benefits from government market research, but also from informal networks of overseas Chinese. Also, Taiwan has invested in China and Southeast Asian to develop a regional supply base, while Korean companies' foreign investment is generally limited to final assembly of consumer electronics. Taiwan has also invested in those areas to penetrate local markets, while Korean firms depend mostly on exporting from Korea.

This comparison clearly shows that while there might be more than one path to success in the IT industry, not all paths lead to sustainable advantage. Korea was successful in the PC industry in the eighties when the scale of its chaebol permitted them to be leaders in low cost production of assembled PCs. However, as PCs became commodities, the chaebol were no longer able to compete on price at the low end of the market and were unprepared to compete on technology at the high end. In contrast, Taiwan has continued to compete successfully as a supplier of low-end and high-end components and peripherals to multinationals and an increasingly competitive designer and maker of PCs and portable computers.

### Computer Hardware Production and Exports, Taiwan and Korea



Sources: Elsevier Yearbook of World Electronics Data  
Electronics Industry Association of Korea

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