

## **Chapter5**

### **Conclusion and Recommendation for the Comparative and Competitive**

#### **Advantages of the Semiconductor Industry:**

*A Case Study of Thailand, Malaysia, and Indonesia*

This chapter will divide into two parts. The first part will be the conclusion of this study and second parts will be the recommendation of this study.

### **5.1 Conclusion**

The semiconductor industry or as simply called; the IC industry, is the key component to most of the electronic equipments used in our daily life. Familiar applications can be found in computers, television sets, calculators, mobile phones, satellites, electronic devices in automobiles, and many more.

First of all, this study employed used the trade theory of comparative advantage for explain the optimal resource allocation in the IC industry within the three countries, Thailand, Malaysia, and Indonesia. To be able to compare the comparative advantages within those countries, the Revealed Comparative Advantage (RCA) Method by Bela Balassa was applied to the study.

In general, Malaysia, Thailand and Indonesia have the same trading partners, such as the USA, Singapore, and Japan for the export of semiconductor components. The RCA of Malaysia showed the highest index of about 14.2 in year 1989 to 12.82 in year 1991 compared to Thailand 2.11 in year 1989 to 1.23 in year 1994 and Indonesia, 0.03 in year 1989 to 0.76 in year 1994 or it can be said that Malaysia has a comparative advantage in the IC industry followed by Thailand.

Thailand has a decreasing RCA index trend from 1980 to 1996 while its Thai export value increased. The supporting reason is Thailand is unable to catch up with the fast growth in the world demand for IC and parts from that period of time. Moreover, the growth of Thai IC and Thai export decreased dramatically after the 1995. Domestic economic slowdown in practice does not really affect the export-oriented electronic component industry that includes integrated circuits. However, concurrent oversupply situations of the global electronic market and sluggish overseas market which have been slow to absorb the excess inventories are the real concerns for the industry.

Indonesia does not have a comparative advantage in terms of the RCA index. That is because the RCA index of Indonesia is less than unity even though Indonesia does have an increasing volume in the export of IC and parts. However, compared in the trading of IC in the competitive world, Indonesia is still behind her neighboring countries.

After investigating the comparative advantages, of the three mentioned countries, I applied used the Michael Porter Analysis of the Competitiveness of Nation to test whether those countries' IC industries were competitive toward the world wide IC industry. The Competitiveness of a Nation or "Diamond Model" was applied to the internal SWOT analysis and the Economic, Social, and Political Indicators applied to the external SWOT analysis within those three countries in the semiconductor industry. Malaysia has both internal and external factor advantages in this industry such as Factor Condition, Economic, Social, and Political factors, resulting in the competitiveness of the IC industry existing in Malaysia. That is because the Malaysian Government does provide real support for the semiconductor industry and tries to attract foreign investment for this industry. Malaysia has unique policies

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which influences the existing investment in the IC industry. In contrast, Thailand and Indonesia have competitive disadvantages toward the semiconductor industry. The Thai Government does have attractive packages for overall foreign investment, but not particularly for the IC industry because the development of IC industry in Thailand requires special Research and Development in order to create an effective the IC industry. This is true for Indonesia as well. For Thailand and Indonesia, the political threats combined with the weakness of factors condition, Demand Condition, Demand Size and Pattern of Growth, Related and Supporting Industry, and Firm Strategy, Structure and Rivalry that results in the Thai and Indonesian semiconductor industry not being competitive enough compared with the Malaysian semiconductor industry.

In order for the development of the semiconductor industry in developing countries to be effective and attractive for foreign investors, those countries have to know how to minimize their weaknesses and maximize their strengths. Moreover for the inducement of investment in the semiconductor industry, those three countries must ensure that certain requisites are met. These include an adequate and efficient infrastructure, a skilled and trainable work force, fiscal and financial incentives, and government support. It is also necessary for the government to develop various plans, including the establishment of export zones, IC and parts industrial complexes, and a preferential duty or tax system.

## **5.2 Recommendation**

Since the domestic market is limited in most developing countries, especially at the early stages of development, it is essential to gain access to export markets. Malaysia, Thailand, and Indonesia are seen as developing countries who need the to

gain the foreign markets in order to develop their status as manufacturing bases for the IC industry.

While Malaysia has government policies and financial support advantages in the IC industry, Thailand is in the developing stage and Indonesia is in the underdeveloped stage. Malaysia has both comparative and competitive advantages in the semiconductor industry. Malaysia seems to have systematic policies creating Foreign Direct Investment in the IC industry. That is because Malaysia aims to become the South East Asia Production Base for the IC industry. From the previous chapter Malaysia shows higher growth and market share of the IC industry than other countries.

As a result of that, Thailand should create stronger and better policies in order to compete with Malaysia and attract foreign investment in the IC industry. Even though Thailand has a comparative advantage, but the semiconductor industry in Thailand is not competitive toward the international IC industry, particularly, Thailand has a decreasing trend of RCA index. Thailand needs positive support programs such as specific R&D, direct aid, subsidies, financial/tax preferences. Those are the key elements of government policies which Thailand should follow. Also, the Thai government should have a clear policy direction for supporting the industry.

The import content for ICs are about 99 percent; therefore only one percent is produced domestically. It can be said that Thailand has only one percent of value added in this industry. Thailand should develop its technology in order to extend the value added by increasing in local support of the semiconductor industry. The government may have to provide incentives for the transfer of technology and know-how and also financial support to small and medium firms. The transfer of technology

will be facilitated through technical tie-ups, joint ventures or licensing arrangements with foreign companies.