CHAPTER VII
SUMMARY, FINDINGS AND CONCLUSION

This chapter presents the summary, findings, suggestions and brief conclusions made in the previous chapters.

7.1 Background

In the year 1991 when India was facing chronic unfavorable balance of payments and also it was difficult for India for servicing outside liabilities the government of India initiated a programme of macro economic stabilization and structural adjustments supported by the IMF and IBRD. As part of this programme, a New Industrial Policy (NIP) was announced on 24th July 1991 in the Parliament and that started the process of full-scale globalisation and intensified the process of integration of the Indian economy with the global economy called globalisation.

The economic reform of 1991 brought with it a complete change in the perception of all industries in India and its impact was seen more in the fertilizer, pesticides and pharmaceutical industry. Out of which, the Pharmaceutical industry was the most affected one. A sequence of collaborations, mergers, acquisition and joint ventures came into force in the pharmaceutical industry. The aftermath of globalisation opened up opportunities for significant inflow of foreign investments especially through MNCs. This has been witnessed relatively more in the pharmaceutical industry.

Since India has completed 12 years after globalising its industries and also has implemented structural changes, there is a need for evaluating its performance to find out as to whether the globalisation has benefited the Indian industries or not. Even though globalisation is a macro concept, the pharmaceutical industry has played major role in
turning the unfavorable Balance of Payment into a favorable one in the foreign trade and hence the evaluation selecting the pharmaceutical units may help the policy makers to take the corrective measures on globalising the Indian industries.

7.2 Objectives of the study:

The study primarily aims

I. To examine the impact of globalisation in terms of the growth of the Indian industries in general and pharmaceutical industry in particular.

II. To evaluate the impact of the regulatory policies imposed by the government on the pharmaceutical industry from time to time in terms of the trends in the growth of the pharmaceutical industry in India.

III. To analyse the operating performance of the pharmaceutical industry due to the introduction of globalisation in the Indian industries.

IV. To analyse the financial performance of the pharmaceutical industry due to the introduction of the globalisation in the Indian industries.

V. Finally, it attempts to offer suggestions to the policy makers based on the findings if any for better performance.

7.3 Methodology of the study:

In order to evaluate the effects of globalisation in the Indian industries in general and the operating and financial performance of the pharmaceutical industry in India in particular, the study has been conducted selecting six Indian companies and four MNCs all of them functioning in India both in the pre- as well as in the post-globalisation periods using the stratified random sampling method. Thus the selected sample units became:
Indian companies

1. Cipla, Ltd.
2. Dr. Reddy’s Laboratories, Ltd.
3. Ranbaxy Laboratories, Ltd.
4. J.B. Chemicals and Pharmaceuticals, Ltd.
5. Unichem Laboratories, Ltd.
6. Alembic Chemicals, Ltd.

Foreign companies

1. Glaxo (India) Ltd.
2. Pfizer (India) Ltd.
3. E. Merck (India) Ltd.
4. Abbott Pharmaceuticals (India) Ltd.

7.3.1 Method of collection of data:

The study has been based on the secondary data collected from the following sources. The data for the period from 1980-81 to 2002-03 about the performance of the pharmaceutical industry as a whole was collected from the publication of Organisation of Pharmaceuticals Producers of India (OPPI) and The Indian Drug Manufacturers Association (IDMA) data bank. To see the operating and financial performance of sample units the data being collected for the period from 1985-86 to 2002-03 has been obtained from the official directory of the Bombay Stock Exchange (BSE) and is supported by the annual reports of the companies. Wherever there was gap, it has been supplemented from the data available in the RBI bulletin, Annual Survey of Indian industries and the publications from CMIE. Apart from this, information is also tapped from journals, magazines and daily newspapers like Capital market, Express pharma pulse, Chemical weekly, Economic times, Business line, Financial express, etc.
7.3.2 Tools of Analysis

The data collected from the above sources are analysed with appropriate statistical tools consistent with the objectives of the study. Compound growth rate, simple accounting ratios, averages, ordinary least square regression equations, multiple regression analysis, chow test and Grubel Lloyd index have been used. These have been verified with the validity test like ‘F’ test and the result are verified with the students ‘t’ test. Graphs and diagrams were used wherever necessary to show the real position. SWOT analysis is also carried out to see the strength and weaknesses of Indian companies vis a vis the MNCs functioning in pharmaceutical industry in India.

The study conducted so is summarised as follows:

7.4 Government policy

At the time of independence, the whole pharmaceutical industry was controlled by MNCs. Because of this, prices of drugs were exorbitantly high and continued so till the 1970s. For the purpose of encouraging the domestic industries, the Government of India introduced some new strategies namely

1. The Indian patent act 1970
2. Drug price control order (DPCO)
3. FERA and
4. Increase in import tariffs.

In addition to the above strategies, the Government of India has also given importance to the growth of small-scale units in the form of

1. Exemption from licenses, excise duty, sales tax and price control and
2. Government incentives and subsidies for setting up of units.
Due to these changes, the market share of the Indian manufacturers which was almost nil at the time of independence started growing from 10 percent in the private sector, 10 percent in the public sector in 1970, to 48 percent in private sector and 2 percent in the public sector in 1982 and 67 percent in the private sector in 1991 whereas the MNCs which started with 100 percent in 1947 declined to 80 percent in 1970 and 50 percent in 1982 and 33 percent in 1991.

After globalisation, these policies of the government did not create a much favourable effect to the Indian companies. These enactments turned it in favour of MNCs. But still Indian companies showed an increase in the market share from 67% in 1991 to 75% in 2002, whereas MNCs declined from 33% in 1991 to 25% in 2002.

7.5 Growth of Pharmaceutical Industry:

The capital investment, which was just Rs 140 crores in 1965-66, increased to Rs.3900 crores in 2001-02 with an annual compound growth rate of 10. 61%. During the same period, the formulation production showed an increase from Rs.150 crores to Rs.24, 273 crores with a compound growth rate of 16.66%. The bulk drugs production has increased from Rs.18 crores to Rs.6, 528 crores with a compound growth rate of 19.55%. The imports has increased from Rs.820 crores to Rs.3, 640 crores with a compound growth rate of 4.62% whereas the exports also have drastically increased from Rs.305 crores to Rs.11, 760 crores with a high growth rate of 11.70%. R&D expenditure increased from a meager Rs.3 crores to Rs 550 crores with a compound growth rate of 17.11%. The number of bulk drugs manufacturing companies increased from 125 to 350 with a compound growth rate of 3.17%and the number of formulation manufacturers increased from 800 to 16000 with compound growth rate of 9.50%. This clearly
evidences that there had been a substantial growth in the pharmaceutical industry in all aspects.

The study have been carried out in three directions namely

1. Impact of globalisation on pharmaceutical industry as a whole by taking Indian and foreign companies together and comparing their performance between pre and post-globalisation periods using the parameters like production, consumption, Imports, Exports and R&D. Again the production, consumption, imports and exports comprises of bulk drugs and formulations and hence it is divided into these aspects and than the total.

2. Operating performance of sample Indian, foreign and pooled pharmaceutical companies for the pre and post-globalisation period and also overall periods.

3. Similarly comparing the financial performance of the sample units during the pre and post-globalisation and pooled periods.

7.6 Production:

The compound growth rate of bulk drugs production decreased marginally from 10.8% in the pre-globalisation period to 10.6% in the post-globalisation period. In addition to the compound growth rate, the multiple regression equations employed by using dummy variable representing “0” for pre-globalisation and “1” for post-globalisation periods, the bulk drugs production has shown a decline by Rs.3.80 crores during the transition period from pre- to post-globalisation. The compound growth rate of formulation productions has decreased from 10.6 to 10.4%. But multiple regression analysis have revealed that the formulation production have increased to the extent of Rs.624.88 crores during the transition period from pre- to post-globalisation period and it is significant at 5% level. Hence it is concluded that globalisation has affected a
favorable impact on formulation production in the pharmaceutical industry. When bulk drugs and formulation drug production are taken together i.e., total production, the compound growth rates have shown a decline from 10.6% to 10.5% during the two periods. Multiple regression analysis showed that the total production have increased to an extent of Rs 621.09 crores when the economy moved from pre- to post-globalisation period revealing that the globalisation has made some impact on the total production.

7.7 Consumption:

The compound growth rate of bulk drugs consumption has also increased from 10.3% to 10.7%. When the multiple regression analysis was used for the transition period from pre- to post-globalisation, the amount of bulk drug consumption has increased by Rs.35.9 crores. The compound growth rate of formulation consumptions has decreased from 10.6% to 10.2%. The multiple regression equation results using '0' for pre and dummy '1' for post-globalisation showed that the formulation consumption have increased by Rs.531.7 crores and it is significant at 1% level. Hence it can be concluded that the introduction of globalisation has produced a significant impact on formulation consumption in India.

When total consumption i.e. both bulk drugs and formulation drug consumption is analysed, the compound growth rate have showed a marginal decline from 10.5% to 10.3%. While the effect of globalisation is considered by using multiple regression analysis, it showed that the total consumption has increased by Rs.567.59 crores. It is significant at 10% level. Hence, it can be inferred that the globalisation has created some impact on total consumption on pharmaceutical products.
7.8 Imports:

The compound growth rate of bulk drugs imports have showed a marginal reduction from 11.1 to 10.7 but when the globalisation as a dummy variable is used, the bulk drug imports has increased by Rs.84.26 crores after the transition. The compound growth rate of the formulation drugs imports has decreased from 13 percent to 11.3 percent. As per the multiple regression equations calculated the formulation imports has decreased only by Rs.4.89 crores. The compound growth rate of total imports has decreased from 11.3% to 10.8%. As per the multiple regression equation worked out by using globalisation as a dummy variable, it has shown that the total imports has increased by Rs.79.37 crores. This leads to the conclusion that when the globalisation is used as a dummy variable it gives a contradictory result, otherwise, the bulk drug imports and formulation imports and the total imports have decreased, a good sign.

7.9 Exports:

The compound growth rate of bulk drugs exports has decreased from 14.3% to 10.9% during the two periods. The multiple regression equation worked out shows that the amount of bulk drugs exports has increased by Rs.44.56 crores after the globalisation. The compound growth rate of formulation exports has decreased by 0.3% (11.6%-11.3%) whereas when the multiple regression equation using the globalisation as a dummy variable is worked out, the formulation exports has increased by Rs.88.30 crores. As in the case of bulk drugs exports and formulation drug exports, the compound growth rate has showed an increase of 1.5% (12.6%-11.1%). But the multiple regression equation using the globalisation as a dummy variable, the amount of total exports has increased by Rs.132.86 crores.
7.10 Operating Performance of pharmaceutical industry in India:

7.10.1 Value added

With reference to value added, Ranbaxy has shown an increasing trend from 2.12% to 2.76% from the pre- to post-globalisation periods. All the other Indian companies have shown a decreasing trend during the period. All the Indian company considers together the compound growth has decreased from 8.65% to 2.75%. All the individual foreign pharmaceutical companies have shown a decreasing trend during this period, except Glaxo, which have shown an increasing trend (from 2.89% to 3.04%). Thus, all foreign companies considered together are showing a decreasing trend from 5.38% to 2.46%. When both the Indian and foreign companies considered together, it showed a decreasing trend from 6.97% to 1.92%. From the above, it can be concluded that the value added has decreased after globalisation. On comparing the Indian and foreign companies, the Indian companies have showed a higher growth rate in the pre-, post- and the whole period (8.65, 2.75, 25.00) compared to the foreign companies. In the latter the growth rates in the pre-, post- and whole periods are 5.38, 2.46, and 15.90 respectively. From the above, it can be concluded that with reference to the value added, the companies are in a better position than the foreign companies.

7.10.2 Low operating leverage:

There has been a decrease in the operating leverage in all the individual Indian companies except J.B.Chemicals, (which has maintained the same ratio of 2.40). So the trend of the operating leverage is downwards (from 2.95 to 2.48) for the pooled Indian companies. As in the case of Indian companies, the operating leverage ratio of the individual foreign companies also have showed a decreasing trend except for Abbot
laboratories ltd (which maintained the same level of 2.8). While comparing the Indian and foreign companies, Indian companies showed a higher value in the pre-globalisation period (2.95 as against 2.84) while the same is lower in the post- globalisation period (2.48 as against 2.80) as well as in the pooled periods (2.64 as against 2.82). For the pharmaceutical industry in India, the leverage ratio has decreased from 2.81 to 2.61 after globalisation. Considering the change in the operating leverage of both Indian and foreign companies, it can be said that globalisation has created a downward trend in the operating leverage in both the group of the companies.

7.10.3 Increased sales:

Capital, stock, wages and salaries and the total assets are some of the variables that may influence sales. The multiple regression equation worked out showed that the Stock, wages and total assets positively influence the sales in the case of Indian companies and foreign companies in both pre- and post-globalisation periods. Capital showed a negative influence on sales in the Indian companies for the post-globalisation period. For the whole period the influence of the above factors on sales is similar to that in Indian companies. The Chow test analysis showed that there is a significant positive shift in structural changes in foreign and pooled companies due to globalisation.

7.10.4 Low cost responsiveness ratio:

Among the Indian companies, all except Dr.Reddy’s, J.B.Chemicals and Alembic have showed a decrease in cost responsiveness ratio after globalisation. However the trend is increasing when all the Indian companies are taken together (0.97 to 1.49). Among the foreign companies, Glaxo and E-Merck have showed an increasing trend.
while Pfizer and Abbot have shown a decreasing trend. There had been a fall in the ratio from 3.45 to 0.98 when all the foreign companies are analysed together. The Indian and foreign companies together also have showed a decrease in the ratio from 1.32 to 1.28 over the period. While comparing the Indian and foreign companies, the ratio had been higher in the foreign companies (3.45 as against 0.97) in the pre-globalisation period, it became higher (1.49) in the case of Indian companies as against 0.98 in the foreign companies in the post-globalisation period. The ratio is found to be higher in the foreign companies in the pooled period. It leads to the conclusion that there had been a decrease in the cost responsiveness ratio in the pharmaceutical industry after globalisation a welcome sign.

7.10.5 Increased capital output ratio:

The capital output ratio of Cipla, Dr.Reddy’s and J.B.Chemicals have increased while that of Ranbaxy, Unichem and Alembic have decreased after globalisation. However, the trend is upward when all the Indian companies are analysed together (0.77 to 0.86). In the foreign companies, the ratio has increased for all the individual companies after globalisation leading to a higher value for the pooled foreign companies also (1.36 to 1.92). When the Indian and foreign companies are considered together, there has been a slight increase in the ratio from 1.02 to 1.28. For the Indian, foreign and pooled companies, the capital output ratios are 0.77, 1.36 and 1.03 respectively for the pre-globalisation period and 0.87, 1.92, 1.28 respectively for the post-globalisation period. This shows that the capital output ratio has increased after globalisation. This is also a welcome trend.
7.10.6 Decreased capital turnover ratio:

All the individual Indian companies except Alembic have showed a decrease in the capital turnover ratio after globalisation as also the pooled Indian companies. Similarly, all the foreign companies except Pfizer have shown a decrease in the capital turnover ratio after globalisation, while the ratio remains almost the same in the pooled foreign companies. The Indian and foreign companies together showed a decrease in the ratios from 4.03 to 3.12. While comparing the Indian and foreign companies, the ratio is higher in the Indian companies in the pre-globalisation period (3.99 as against 3.67) and lower in the post-globalisation-period (2.74 as against 3.70). The whole period analysis also showed a lower capital turnover ratio for Indian companies (3.16 as against 3.69). Hence it can be concluded that globalisation has created an unfavorable situation to the Indian pharmaceutical companies while facilitating the foreign companies.

7.10.7 Reduced fixed assets turnover ratio:

When considering foreign companies there has been a huge increase in fixed assets in the case of Glaxo and an appreciable increase in the case of Pfizer and Abbott. Only E.Merck shows a decrease in fixed assets from pre to post-globalisation period. As a result, the fixed asset for pooled companies has also increased during this period from 4.13 to 5.39. Thus the ratio in the pooled analysis has also increased from 3.70 to 3.80 from pre to post-globalisation period. Hence it can be concluded that globalisation had an adverse effect on the Indian companies with reference to the fixed assets turnover ratio while to the foreign companies it was favourable.
7.10.8 Low working capital turnover ratio:

All the individual Indian companies have shown a decrease in the working capital turnover ratio after globalisation except the Alembic. This decrease in the ratio for the individual companies has led to a similar decrease in the pooled analysis also. The WCT ratio of all the foreign companies other than Glaxo also have increased, marginally. Hence, by and large, the WCT ratios of all foreign companies have remained almost unchanged at a level of 2.00 both in the pre- and post-globalisation periods. The pooled analysis showed a decreasing trend from 2.08 to 1.76. However, while comparing the Indian and foreign companies, the WCT ratio are almost same in both the group of companies during the pre-globalisation period whereas it is higher (2.00) for the foreign companies in the post-globalisation period than the Indian companies (1.55). Therefore, globalisation has not created much benefit on the pharmaceutical industry in terms of working capital turnover ratio.

7.10.9 Marginal improvement in inventory turnover ratio:

The inventory turnover ratio has decreased for Cipla, J.B.Chemicals and Unichem whereas it has increased in Dr.Reddy's laboratories, Ranbaxy and Alembic after globalisation. The net effect in the pooled Indian companies is a downward trend from 4.89 to 4.65. In the case of foreign companies, all the individual companies showed an increase, thereby increasing the ratio for the pooled foreign companies also from 3.59 to 4.45. The Indian and foreign companies together revealed an increase in the ratio from 4.46 to 4.57. The comparison of the Indian and foreign companies showed that the ratios are higher in the case of Indian companies (4.89) than foreign companies (3.59) in the pre-globalisation period and also in the post-globalisation period (4.65 as against 4.45).
So also the ratio is higher for Indian companies in the pooled period (4.73 as against 4.08). Though the values are higher for the Indian companies than foreign companies, the declining trend in the case of the Indian companies reflects the unfavorable situation created by globalisation. However the pooled companies have shown a marginal increase in inventory turnover ratio (4.5 to 4.6).

7.10.10 Fall in debtors turnover ratio:

All the individual Indian companies except Alembic have showed a decrease in the Debtors turnover ratio after globalisation. When all them the analysed together the ratio have declined from 7.12 to 5.03 times implying an increase in the debtors collection period in the post-globalisation period. The same trend has been showed by the foreign companies also. The Debtors turnover ratio of all the foreign companies together has decreased from 10.32 to 7.95 times after the Globalisation. The debtors turn over ratio of the pooled companies also has decreased from 8.49 to 6.20 times. The lower debtors turn over ratio in the case of Indian companies than the foreign companies in all the three periods shows that the credit period offered by the Indian pharmaceutical companies are longer and liberal than the foreign companies, affecting the liquidity position of the Indian companies.

7.10.11 Favorable profit margin:

The operating profit margin ratio and the net profit margin ratio have showed the same trend in the Indian, foreign and pooled analysed during all the three periods. The margins have showed an increase in all the individual Indian companies after globalisation. Hence the margins are higher in the post-globalisation period also. Similarly, an upward trend has been seen in the individual foreign companies and also the
pooled foreign companies. The values are higher in the post- than pre-globalisation period for the pooled pharmaceutical companies also. The comparison of the Indian and foreign companies showed higher values for the Indian companies than the foreign companies for the pre-, post- and pooled periods. Hence it can be concluded that the globalisation has created a conducive environment for the pharmaceutical industry, in terms of profit margin.

7.11 Better financial performance:

The total debt ratio has showed a decline in all the Indian and foreign companies after globalisation. Hence the ratio for the pooled Indian and foreign companies also have decreased. In the pooled analysis, the ratio has decreased from 0.65 to 0.48. Between the Indian and foreign companies, Indian companies have showed a lower value (0.47) than the foreign companies (0.50) in the post-globalisation period.

Regarding the short-term solvency, the current ratio, liquidity ratio and cash position ratio of Indian companies have increased after globalisation. Whereas in the case of foreign companies the current ratio has remained in the same level of 1.4 in both the periods while the liquidity ratio and cash position ratio have increased over the period. On comparison of Indian and foreign companies, it is seen that the short-term solvency ratios are more in favor of the Indian companies.

The long-term solvency (measured in terms of fixed assets ratio, proprietary ratio and capital gearing ratio) showed that the fixed assets ratio has decreased for both Indian and foreign companies. The same trend is seen in the whole period also. On comparison, the Indian companies have showed higher ratio in the pre-, post- and the whole period. The proprietary ratio has increased for the Indian, foreign and all the companies after
globalisation. The Indian companies showed a higher proprietary ratio than the foreign companies after the Globalisation. For the whole period, foreign companies showed a higher ratio than the Indian companies.

Capital gearing ratio has decreased in Indian, foreign and all companies during pre- to post-globalisation period. The ratio is little higher in the Indian companies than in the foreign companies.

7.12 Increased level of Investments:

The Investment function of pharmaceutical industry may be dependent on dividend payout, financial leverage, and growth on sales, profitability and firm size. However the multiple regression analysis results showed that the growth in sales has influenced the investment function in the pre-globalisation period and dividend payout and growth in sales have influenced the investment function in the post-globalisation period in the Indian companies. In the foreign companies, the investment function was determined by growth in sales in the pre-globalisation period, and dividend payout, growth in sales and firm size in the post-globalisation period while dividend payout and growth in sales were the determinants of investments in the case of the pooled companies for both the periods. The chow test conducted showed that there is a structural shift in the investment function in the Indian, foreign and pooled companies due to globalisation.

7.13 Globalisation and its impact on financial leverage:

Leverage function on a pharmaceutical company may be influenced by deferred tax, dividend pay out, investments, profitability and firm size. It is however seen that only deferred tax in the pre-globalisation and deferred tax, profitability and firm size in
the post-globalisation periods have influenced the leverage function. In the foreign companies, deferred tax in the pre-globalisation and profitability in the post-globalisation periods have played significant role while the pooled companies were influenced by the dividend payout, deferred tax, profitability and firm size. The Chow test has revealed that there is a structural shift in the financial leverage in the case of Indian and the pooled companies only.

Dividend payout ratio has showed a slight increase in the post-globalisation period in the Indian companies whereas it has declined to half of its pre-globalisation level in the foreign companies. Hence, it can be said that globalisation has created a favorable situation for the Indian companies in this respect.

7.14 Improved dividend:

The dividend function of pharmaceutical companies is expected to be influenced by financial leverage, investments, liquidity, profitability and the firm size. However the multiple regression equations worked out using globalisation as a dummy variable and without it showed that only investments influenced the dividend function of Indian companies that too in the post-globalisation period, while profitability in the pre-globalisation period and firm size in the post-globalisation period have influenced the foreign companies. Investments, profitability and firm size determined the dividend function of the pooled companies. When the Chow test was used to find out the impact of the globalisation as a dummy variable, it showed that there was a structural shift in the foreign companies and pooled companies due to globalisation.
7.15 Findings

From the foregoing, analysis the following major findings have emanated.

I. The four important policy measures namely: Indian Patent Act (IPA) 1970 Drug price control order (DPCO) Foreign exchange Regulations Act 1973. Increased import Tariffs adopted by the government of India have benefited the Indian companies to

a. Succeed in producing molecules, at a cost lower than the original research cost,

b. DPCO facilitated the Indian companies to compete with the MNCs in the cost aspect,

c. To concentrate more on the manufacture of generic drugs, made the MNCs to reduce their operation in India,

d. Higher import tariffs decreased the imports of MNC's from their parent company

All these factors helped to strengthen the position of the Indian pharmaceutical companies to grow. The pharmaceutical industry grew in terms of capital investments, formulation production, bulk drugs production, Exports, foreign exchange earnings, increase in imports Research and development expenditure and lastly the number of bulk drugs manufacturing companies evidencing that there had been a substantial growth in the industry in all aspects after the implementation of the Globalisation policy in India.

II. Reversal of the policy as part of the globalisation programme in 1991,

a. DPCO was diluted and later control regime was changed to monitoring regime.

b. The FERA conditions were relaxed to favour the MNCs to invest in Indian companies and the introduction of FEMA still facilitated the investments of foreigners.

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c. India, being one among the 146 members of the WTO, is committed to reduction of the import tariff.

d. India should implement product patent in the place of process patent from 1.1.2005 onwards.

III. Impact of the Reversal of the policy changes and its effect

1. The Reversal of these policy changes — converted the favourable positions enjoyed by the Indian companies to a favourable one to the foreign pharmaceutical companies functioning in India. Still the net effect is the improvement in the market share of the Indian companies from 67 percent in 1991 to 75 percent in the year 2002. Where as MNC's market share has decreased from 33% to 25%. This is clear evidence that the globalisation of Indian industries have facilitated the pharmaceutical industry to develop its market share.

2. It has been found that the formulation production, formulation consumption, total consumption of medicines and foreign exchange earnings of the pharmaceutical companies have improved after the implementation of Globalisation with the Indian companies playing the major role.

IV. The increased formulations production and decreased formulation imports, the decreased bulk drugs production and also the increased in the bulk drugs imports after globalisation have revealed that “Indian pharmaceutical industry is shifting from the production and trading of less value added bulk drugs to high value added formulations”:

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V. The SWOT analysis on Indian pharmaceuticals R & D shows that several scientific techno-economic advantages outweigh the few inherent weaknesses. The opportunities are appealing and attractive and the threats are manageable.

VI. SWOT analysis on Indian pharmaceutical companies and MNC's reveal that Indian companies have several advantages and opportunities superceding its weakness and strength of the MNCs, creating a conducive environment for the Indian companies both in Indian as well as in the international market. It will be more if the weaknesses of the MNCs are exploited properly.

VII. The Indian pharmaceutical companies have shown a higher net value added as well as gross value added than the foreign companies in the pre and post-globalisation periods as well as in the pooled period. This by implication clears that Indian companies have benefited more by the changes than the foreign companies.

VIII. The cost responsive ratio has become favorable to the Indian pharmaceutical industry after globalisation. This may be because of the economies of large-scale operation as a consequence of globalisation.

IX. As per the study the debtors turn over ratio and inventory turn over ratio have decreased resulting in a decreased working capital turn over ratio. As a result of the decreased working capital turn over ratio and fixed assets turnover ratio the capital turnover ratio has reduced.

X. The operating profit and net profit ratio have increased in the post-globalisation period. The increased profit has been witnessed more in the case of Indian companies than in the MNCs.
XI. Globalisation has improved financial strength of all pharmaceutical companies in India in terms of current ratio, liquidity ratios and cash position ratio. On the other hand, Fixed assets ratio, Long-term borrowings have reduced, and Net worth has increased. Finally the overall solvency has highly improved.

XII. There is a significant shift in the dividend pay out and investments in the Indian pharmaceutical industry due to globalisation.

XIII. The explanatory variables like investments, profitability and firm size have played a significant role in determining the dividend payout in the Indian pharmaceutical companies during the post-globalisation period.

XIV. There is significant shift in the financial leverage in Indian companies but not in the foreign companies. The net effect of this has been a significant shift in the pooled companies also.

XV. A strange phenomenon has occurred in the Indian pharmaceutical industry. The operating and financial leverage has decreased inspite of significant changes in sales after Globalisation. The norm is “a high leverage is good when the sales are increasing and a low leverage is good when the sales are decreasing”. In the Indian pharmaceutical industry though there is a positive significant changes in the sales after globalisation, the leverage has been reduced. This is seen both in Indian and foreign companies in terms of both operating and financial leverage. This is different from the concept of leverage.
7.16 Suggestions:

On the basis of the foregoing findings, the following suggestions are offered:

I. As part of the globalisation programme in 1991, though the pharmaceutical industries improved after facing many policy changes, the very important fact the "product patent" which is being implemented with effect from 1.1.2005. To win this challenge, the Indian pharmaceutical industries will have to look into the following:

1. Though Indian companies R & D expenditure as a percentage of sales has increased, the increase is not at par with international expenditure of 10%, therefore the Indian companies should increase the R & D expenditure at least 5% as determined by IDMA and OPPI to cope with market.

2. R & D is highly risk oriented and this can be met out through the accumulated profit rather than the borrowed funds. Anticipating the future policy and WTO commitment, the government of India diluted the DPCO in order to raise the profit. Now Indian companies are in comfortable position as that of MNCs in net profit concern. This excess profit could be used for further investment in R&D instead of distribution to share holders.

3. India’s total science and Technology (S & T) budget is something like $2.5 billion against the Pfizer Company’s budget of US $ 5 billion and general motors, US $ 9 billion. But now the government support is essential. Unless the industry get much needed support from the government it shall become difficult for this industry to face the global market. Therefore India should increase the budget amount, in order to establish research centers, which will be highly useful to, small and medium scale industries and also to those who are unable to invest huge amount in the R&D.
II. Since the quantum of India's unfavorable balance of trade have been reduced by the pharmaceutical industry's exports especially by India reaching towards "only exporting country" the adoption of the appropriate production, exports and other tariff related policy within the boundaries of the W.T.O. agreement may help the India's Foreign trade to move towards favorable one. This may help to realize the Dream of vision 2020 of HIS Excellency DR. A.P.J. Abdul Kalam our most honoured President.

III. When the W.T.O is also giving room for such exceptions and also when developed countries like America take shelter under this provision, it is all the more important for a developing country like India to adopt such a policy especially in the sectors like pharmaceuticals and agriculture.

IV. Indian companies are having wide scope for generic drugs, even in some of the Indian companies products more than 50% are sold in the international market. Now the Indian companies financial strength and profit margin have also shown an increasing trend, hence Indian companies can spend some portion of profit for increasing the quality of medicines, technological development and to attend to complaints pertaining to WHO Good manufacturing practices, united states Foods and Drug Administration and UK MCA in order to give further boost to exports.

V. Since the Indian pharmaceutical industry has shown a shift in the production and trading from low value-added bulk drugs to high-value added formulations, there is a need for reinforcing this trend to increase the value of Indian market share in the world market commensurate with its share in volume in global market.

VI. Since the Indian pharmaceutical companies have faced with a decreased debtors turn over ratio while the foreign companies have faced a high turn over, the
Indian companies can go in for investing in brand building as this brand equity can help
the quicker realization of the debts. Other companies can follow CIPLA in this respect.

VII. The higher average levels of inventory in the Indian companies (when
compare to MNC’s) may be used to have higher inventory turn over also by way of
extensive marketing and distribution networks both in the Indian as well as international
market.

VIII. In the cases like Alembic, the operating profit margin has increased, but the
net profit margin has been a negligible one implying, that it had more of interest and
other charges. This can be corrected by reducing the debt.

IX. For the purpose of increasing the brand strength, extensive marketing and
distribution network in the domestic and international market should be established. This
in turn will increase the value for the Indian products, which in turn will increase the
market share in the domestic and world market. This will improve the India’s position
from 14th in the world market in this field to higher levels.

X. The Indian pharmaceutical industry is one of the largest among the developing
countries. In terms of volume, it is ranked fifth in the global pharmaceutical market.
However the global share of the Indian pharmaceutical market in terms of value is a
meager 1% making it the fourteenth largest in the world. This decline in the ranking is
due to low drug price, which can be improved by brand building in the domestic market
as well as abroad. This can be done by increased emphasis on formulation sales, which
requires a relatively high level of marketing infrastructure and selling and distribution
expenses.
XI. If the government of India makes proper policy support and direction is given, the Indian pharmaceutical industry can carve out a niche for itself in the global pharmaceutical market.

7.17 Conclusion:

At the time of Independence, the pharmaceutical industry in India was dominated by MNC’s with almost no role for the Indian companies. Indian companies however, started to grow since 1970 with the implementation of IPA 1970, DPCO, FERA 1973 and import tariff and came to dominating the industry in 1990. In 1991, the implementation of globalisation policy brought about reversal of the situation for the Indian companies and favorable to the MNC’s. Nevertheless, the Indian pharmaceutical companies showed significant improvement in formulation production, formulation consumption and total consumption, decrease in the formulation imports, decrease in the bulk drugs production, increase in bulk drugs imports and also increase in the foreign exchange earnings.

The performance of the Indian pharmaceutical industry as measured through various parameters, has shown that there had been increase in the production, consumption, exports and foreign exchange earnings and decreased in the imports as a result of globalisation. The exports and imports of pharmaceuticals have shown that India is moving towards “only exporting country” with reference to pharmaceuticals.

The liquidity position and short-term solvency positions have improved. The long-term debts have decreased. Because of this even though sales have increased, the operating and financial leverages are not favourable to the Indian pharmaceutical industry. The multiple regression and chow tests conducted have shown that there existed a structural shift in pharmaceutical industry due to the globalisation.
With reference to the operating and financial performances, different ratios have different results. Some are consistent and some other ratios have given a divergent results even though, the study has revealed that there are positive effects of globalisation on some vital areas, still there are areas where the globalisation seems to have not created any impact. To conclude, by and large it has worked favorably to Indian industries in general and pharmaceutical industry in particular.

7.18 Scope for further research:

1. Indian pharmaceutical industry is a highly fragmented one. It is divided into two viz. organised and unorganised sectors. Though the unorganised sector in the Indian pharmaceutical industry contributes to less than ten percent of the market share, it is a major player in terms of the number of units functioning and employment opportunities offered to our nation. Hence under the present changing scenario, a study on the impact of these policy changes on small-scale units is very essential.

2. The balance of payment of the Indian pharmaceutical industry has been increasing at a faster rate during the post-globalisation period. However, under the present changing policy, in order to maintain the same trend, determining what strategies are to be implemented by the Indian industries and what policies are to be implemented by the government of India is a fertile field for researchers. Hence a study to identify these strategies and policies is essential.