Chapter 6 - Conclusions, Recommendations and Future Scope

DEA was useful to find out the benchmark DMU / companies. It was found that all companies are above 70% BCC efficient. The benchmark companies for each are cited in Table 4.3 under Setup I. There is a tremendous scope to reduce the R&D spent. It can be inferred that even though the spent on R&D is more but it is not yielding enough. The cost of materials also needs to be reduced. The inference is that these firms are using cost plus margin system and there is good scope for backward negotiations with the vendor to reduce the cost of raw materials which can help society in large to produce drugs at affordable prices. The results derived through Tobit regression analysis highlights that the efficiency of pharmaceutical firms is mainly impacted either by output variables namely profit and export or by input variables i.e. R&D.

It was found that most companies are above 70% BCC efficient. The benchmark companies for each are cited in Table 5.2. Even if most of the companies are technical efficient there is a tremendous scope to become cost efficient as seen in Setup-II. Though 16 of the firms are technical efficient only 8 firms are cost efficient. It can be inferred that with correct allocation of resources the firm can become cost efficient. A cost efficient firm can help society in large to produce drugs at affordable prices as well as maintain a decent margin to thrive in the market. The cost efficient firms with appropriate allocation of input mix can improve on it’s efficiency and generate same revenue for the firm at lesser cost. Thus, they can pass on the benefit by relooking into the end pricing of the drug. This can be done without reducing on the margin of firm or any intermediary channel partners. Thus, it leads to a win-win situation for all.

Through DEA we found that the benchmark companies for each are cited in Table 5.4 as in setup-III. Using BCC and CCR efficiency model; we have taken both aspects that are (a) Without considering Consumer Paying Price and (b) With considering Consumer Paying Price (CPP). This is done by reverse approach. We found out that some firms are Consumer conducive as their efficiency is increased with taking CPP into consideration. Whereas, some firms, though technically efficient when considered “without CPP” taken into consideration, but are not favorable to consumer or patients, when “CPP” is taken...
into account. These can be inferred from Table.5.4. Thus, this model or approach can be used by pharmaceutical firms to price their MRP which will also be conducive for consumer or patients and also retain the profit they were making earlier. Based on such analysis, Government can also take initiative to encourage those firms that are conducive to consumers and also thriving in the market by making descent profit. This will help society in large by production of drugs at affordable prices as well as lead to business growth.

**Further scope of study and future research work**

As compared to any other study this study also has some restrictions. But every restraint of any study does suggest possible future research area. We have used DEA Technique for analysis but there are few limitations of this technique as well. It possesses few most distinctive and attractive characteristics and limitations simultaneously. DEA does not pose any kind of functional form on data, nor does it establishes any prior distinction between the relative importance of any combination of inputs and outputs, nor does it make any distributional assumptions for the inefficient term. Here it is assumed that the production frontier of the most efficient DMU is known. However this is not the case in practise and the efficient isoquant must be estimated from the simple data. Mostafa (2007) quotes Staat (2001) for stating that DEA efficiency scores are affected by sample size. Future studies may compare or conduct a rank order correlation between the efficiency scores obtained through DEA and other traditional efficiency measures such as financial ratios.

Also, DEA scores do assist in identification of the amount of inefficiency but it does not identify the factors that cause inefficiency. DEA is a mathematical programming technique that does not consider specific environment conditions or restrictions that are being faced by the organisation therefore, it depends on the skills of the managers how they use the calculated results for their decision making.

The other boundaries of the study can be defined with respect to the data set; we can see that we have compared pharmaceutical firms of different locations that may face certain distinctive conditions and restrictions and therefore may not be considered for
comparision. It may not be possible for a pharmaceutical firm to become fully efficient ever because there are certain variables that are not under the control of management. Therefore, at times DEA targets may be impossible to achieve. A further research can be taken up considering the drugs pertaining to each therapy and applying DEA one can recommend an appropriate pricing strategy.