The final two chapters are among the book's most interesting. Chapter 12 deals with the recent Asian financial crisis and it calls attention to the fact the countries that experienced rapid pre-crisis growth (such as Thailand) had " a crisis in hiding" because of four factors. Their growth masked these factors: substantial and persistent current account deficits; an exchange rate that is fixed over the period of time that the deficits persist; the maintenance of currency convertibility; and capital account finance that is dominated by short-term bank lending. A lesson in development is that these factors in combination carry the danger of leading to a financial crisis that threatens growth momentum as it did in Thailand and other seriously affected countries.

Chapter 13 calls attention to four factors upon which development in Southeast Asia and elsewhere must be fundamentally grounded. They are the maintenance of social order; the development of human resources, the persistence of regional peace and security; and the creation of a sound investment climate. These points appear to be simple and self-apparent, but they are as difficult to pursue as they are basic to the long and difficult road to development in Southeast Asia.

The book is in the tradition of Professor Lim's commitment to high quality scholarship — it is very well written and thoroughly researched. The volume clearly achieves the author's stated intention of providing a useful book to both graduate and undergraduate students whose academic foci is on Southeast Asia, and to policy-makers and others who are interested in policy options in the ten ASEAN countries. If there is a shortcoming in the volume, it has to do with the absence of a more systematic treatment of the important development roles of official development assistance (foreign aid) and balance of payments. An expanded treatment of the roles of the World Bank, the Asian Development Bank, the International Monetary Fund, and bilateral foreign aid donors would have added still more to this immensely useful and readable book. A more extensive focus on assistance would have made the book even more useful in understanding what poorer, less developed agriculture-based Southeast Asian countries need as they travel the long road to sustainable material progress. However, an added feature of the book fills this and any other gap because the volume contains extensive references to further readings. With all of these points in mind, this reviewer recommends the book enthusiastically and without reservation.

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***Tiger Technology: The Creation of A Semiconductor Industry in East Asia*. By John A. Mathews And Dong-Sung Cho.** Cambridge: Cambridge University Press, 2000. Pp. 389.

This is an important book looking in detail at an important aspect of the East Asian economies — the semiconductor industry. The development of this sector, together with the wider electronics industry of which it is a crucial part, has been at the leading edge of the region's rapid industrialization along with the car, steel, textiles, and petrochemical industries. The book takes the semiconductor sector as a prime example for understanding the dynamics behind this rapid industrialization and describes why parts of East Asia (Japan, Korea, Taiwan, Singapore, and, to some extent, Malaysia) have managed to come close to the world cutting edge in such complex technologies. The book follows in the tradition of Hobday (1995) and Borrus et al. (2000) with a detailed discussion of country experiences and applies a thorough review of the literature regarding technology diffusion and organizational theory to the specifics of the East Asian semiconductor industry. In this way the authors examine the wider implications including prospects of replication in both other developing economies and also in the United States and European Union (EU). This book is an important contribution to our understanding of why the region developed so fast and will be useful for a variety of readers from macroeconomists to

industry specific specialists and policy-makers around the world.

The key dynamic stressed is the creation of institutional capabilities to leverage existing technology from more advanced countries as opposed to traditional product invention and discovery. They rigorously explain that this was not a spontaneous development. Rather, it was the result of a concerted effort by the development-orientated state to build the required institutional frameworks. In the context of technological underdevelopment, and with the disadvantages of being latecomers, the governments were instrumental in creating the mechanisms by which technology could be first introduced, then adapted to local requirements and finally mastered. Japan was the first and was perhaps *sui generis* with its strategy of full infant industry protection and a heavily mercantilist view. In the contemporary globalizing world with WTO (World Trade Organization)/IMF (International Monetary Fund) type policy agendas, the potential for broad replication focuses more on examining the strategies of Korea, Taiwan, and Singapore. Broadly similar approaches to technology diffusion were taken albeit with differing focuses reflecting differing characteriztics and initial endowments. In Korea, the focus was on the top with vertically integrated *chaebols* as the lead with easy credit supplied by government-controlled banks. Alternatively, in Taiwan, small and medium enterprises (SMEs) were dominant, supported by the public sector which took on an enabling role. Crucially, it established agencies such as ITRI acting as technology providers and "incubators". ITRI then spun off successes such as UMC and TSMC (a joint venture with Philips) into the private sector. These became some of the most successful firms of their type in the world. The Singapore strategy was more open to foreign direct investments (FDI) with the crucial role of state agencies such as the Economic Development Board (EDB) in creating backward and forward linkages around the multinational corporations (MNCs) in clusters centred on industrial estates.

The conclusion is rightly that variants of the Singapore model are the most replicable for most developing countries with a focus on MNCs as the production core alongside institutional structures to ensure adequate technology transfer and the creation of backward linkages into the wider economy. Of great contemporary interest is that China has now embraced the successful leverage strategy. As the authors correctly point out, China is big and diverse enough to follow simultaneously all three versions of the leverage strategy. Encouraging large companies (as in Korea) to licence technology from overseas; promoting and enabling SMEs through state agencies (as in Taiwan); and encouraging and leveraging off MNCs (as in Singapore).

However some caveats stand out.

Firstly, the book focuses primarily on the institutional and firm level organization requirements for technology leverage. Whilst this is undoubtedly extremely important, it runs the risk of downplaying other crucial factors. Chief among these are what the authors call the "neo-dependency" theories which highlight the role of MNCs in the development of the region's production capabilities. MNCs from the United States, Japan as well as the EU (such as Philips) have been instrumental in providing the technology and importantly the markets for this strategy to succeed. Borrus et al. argue that the development of East Asia as a hardware production site fitted in very well with the strategic aims of the U.S. companies who controlled the key part of the value-added chain — the crucial industry standards and brands. Secondly, the importance of traditional macroeconomic factors, including growth, monetary, and exchange rate regimes as backdrops to the rapid development is also ignored; for instance, the importance of exchange rate appreciation in forcing technological upgrading in Singapore.

Secondly, some care needs to be taken in the strong emphasis implicit in their argument of manufacturing production as the foundation of economic development. The arguments implies that production of hi-tech goods is a good thing in its own right. However, this is only strictly true when the production is consistent with the likely

path of broadly defined factor endowments. Examples from other regions have shown how such leapfrogging strategies can go badly wrong as in Brazil's PC industry. Hong Kong is cited as throwing away its technological lead in the 1960s because of a lack of policy guidance by the hands-off colonial administration. But is Hong Kong the worse for this? Is it to Hong Kong's interest to manufacture semiconductors and other hi-tech goods as the authors (and the new administration) think or should it concentrate in core competencies such as acting as the service sector and software gateway for China?

Thirdly, the authors may be too sanguine about the effects of the Asian crisis on the hitherto highly successful strategy. In Korea, the deep structural changes have had deeper consequences than the book posits. The *chaebol* model rested on cross subsidies and cheap sources of funds, which allowed heavy investment to gain critical economies of scale. Also it allowed *chaebols* to buy firms in the United States, which acted as crucial transmitters of technology in place of unwelcome FDI. This model has now come to an end as a result of the crisis due to resulting debt problems and an end of the protected domestic market structures in areas such as consumer electronics and cars, which allowed cross subsidization of heavy investment in electronics. The effect has been a consolidation in the industry with LG Semicon being forced to merge into Hyundai Electronics in 1999, and latest reports indicate that the government is urging further consolidation with a proposed merger of Samsung Electronics and Hyundai Electronics.

The crisis has also had a big impact in ASEAN excluding Singapore. In the weaker economies, the crisis has effectively put the development of the semiconductor industry on hold in Thailand (with the closure of Alphatech); in Indonesia (little investment now going into Batam); and in the Philippines, the burgeoning sector may be hit by the bilateral problems between Taiwan and the Philippines. In the more intermediate case of Malaysia, the ambitious plans for building a technopolis around Kulim High Tech Park have also faced difficulties. Perhaps, MNC confidence is taking longer to be restored and policy-makers have also lost their sense of ambition.

In conclusion, this is a key book in explaining how latecomers can successfully climb up the value-added chain and through dynamic upgrading of competitive advantages. The use of state enabling institutions is critical in an era where traditional forms of infant industry protection such as tariffs are ruled out. That this strategy has also been re-exported in Western countries (often as for use in regional regeneration schemes such as in Scotland) is testament to its usefulness. However, such a strategy is necessary but not sufficient for development. Policies such as macroeconomic stability and creating an attractive environment for MNC networks remain highly relevant. Rather than stress the overriding role of any of these contributions, a synthesis may well be the best way of explaining the phenomenal rise of the semiconductor industry. This book will be an important component in that broad interpretation.

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***Corporate Strategies for Southeast Asia after the Crisis: A Comparison of Multinational Firms from Japan and Europe.* Edited by Jochen Legewie and Hendrik Meyer-Ohle.** Basingstoke and New York: Palgrave, 2000. Pp. 261.

This accomplished volume of edited conference papers is one of several publications on the aftermath of the Asian economic crisis (AEC) rather than the crisis itself. The papers are the