

## Chapter V

### Conclusions and Recommendations

Chapter III and Chapter IV have illustrated the empirical results of the market structure, pricing policy and substitution of branded antibiotic drugs by generic antibiotic drugs respectively. In addition, the problems in the pharmaceutical industry are also mentioned in the last part of Chapter IV. In this chapter, the conclusions of the study is provided in the first part, followed by the policy recommendations and the suggestions for further studies in the last part.

#### **Conclusions.**

The outcome of this study in the previous Chapters is that the sample antibiotic drugs market is not purely competitive in the sense of static microeconomics theory. The pricing and innovative behavior of the industry suggests a competitive process. In brief, the static model of perfect competition is an inappropriate tool with which to analyze the pharmaceutical industry. Even when the microeconomics model is extended to embrace oligopoly in static framework, it still needs to take account of the richness and complexity of the real-life variables that determine structure, price and especially quality of drug.

The price competition in antibiotics market is intense. The overall success of generic drugs is quite limited, observation of the market share of the original branded drugs over time such as cloxacillin capsule reveals a top four leaders in the market despite the fact that the patent lead expired for a long time. The expiration of the patent resulted in no change in the market position of the original branded drugs. The success of the original brand in maintaining their market shares may not result from price reductions. It might couple with the brand name which has been marketed.

In antibiotics submarkets where introduction of new drugs is relatively rapid, the level of concentration tends to increase, for two reasons: the legal quasi-monopoly granted by the patent system, and the increasing costs of innovation. In submarkets where, on the other hand, there is a prevalence of older drugs, for which patents have expired or the generic drugs have appears, the greater competition, the lower levels of concentration. The overall structure thus reflects the balance between the 'innovative' and 'established' drug markets.

Firms in the antibiotic drug industry may not practice price competition, but rather engage in other non-pricing policy. This study has tried to estimate the elasticity of substitution of branded drugs by generic drugs, considering the tight oligopoly market and dominant market, in 3 criteria as follows: a) no substitution between different sub-therapeutic class of drugs.

b) perfect substitution between different sub-therapeutic class of drugs. c) the substitution between group of drugs classified as according to off-patent period.

This study has found that the elasticity of substitution of branded antibiotic drugs by generic antibiotic drugs is quite low, this might owe to

intense advertising for a long time. There is a prevalence of generic antibiotic drugs, for which patents have expired.

Some values of the elasticity of substitution of branded antibiotic drugs by generic antibiotic drugs, especially among the dominant market and the new antibiotic drugs, are extremely high in the absolute value which has shown the distortion in this industry. As a result, the estimated amount of money saved from the substitution of branded drugs by generic drugs is quite low. The consumers' loss from the antibiotic drugs in tight oligopoly market and the old antibiotic drugs. On the contrary, the consumers' gain for those which belonged to the dominant market and the new antibiotic drugs.

### **Policy Recommendations.**

In order to promote the substitution of branded drugs by generic drugs, several policy measures should be undertaken.

1. Improving the quality of data.

The data about the output value of drug industry is necessary for FDA to explain the growth of industry, price movement, the market structure changing in the drugs used over a given period, etc. Accurate data is a critical resource. Firstly, identifying an individual's information requirements should be done. Whether it is possible to provide relevant data necessary to satisfy these requirements or not? In addition, the report monitoring should be designed to ensure that the data is accurate e.g. sampling market survey could be done to confirm the report from drug manufacturers.

## 2. Improving the image of local manufacturing.

Generically equivalent drugs should be available and marketed competitively, the quality control of generic drugs is very important in promoting generic substitution. The production of drugs of good quality is a complicated technological activity. Effective measures of controlling quality are therefore needed. This should be the task of the government to ensure that the drugs manufactured locally are of good quality. This can be done by:

a. Introducing the registration of raw material to ensure that drugs manufactured locally are produced using standard chemical substances to meet quality products.

b. Setting standard of bioavailability in the necessary drugs, monitoring and checking drug effectiveness .

c. Increasing the promotion on the status of the manufacturers with regard to the Good Manufacturing Practice (GMP). In the case of domestic production, the current manufacturing activities e.g. GMP should be generally distinguished in the consumers' point of view. In order to encourage the quantity sold of drug produced by GMP firms. As a result, the price of drugs should be decreased since increasing quantity sold.

### **Recommendations for Further Study.**

This study has some limitation and deficiency. The empirical results of the study is mainly derived from FDA report, which is incomplete. Moreover, the present study emphasizes only on the market structure rather

than concerning with all of the characteristics. In general, the theory of industrial organization deals with the relationship between industry structure, firms' behavior, and the implications of this behavior for economic performance. The followings are some aspects for further study.

- a. to examine the market behavior and performance.
- b. to analyze the economic forces which affect the market of prescription drugs. In addition, physician demand may be compared with drug manufacturer supply and profit margin.
- c. to analyze the role of public policy which is regarded to the quality of drugs.
- d. to study the impact of patent and generic competition on drug prices.
- e. to investigate the effect of advertisement on the antibiotic drug market structure and performance. It should be noted that non-pricing policy, i.e. advertisement, could influence consumer demand of antibiotic drugs. It would be interesting to investigate whether advertisement positively or negatively affects the market structure and performance of antibiotic drug industry.