Globalization has been creating unprecedented opportunities and challenges for firms. To explore how companies are responding to globalization, a team of researchers from the social science, engineering, and management departments at MIT worked together on a four-year study at the MIT Industrial Performance Center. Over the 1999 – 2003 period, the research team carried out 629 interviews with managers in firms as well as people from government and academia. The interviews took place in East Asia, the United States, and Europe, with almost half of the interviews in Taiwan and China. Most of the firms selected for interview were concentrated in four industries: electronics, software, automobiles and auto parts, and textiles and apparel.

Global Taiwan is the first report from this study. Taiwan has been known for its extraordinary economic development over the past five decades, beginning as a poor agricultural economy in the 1950s and now emerged as an influential player in a number of industries, notably information technology (IT). Berger and Lester, the editors of Global Taiwan, make it clear in the first chapter that the book does not attempt to join the debate over the forces behind Taiwan’s extraordinary economic development. Instead the book focuses on how Taiwanese firms have been responding to the opportunities and threats that brought about by globalization and whether (and under what conditions) Taiwan can sustain its success in the new global economy. In particular, the book features several cases studies of successes and failures of various segments in the IT and automotive industries, provides analyses for the reasons behind the successes and failures, discusses the prospect of these segments under the new global economy, and provides suggestions for policy makers in Taiwan.

In the first chapter, Berger and Lester present a helpful overview of Taiwan’s economic development and an excellent summary of the key findings of the book. According to Berger and Lester, Taiwanese firms are too small to support a complete set of activities in the value chain. Furthermore, the domestic market in Taiwan is too limited to allow firms to reach scale economies. Globalization has given Taiwanese firms the opportunity to upgrade their capabilities because the modularization of production in the global economy allows Taiwanese firms to gain access to a larger market and allow them to focus on a single part of the production chain, such as manufacturing. While the manufacturing capabilities of Taiwanese original equipment manufacturing (OEM) companies have been impressive in some industries, such as IT hardware, these firms are beginning to find themselves competing with large Western electronic manufacturing services (EMS) firms and with the rising Chinese manufacturers, and are making thin margins. Berger and Lester explore Taiwanese firms’ strategic options for reaching the parts of the production chain that can yield higher margins and that are less vulnerable to competition.

Given that OEM companies play a predominant role in the economic landscape of Taiwan, in Chapter 2, Sturgeon and Lee compare electronic contract manufacturers in Taiwan and North America. While the two authors devote a considerable number of pages to explaining the concept of “industry co-evolution” and illustrating the emergence of shared supply networks among competitors in electronics industries, the chapter is eventually connected to the focus of the book by discussing how Taiwan-based ODM firms and US-based EMS firms are more likely to be in direct competition in the future. Sturgeon and Lee predict that rising customer demand for design services is likely to give ODM firms at least short-term advantages over EMS firms because it is difficult for the product-diversified and geographically dispersed EMS firms to develop design expertise in any single product area.
Taiwanese firms have been strongest in manufacturing, a part of the production chain with generally low profit margins. In Chapter 3, Fuller, Akinwande and Sodini ask a question that is crucial in assessing Taiwanese firms’ ability to move up to the parts of production chain that yield higher profit margins and are less vulnerable to competition: In which technologies can Taiwanese firms succeed in becoming innovators and in which technologies are their prospects of developing innovation be quite limited? They explore this issue by examining three electronics industries in Taiwan: the successful CMOS logic fabrication industry, the struggling DRAM industry, and the in-between AMLCD industry. They find that the lack of patient capital in Taiwan has constrained the ability of firms to build production capacities and R&D capabilities at the same time. As a result, Taiwanese firms are more likely to succeed in becoming innovators when production processes can be decomposed into modules, because in this case Taiwanese firms can create narrow segments and can develop their technological competence with limited funds. Fuller, Akinwande and Sodini also suggest that the prospects for Taiwanese firms will be more positive in industries with no requirement for large patient capital; such as in the AMLED industries where there is little need to invest in continuous product R&D. Given that impatient capital is a key institutional characteristic in Taiwan and that it influences the development of Taiwanese firms, the authors go farther and discuss how the financial policies of the Kuomingtang regime resulted in banks and the state not allocating credits patiently, and how government subsidies cannot be construed as a remedy for the lack of patient capital.

I would have placed Chapter 5 right next to Chapter 3, as both chapters focus on electronics industries, and both deal with similar issues from different yet related perspectives. In Chapter 5, Fuller investigates how vulnerable Taiwanese electronic firms are to global competition by assessing how dependent these firms on foreign partners. In particular, he examines the evolution of two segments in the electronics industry: semiconductors and ODM PC system manufacturing. While in the early stages both segments relied heavily on technology transfer from foreign partners and had low bargaining power with their customers, Taiwanese semiconductor firms now are able to develop an in-house R&D capacity and have developed interdependent, rather than unilaterally dependent, relationships with their customers. However, ODM system manufacturing firms are dependent on the orders from internationally branded companies and continue to provide low-margin manufacturing services to them. Fuller observes that to compensate for the low margins, many Taiwanese ODM system manufacturing firms have diversified into cellular phone design and production. However, with more and more firms entering the industry, Fuller suspects that the profit margins will soon go down, just as they did for PC-related products.

Like Fuller, in Chapter 4 Cunningham, Lynch, and Thun show that technological dependence on foreign partners is a key characteristic that distinguishes the struggling automotive assembly and OEM firms from the successful aftermarket firms in Taiwan. According to Cunningham, Lynch, and Thun, the primary problems with Taiwanese automotive assembly and OEM firms were (1) a small and fragmented domestic market, which prevented the firms from achieving economies of scale, and (2) dependence on foreign technology. The reliance on foreign partners for technologies has further been affecting these firms’ ability to exploit their capabilities overseas, intensifying the difficulties of achieving economies of scale and scope. The authors also find that government policies have been inconsistent and failed to provide effective support for these firms. Unlike the assembly and OEM segments, economies of scale and technological advances are not critical in the aftermarket parts market. Cunningham, Lynch, and Thun observe that Taiwanese aftermarket parts firms were able to overcome the constraint of the small domestic market by entering the U.S. market, and they were able to obtain the design of the auto parts through reverse engineering. The authors also report that the recent trends of the industry, such as shorter repair time and lower prices, further allow Taiwanese aftermarket parts firms to strengthen the ties with their U.S. auto parts distributors by offering them logistical, quality-control-related and design services. Cunningham, Lynch, and Thun conclude the chapter with rich policy recommendations for the Taiwanese government.

Chapters 3-5 present interesting cases of success and failure in the electronics and automotive industries in Taiwan. These case studies reveal that impatient capital as a key institutional feature prevents Taiwanese firms from making more R&D investments and that Taiwanese industry policies sometime failed to provide effective support for firms. In Chapter 7, by examining the Taiwanese IC design and software industries, Breznitz provides an interesting and comprehensive discussion of why the institutional environment in Taiwan has not been supportive for original R&D-based companies. He also finds that industrial technology policies in Taiwan have hampered the development of private software industries because the research institutes have competed directly with the firms for customers. Toward the end of the chapter, Breznitz reports that recently some technology-oriented software firms have succeeded despite the lack of institutional support. I would expect a follow-up study that goes further and discusses why these firms have achieved success and how sustainable their success would be.
In Chapter 6, Ancelovici and McCaffrey present evidence of the recent production shift from Mexico to China and discuss its implications for Mexico and global producers. They report that Taiwanese firms (mainly textile producers) were once important investors in Mexico; now many of them are shifting their production in Mexico to China. Given that the first five chapters (as well as Chapter 7) of the book focus on examining the competitive strengths of industries in Taiwan, I would expect a more micro-level discussion of how Taiwanese textile industries have been responding to the pressure of globalization. Like PC system manufacturers, many Taiwanese textile firms are without a brand and a global distribution network, and they underwent increased labor costs and moved their production to lower-waged regions such as South Asia a number of years before PC system manufacturers did so. An examination of how these textile firms have been doing would shed light on the understanding of the competitive strengths of Taiwanese firms. However, in this chapter the authors limit themselves to the interesting but not-so-related issue of the rationale behind the production shift out of Mexico. Such a focus makes Chapter 6 somewhat more like a stand-alone article than a chapter integrative with other ones within the book.

As the subtitle of the last chapter (Chapter 8) indicates, Steinfeld aims to discuss how vulnerable Taiwan firms are to competition from rising Chinese firms. After a review of Chinese industrial policy and the current state of Chinese firms, the author concludes that the institutional environment in China is not yet conductive to enterprise success and that modularization in production processes is likely to reduce the possibility of Chinese firms catching up to more developed incumbents, who act as the supply chain integrators and managers. Accordingly, Steinfeld predicts that Taiwanese firms remain “decidely in the driver’s seat” (p. 277) particularly in high-end electronics. The author’s negative assessment of the impact of the modularization of production processes on the prospects of Chinese firms is an interesting contrast to the arguments in earlier chapters (Chapter 1 and Chapter 3), in which it was argued that the modularization of production processes has made it possible for Taiwanese electronics firms to develop R&D capabilities with limited financial resources. In addition, like Taiwanese firms thirty years ago, Chinese younger generation is now aggressively pursing studies and jobs abroad. Chapter 5 reveals that a key factor that contributes to the success of Taiwanese electronics industries is the return of experienced engineers and managers from U.S. Can the factors that have contributed to the success of Taiwanese firms also allow Chinese firms to gain success in the future? The chapter would have been even more thought-provoking if the arguments in the chapter were discussed together with those in previous chapter.

The title of the book, Global Taiwan, led me to expect a boarder selection of industries in case studies than the book actually offers. With the exception of Chapter 5, the authors limit their focus on IT industries and assess the competitive strengths of Taiwanese electronics firms on the basis of technological independence and the ability to innovate. While IT industries indeed play an important role in Taiwan economic activities, IT and electronics firms as a whole contributed less one third of export (Ministry of Economic Affair, 2005) and made less than one fourth of outward investment (Ministry of Economic Affair, 2004) over the period between 2001 and 2004. Hence, to get a more complete picture of how Taiwanese firms have been responding to globalization, it would have been useful to discuss the similarities and differences of Taiwanese IT industries and other industries. Otherwise, it would have been desirable to include analyses of some traditional industries, such as textile and machine tools or even service industries, where innovation and technological independence may not be the only or the most important factor that influences the sustainability of competitive advantages, and where Taiwanese firms may have different strategic responses to pressure from globalization.

Despite this reservation, Global Taiwan is a valuable contribution to the literature on industry evolution. Previous studies that explore the evolution of an industry have found that as an industry evolves, the location of activity shifts (Murtha, Lenway, and Hart, 2001) and that the geographical patterns of an industry can be driven by globalization and local forces (McKendrick, Doner, and Haggard, 2000). Global Taiwan complements these studies by providing examples of how the location shifts take place with a micro-level analysis of industry evolution in a developing economy. The authors should be applauded for their daunting tasks of collecting data from more than two hundred interviews and numerous pieces of articles and book materials, and for their excellent work in putting these data together and constructing a clear picture of the selected Taiwanese industries. Policy makers in Taiwan should find the book particularly helpful. Strategy scholars who are interested in exploring the evolution of capabilities of a firm may find the various cases featured in the book insightful, as these cases illustrate how Taiwanese firms have been responding to changes in the new global economy. Scholars interested in understanding how institutions shape firms’ behavior and performance should also benefit from the discussion in the book.
References


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